RECEIVED
NOV 04 2014
WR IR-4

IR-4
FIELD DATA BOOK

RECEIVED
NOV 06 2015
WR IR-4

TITLE: IMIDACLOPRID MAGNITUDE OF THE RESIDUE ON CORN (SEED CROP)

PR# 11270

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

RECEIVED
OCT 24 2016
WR IR-4

SPONSOR

IR-4 Project Headquarters
500 College Road East, Suite 201 W
Princeton, NJ 08540
(732) 932-9575, FAX# (609) 514-2612

RECEIVED
DEC 08 2016
WR IR-4

STUDY DIRECTOR

Keith Dorschner
Phone extension 4615
Dorschner@aesop.rutgers.edu

IR4-Field Data Notebook Review Checklist

Field Research Director:	Julie Coughlin	Reviewer: Stephen Flanagan
Study Title:	Imidicloprid Magnitude of Residue on Corn (Seed Crop)	
Study Director:	Keith Dorschner	
Test Site Location:	Waialua, Hawaii	

Please fill out the following checklist and explain any deficiencies in an email or other electronic document.
Please note: Any problems which are likely to affect the study's integrity found during the course of this review must be brought to the attention of the Study Director immediately.

RECEIVED
DEC 08 2016
WR IR-4

Field Trial Critical Events Log

Event	Date	Temperature Log Dates
Test substance receipt	11/18/14	10/8/14 –
Test substance applications	8/10/15 & 9/14/15	9/2/15
Sampling	8/10/15 –	8/05/15 –
Sample Shipping and Receipt	9/14/15	10/1/15

OK JT

OK JT

Parts 1,2,3. GLP		YES	NO	N/A	In Fac. File?
1.	Chain of Custody for Field Data Book completed	✓			
2.	Codes for data changes included	✓			
3.	SOPs referenced or present (Part 1, A)	✓			
4.	GLP Compliance Statement signed by Field Research Director (Part 1, B)	✓			
5.	Study personnel signatures complete (Part 2, A)	✓			
6.	Qualifications summary (cvs, training records) (Part 2,B)	✓			
7.	Notes and Communication Log completed (Part 3)	✓			
8.	Notes with sufficient detail to reconstruct what was done	✓			
9.	All in use pages signed and dated	✓			
10.	All entries properly dated and initialed	✓			
11.	Pages properly identified (Test Substance/Crop/Field ID No.)	✓			
12.	All unused pages removed or lined out, initialed and dated	✓			

Part 4. Test Substance		YES	NO	N/A	In Fac. File?
1.	Chemical Receipt, Storage, and Disposition (Part 4, A)	✓			
	a. Date received and/or placed in storage	✓			
	b. Name on label	✓			
	c. Batch/Lot number	✓			
	d. Expiration date of test substance and source (mfg.)	✓			
	e. Amount received	✓			
	f. Type and condition of container	✓			

	g. Chemical receipt (exact copy in raw data) or Certificate of Analysis	✓			
2.	Chemical Use Log (completed/documented (Part 4, B)	✓			
3.	Disposition of remaining compound / containers documented (Part 4, C)	✓			
4.	Identification and Receipt of Spray Additives (Part 4, D)	✓			
	a. Expiration Date?	✓			
	b. Storage conditions provided?	✓			
5	Chemical storage building temperature log (temperatures/temperature range -receipt to last application) (Part 4, E) **(RDFN: Section 4C)**	✓			
6.	Balance calibration check (bracketing of weights for test substance) (Part 4, F) **(RDFN: Section 4D)** for micropipetter ✓	✓			

Part 5. Trial Site		YES	NO	N/A	In Fac. File?
1.	Directions to trial site (map included) (Part 5, A)	✓			
2.	Directions to test plot (map included) (Part 5, B)	✓			
3.	UTC and TRT Plot layout (detailed, accurate and neatly drawn, with actual plot size and permanent reference noted, distance of UTC to TRT, prevailing wind direction, approx. slope of the plots) (Part 5, C1 & C2)	✓			
4.	Soil characterization (GLP soil analysis or SCS survey data) (Part 5, D)	✓			
	a. % sand / silt / clay	✓			
	b. % organic material or % organic carbon	✓			
	c. pH	✓			
5.	Pesticide/fertilizer history documented. (Part 5,E) Number of years? fallow < trial 3	✓			
6.	Test crop records (variety, species, source, lot no., age) (Part 5, F)	✓			
7.	Row width	✓			
8.	Plant spacing	✓			
9.	Cultural practices (cultivation, etc.) adequately documented (Part 5, G)	✓			
10.	Maintenance chemicals (fertilizers/pesticides) use documented (Part 5, H)	✓			
	Transplant and/or treated seed use documented	✓			
11.	Crop Destruct: has a description been provided to adequately explain crop destruction or handling so that the crop is not consumed by human or animal. Date of destruction and source of info? (Part 5, I)	✓			

Part 6. Application		YES	NO	N/A	In Fac. File?
1.	Application equipment description (Part A); Diagram/photograph (Part B)	✓			
2.	Application calibration accurate, verified, and according to protocol and SOP (Parts 6: C, D, E, F, each application) **(RDFN: Section 4E/F)** Foliar App #1 < 95%, deviation	✓		✓ (Foliar app #1)	
	a. Calibration records (If "NO," contact Study Director immediately)	✓			
	b. Rate calculations (If "NO," contact Study Director immediately)	✓			
3.	Treatment Information (Part 6, G)	✓			
	a. Incorporation, method, depth and time	✓			
	b. Measuring equipment used	✓			

	c. Mixing order 5X apps 2X soil, 3X foliar...	✓			
	d. Stage of growth of test crop	✓			
	e. Wind speed/direction & Air temperature	✓ ✓			
	f. Sky (cloud cover) & Humidity	✓✓			
	g. Pass times and application narrative (Part 6, I) **(RDFN: Section 6J)**	✓			
	h. Post application rate confirmation (Part 6, J)	✓			
5.	Post treatment records (date/amount of first rain and first irrigation after each application)(Part 6, J). Also any phytotoxicity noted (Part 6, K)	✓			
6.	Trial Differentiation Guidelines L1: Relevant (y/n) L2: Trials sufficiently differentiated?	✓			
7.	Equipment maintenance log (sprayers, hobos, etc.)(Part 6, M)	✓			

Parts 7, 8	Sample Collection and Shipment	YES	NO	N/A	In Fac. File?
1.	General sampling information (harvest/sample dates, PHI) (Part 7, A)	✓			
2.	Method of sampling (Part 7, A) Description (Part 7, A2)	✓			
3.	Processing sampling (if applicable)		X		
4.	Sample inventory (Part 7, B)	✓			
5.	Interval from sampling to freezing (Notify Study Director immediately in the case of freezer failure and/or loss of sample integrity) (Part 7, B)	✓			
6.	Freezer temperature log (temperatures/temperature range - harvest to shipment) (Part 7, C) **(RDFN: Section 7D)**	✓			
7.	Freezer contents log (do dates match sampling log? - check-in and check-out of samples) (Part 7, D) **(RDFN: Section 7C)**	✓			
8.	Freezer maintenance log (Part 7, E) **(RDFN: No specific prompt)**	✓			
9.	Residue sample shipping information and date to carrier (Part 8, A)	✓			
10.	Sample chain of custody form in raw data (Part 8, B)	✓			
	a. Fed Ex receipt/ACDS bill of lading included/other	✓			
11.	Confirmation of receipt by lab included	✓			

Part 9.	Meteorological/Irrigation	YES	NO	N/A	In Fac. File?
1.	Field trial daily weather records (temp and rainfall from first application to harvest). Also, location of weather record collection and meteorological data (Part 9, A)	✓			
2.	Field trial daily weather records (irrigation - amounts and/or schedule of irrigation events) (Part 9, A supplement)	✓			
3.	Additional meteorological data / on-site observations / comments (Part 9B)	✓			

Part 10.	Additional Information	YES	NO	N/A	In Fac. File?
1.	Original Protocol signed (Part 10, A)	✓			
2.	Protocol amendments included (Part 10, A)	✓			
3.	Deviations noted and Study Director Informed	✓			

Stephen Flanagan

From: Julie Coughlin <jcoughli@hawaii.edu>
Sent: Tuesday, November 29, 2016 3:46 PM
To: Stephen Flanagan
Cc: 'Keith Dorschner'; Rebecca Sisco; Mika Pringle Tolson
Subject: RE: QC Review 11270.15-HI196 Imidicloprid Corn Coughlin
Attachments: QC Review 11270.15-HI196 Imidicloprid Corn Coughlin 02.docx; Stover Presample Weights 11270.15-HI196.pdf

Stephen,

Attached please find my response to your QC review for PR 11270.15-HI196. Should I mail the original pages that have the stover pre-sample weights, or is the scan sufficient?

Thanks!

Julie

From: Stephen Flanagan [mailto:srflanagan@ucdavis.edu]
Sent: Wednesday, November 23, 2016 1:18 PM
To: Julie Coughlin <jcoughli@hawaii.edu>
Cc: Keith Dorschner <dorschner@AESOP.Rutgers.edu>; Rebecca Sisco <rsisco@ucdavis.edu>; Mika Pringle Tolson <mptolson@ucdavis.edu>
Subject: QC Review 11270.15-HI196 Imidicloprid Corn Coughlin

Julie:

Attached is my QC review of your SECOND excellent & detailed Seed Corn notebook. Please address these questions after the break and I'll make any necessary changes.

Thanks for your work in support of US specialty crop growers,

S

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Stephen Flanagan
Assistant Regional Field Coordinator
Western Region IR4
541-688-3155

12/2/16

Part 3, Page 16a

FRD: Julie Coughlin
Study Director: Keith Dorschner
Location: Waialua, Hawaii

Reviewer: SR Flanagan
Date: 11/23/16

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Julie:

Attached are my comments regarding the QC review of your above mentioned IR4 field data notebook. Please respond **within two weeks** to the listed concerns and I will make any changes to the notebook per your responses. You will be copied with any pages that are edited before your notebook is forwarded to IR4 QA.

Sincerely,

Stephen

1) Part 4, Page 2: What is the location of the shipping container? Please provide and I will add this information.

The shipping container (a cardboard box) was recycled. The shipping label was removed from the shipping container and taped to a piece of paper. This paper is in the study file in my office at the University of Hawaii.
JC 11/29/16 Note added SF 12/2/16

2) Part 4, Pages 3 & 4: GLP Chain of Custody: This documentation from the manufacturer states 2 containers were received for studies listed as HI196 & HI197. May I assume that one container was used for this study and the second was used for HI197? If so I will add a note with your direction.

Yes, please add a note that one container was used for this study, and the other container was used for HI197.
JC 11/29/16 Notes added to Part 4, Page 1, SF 12/2/16

3) Part 6, Page 3: Excellent drip system diagram. Was there a backflow preventer/check valve located between the injector and the well head? If so I will add a note with your permission.

No backflow preventer device was used because the water source was non-potable and was not connected to any municipal water source. Part 6, page 4 has a footnote explanation.
JC 11/29/16 ✓ SF 12/2/16, no changes

4) Part 6, Page 40: Hands down the University of Hawaii Field Research Group wins the 2016 "Whoa Look at that Spray Boom!" Memorial Award - quite a handful!

Mike's brilliant design! *JC 11/29/16*

Part 3, Page 16b

5) Part 6, Page 74: Inserted Part 6J Page from 11270.14-HI196, please allow me to correct the rounding error on this page.

Yes, please correct the rounding error to +1%. corrected, AF 12/2/16
JC 11/29/16

6) Part 7, Corn Stover Moisture Estimation, Pre-Samples, Page 20: Were there any weights recorded as the samples approached no weight change? If so please provide for inclusion. If the weights were not recorded, how did the researcher remember the weights for all six samples between readings?

Yes, the weights were recorded but I inadvertently did not include them in the field data notebook. See attached weight sheet to be included in the field data notebook.
JC 11/29/16 Inserted original from JC, AF 12/2/16

Part 3, Page 16c

TRT Date	TRT Number	TRT Area Length (Feet)	# of Nozzles	Nozzle Spacing (Inches)	Swath Width (Feet)	# of Passes	Treated Area (Sq.Ft.)	Total Pass Time (Sec)	Vol. of form. Used (ml)	Vol. of Carrier (ml)	Vol of Adj. (ml)	Total Mix Vol. (ml)	Adj %v/v	Boom Discharge Rate (ml/sec)	Calc. Del. Rate (ml/A)	Calc. Del. Rate (gal/A)	form/ Acre (gal/A)	Conc. of Form (lb ai/gal)	Actual Rate (lb ai/A)	Protocol Rate (lb ai/A)	% Dev.
Calculations					(D*E)/12		C*F*G					J+K+L	(L/M)*100		((O*I)/H) * 43560	P/3785	(Q*J)/M		S*R		((T-U)/U)*100
27-Jul	03	100	6	20	10	1	1000	69.13	1.07	7821	9.17	7831	0.117%	94.5	284568	75	0.01	4.600	0.047	0.047	1%
3-Aug	03	100	6	20	10	1	1000	72.84	2.12	7821	9.17	7832	0.117%	95	301426	80	0.022	4.600	0.099	0.0934	6%
10-Aug	03	100	6	20	10	1	1000	74.41	2.12	7821	9.17	7832	0.117%	94.61	306659	81	0.022	4.600	0.101	0.0934	8%
Interval								Wet: All applications within SD approved commercial practices.					oz/100gal	%v/v							
7													15	0.117%	Grower practice						
7													25	0.195%	Low label rate						
Soil-Irrigation Injection Apps																					
21-Jul	02	100		20			2000		18.93								0.109	4.600	0.501	0.5	**0.21%**
21-Jul	03	100		20			2000		10.22								0.059	4.600	0.271	0.27	**0.19%**

Soil Applications, all test substance applied to plot, 100% of target.

Part 3, Page 16d

12/2/16

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Application Type: Broadcast Liquid

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196

Field ID No. Coughlin

CHAIN OF CUSTODY FOR IR-4 FIELD DATA BOOK

FIELD RESEARCH DIRECTOR: Julie Coughlin

After receipt of this IR-4 Field Data Book, the Field Research Director shall start the chain of custody log by completing the first part. Once raw data entry has begun in the Field Data Book, the data books are to be in the custody of the Field Research Director (or personnel under the Field Research Director's supervision). When the Field Data Book is transferred to another individual (e.g. sending completed Field Data Book to IR-4 Regional Field Coordinator), the sender must note to whom and when the data book is sent. **The recipient must sign the next block and date the form upon receipt.**

Signature of Field Research Director: Julie Coughlin Date: 11/14/14

Printed name: Julie Coughlin Initials: JC

Field Data Book sent/given to: Rebecca Sisco Date Sent: 11/4/15

Signature of recipient: Jackie Hale for Rebecca Sisco Date Received: 11/6/15

Printed name of recipient: Jackie Hale for Rebecca Sisco Initials: JH

Field Data Book sent/given to: Nathan Leach Date Sent: 8/10/16

Signature of recipient: Nathan Leach Date Received: 8-12-16

Printed name of recipient: Nathan Leach Initials: NL

Field Data Book sent/given to: Rebecca Sisco Date Sent: 10.20.16 (1)

Signature of recipient: Rebecca Sisco Date Received: 10.24.16

Printed name of recipient: Rebecca Sisco Initials: KS

Field Data Book sent/given to: Stephen Flanagan Date Sent: 10/24/16

Signature of recipient: S.P. Flanagan Date Received: 10/26/16

Printed name of recipient: Stephen Flanagan Initials: SF

Field Data Book sent/given to: WRIRA Group @ UC Davis Date Sent: 12/5/16

Trial Year 2015

(1) Email notification (LE) KS 10.24.16

Field ID No _____

Additional Chain of Custody Signature Blocks: **DO NOT LINE OUT THIS PAGE!**

Signature of recipient: Rebecca Sisco Date Received: 12-8-16

Printed name of recipient: Rebecca Sisco Initials: RS

Field Data Book sent/given to: Tammy White Barksdale Date Sent: 12/9/16

Signature of recipient: _____ Date Received: _____

Printed name of recipient: _____ Initials: _____

Field Data Book sent/given to: _____ Date Sent: _____

Signature of recipient: _____ Date Received: _____

Printed name of recipient: _____ Initials: _____

Field Data Book sent/given to: _____ Date Sent: _____

Signature of recipient: _____ Date Received: _____

Printed name of recipient: _____ Initials: _____

Field Data Book sent/given to: _____ Date Sent: _____

Signature of recipient: _____ Date Received: _____

Printed name of recipient: _____ Initials: _____

Field Data Book sent/given to: _____ Date Sent: _____

Signature of recipient: _____ Date Received: _____

Printed name of recipient: _____ Initials: _____

Field Data Book sent/given to: _____ Date Sent: _____

FIELD DATA BOOK REVISIONS FOR TRIAL YEAR 2015

Revisions have been made in response to suggestions made by Field Cooperators, Regional Field Coordinators, Quality Assurance professionals, Study Directors, and EPA Auditors. They are intended to prompt for additional information where needed, to reduce misunderstandings of the data prompts, and to facilitate the transcription of the data into final reports.

	Chain of Custody moved to pages 1-2 of the Field Data Book. This list of changes is now on page 3.
	DO NOT paste "Trial Year 2015" onto an old version of a Field Data Book page.
	PAGES ADDED TO THE FIELD DATA BOOK AFTER INITIAL PAGINATION **IMPORTANT: The information below is added by the person who inserts the new pages into the Field Data Book, not the field cooperator who is sending the new pages.** (Field personnel who are submitting additional pages to a QC reviewer or to the Study Director should NOT enter page numbers, initials/dates in this section—this is for the QC reviewer or SD who is receiving the pages.)
1B	GLP COMPLIANCE: ADJUVANT LABELING AND RECEIPT INFORMATION (check missing items): Receipt of the adjuvant at the field facility (usually the purchase date): _____ Identity and concentration of the adjuvant (on the adjuvant label): _____ Recommended storage conditions (on the adjuvant label): _____ Expiration date (if not on the label, then assigned by field personnel): _____
2C	(New) Training summary for temporary/seasonal personnel involved with the trial.
4D	**The use of adjuvants with the test substance must be approved in the protocol or in a protocol amendment. Adjuvants are considered to be reagents, not test substances. No GLP characterization is expected, but the GLP compliance statement must indicate if information pertaining to the receipt of the adjuvant at the field facility (usually the purchase date), recommended storage conditions (from the adjuvant label), identity and concentration of the adjuvant (also from the label), or the expiration date (either from the label or assigned by field personnel) is missing or incomplete.** "Spray additives" are now referred to as "adjuvants", in order to be consistent with the protocol instructions. (The two terms are synonyms when referring to materials that are added to a tank mix of water and an agricultural pesticide for the purpose of improving the performance of the pesticide.) It is no longer necessary to transcribe the active ingredient onto this page. An expiration date should be assigned if none is indicated on the label of the adjuvant. A prompt has been added to this page for "Storage Conditions". These changes have been made in response to comments from EPA and also to further harmonize with the Canadian Research Data Field Notebook (RDFN). Because the adjuvant label is inserted in the FDB, the prompt for entry of the active ingredient has been deleted.
5C	*Distances to permanent landmarks from at least two plot corners per plot* *(Optionally from two plot centers per plot for perennial crops)* ***OR GPS coordinates for each corner of the plot***** (This is to clarify that GPS coordinates may be used instead of distances to permanent landmarks; see 5C for details.)
5E	*Enter all pesticide and fertilizer applications for the time period specified in the protocol, a minimum of 1 year prior to planting of an annual crop or 1 year prior to the cropping cycle of a perennial crop (e.g. all chemicals needed to produce that crop of peaches).*
5G	*List all soil preparation and crop maintenance activities (e.g., cultivation, pruning) performed on test site from the harvest of the previous crop until the residue samples are collected. If no crop was grown on the test site, collect data for a period beginning one year prior to planting the current crop.* (Changed from one year prior to first application)
5H	*Enter all maintenance pesticide and fertilizer applications during the trial. Include all chemicals necessary to produce the crop. (Row crops begin at first fertilizer, plowing and bed formation. Perennial crops include all maintenance materials necessary to produce that crop of fruit.)* (Clarification provided)
6A	DOES TREATED AREA (for application rate calculations) = PLOT AREA (from Parts 5C and 5F)? YES__ NO__ (For foliar directed and soil directed applications, check "YES" above unless local commercial row widths are used instead of the actual row width on the research plot. This prompt is intended to help data reviewers calculate the application rates correctly.) (This is a clarification of what has always been expected.)
6C	Discharge calibration section has been split into two pages—6.C.1 and 6.C.2. The bottom half of 6.C.1 is blank in order to create more room for calculations. The output table is on 6.C.2 and is now oriented vertically—this has allowed the individual cells for entry of the output data to be enlarged. (A horizontally-oriented table for up to 6 nozzles is available on the IR-4 website.) The spray pressure (PSI) has been moved near the top of 6.C.1 into the table on 6.C.2, with a separate entry needed for each calibration run. These changes also make the IR-4 table more similar to the Canadian RDFN table.
6L2	**Some options included in this table may not be acceptable for use in this study. Refer to Protocol Section 11.4 for the study-specific list of options.**
8A	A second signature line has been added to this page, so that the shipping address and laboratory contact information can be entered on one date (and initialed/dated on that date) and the rest of the information can be entered on the date of shipping (and initialed/dated on that date).

GENERAL INSTRUCTIONS FOR THE COMPLETION OF THE IR-4 FIELD DATA BOOK

This book is designed for use in collecting data in the course of completing a field trial sponsored by the IR-4 Project that **must** be conducted in compliance with the EPA or OECD Good Laboratory Practice Standards. It has been extensively updated in recent years. **DO NOT USE PAGES FROM FIELD DATA BOOKS FROM PREVIOUS YEARS. DO NOT PASTE "Trial Year 2015" ONTO AN OLD VERSION OF A FIELD DATA BOOK PAGE.** (Inserts such as bills of lading do not need to have the Trial Year; field ID# and page# are sufficient.) This Field Data Book (**FDB**) is an authentic record of your work. The IR-4 FDB is divided into Parts, each containing the following information:

PART NO.	SUBJECT
PART 1	GOOD LABORATORY PRACTICE COMPLIANCE INFORMATION
PART 2	PERSONNEL LOG
PART 3	NOTES AND COMMUNICATION LOG
PART 4	TEST SUBSTANCE RECORDS (Receipt/storage/disposition records, test substance use log)
PART 5	TRIAL SITE INFORMATION (Maps, soil characterization information, crop/pesticide history, and test crop records)
PART 6*	APPLICATION RECORDS (General equipment information, equipment calibration records, delivery rate calibration/calculations, treatment information, and environment records during treatment)
PART 7	SAMPLE COLLECTION AND STORAGE (General sampling information, sample balance calibration, sample log, freezer temperature and inventory)
PART 8	RESIDUE SAMPLE SHIPPING (Residue sample shipping forms)
PART 9	WEATHER AND IRRIGATION RECORDS

PROTOCOL & PROTOCOL CHANGES (formerly Part 10)–This part may be kept in the back of the FDB, or moved to the front of the FDB (ahead of Part 1), or inserted between other FDB Parts.

*Part 6 is available in a version specific for airblast applications. If you intend to apply the test substance in this study via airblast and have not received the pages entitled "PART 6. APPLICATION RECORDS-AIRBLAST SPRAYER", then you should contact the Regional Field Coordinator, or print the pages from the IR-4 website: **http://ir4.rutgers.edu/Fooduse/Fieldbook/index.htm**

If the instructions below are followed, the IR-4 FDB can serve as both a scientific record and a legal document. Failure to comply is not necessarily a protocol deviation, but will result in time-consuming follow-up work by the Study Director, Regional Field Coordinator, QA Officer, and/or the Field Research Director.

1. One copy of each form (template) has been provided. However, some forms require completion of that form on various dates (e.g. Treatment Information Form must be completed for each application date). Prior to entering data, make appropriate number of photocopies of the template(s). Insert the Field ID on each page. If additional templates are needed, contact the Regional Field Coordinator, or print them from the IR-4 website: http://ir4.rutgers.edu/FoodUse/FieldBook/index.htm

2. Some data requested on a form can be applicable to more than one IR-4 field trial. When this occurs, a verified true copy of the completed form can be made and inserted in the proper Part(s) of other IR-4 FDB's. A verified true copy is made by marking on the page which is copied that "THIS IS A TRUE COPY OF ORIGINAL" or similar statement, noting which IR-4 FDB or other documents contain the original and having the person responsible for verifying the copy, initial and date the verification statement. In general, Parts 6G, 6H, 6I, 7A, and 7B should not be copied; they should have original entries. Contact the Study Director if a possible exception exists.

3. Staples and paper clips should not be used on pages in the FDB. Photographs and small pieces of paper with data should be taped to a standard-sized, blank piece of paper.

4. Follow all directions on how to complete the FDB carefully. When completing forms, you should enter all of the requested information, if possible. If a particular form or section of the form does not require a response, make a line-out (diagonal line from the top of the page or field to the bottom), then initial and date the line-out or the bottom of the page. If the requested data are not applicable, give an explanation. Some forms allow the submission of equivalent information versus completion of forms (e.g. verified true copy of recording temperature monitor printout instead of completing the temperature log).

5. All entries should be clear, understandable, legible, and made with a ballpoint pen in **indelible blue or black ink**. Changes to the raw data can only be made by **drawing a single line** through the original entry so as not to obscure it. The date, signature (or initials) and reasons for change (brief description or Error Code) must accompany any change. Acceptable Error Codes include:

AW=Accidental Write-over	**LE=Late Entry**	**SP=Spelling Error**
CE=Calculation Error	**ME=Measurement Error**	**TE=Transcription Error**
EE=Entry Error	**NA=Not Applicable**	**UE=Unnecessary Entry**
IE=Illegible Entry	**NI=New Information**	**NR=Not Recorded**
IW=Inappropriate Word	**PE=Pagination Error**	**WE=Wrong Entry**

Other error codes can be used; however, the codes must be outlined in an approved SOP or noted in this IR-4 FDB. Circling error codes is not required, but may be done for clarity.

6. **Do not write on the back of any page in the FDB. Do not insert 2-sided documents (pages with printing on both sides) in the FDB. If necessary, make one-sided copies of 2-sided documents for the FDB, and save the original in facility files. The MSDS for the test substance is not needed in the FDB, though a copy should be retained by the field personnel at each trial.** The *OBSERVATIONS, EXPLANATIONS AND COMMUNICATION LOG* (Part 3) can be used to record observations, notes, phone calls, correspondence, and other events that have no specific place in the IR-4 FDB. Also, if there is not enough space in a section of a form to record the complete entry, add another page, or make a reference to Part 3 and complete the entry there.

7. If entries are made on a page over more than one day, each day's entry must be initialed and dated. When more than one person enters data on a page in one day, each of the initials (or signatures) must be dated. Data that have been recorded on non-FDB pages that are being inserted into the FDB must be initialed and dated, even if the data are also transcribed onto an FDB page. Multi-page documents, which are themselves paginated, may be inserted into a FDB with initial and date on either the first or last page only.

8. The FDB should be complete when submitted, with the permissible exceptions of laboratory receipt forms, certificates of analysis, and protocol deviation forms that have been signed by the Study Director. Occasionally, additional exceptions may be made with the permission of the Regional Field Coordinator. Do not make a notation that the requested information will be submitted at a future date. Make a certified, true copy that includes each page of the IR-4 FDB for your records. **Send the original to the designated Regional Field Coordinator.**

9. If there are any questions on how to conduct research or capture information in the IR-4 FDB, contact the Study Director and the Regional Field Coordinator. Additionally, the Study Director should be contacted if:
   - ☐ the protocol requires changes
   - ☐ unforeseen or unavoidable circumstances force a change from protocol directions
   - ☐ actual application rate deviates more than - 5% or +10% from the protocol rate

PAGINATION INSTRUCTIONS FOR THE FIELD DATA BOOK

Initial pagination of the Field Data Book:
Pages should be numbered consecutively within each Part, starting each Part with Page 1. Do not paginate sub-parts separately. (There should not be Part 6A, page 1, followed by Part 6B, page 1. Part 6 is paginated as 1, 2, 3... until the last page in Part 6.) **When an FDB Part is initially paginated, the total number of pages in that part is entered at the bottom of page 1 next to the words "Total number of pages in this section at initial pagination".** It is not necessary to enter this total on each page within the section. All pages, including those not originally part of the FDB (such as Bills of Lading), should be paginated and identified with the field ID number. Pages in the Protocol/Protocol Changes section do not need pagination, but should be identified with the field ID number. Pages in Part 6 should be grouped by application#. I.e. all of the pages related to application #1 should come first, followed by all of the pages related to application #2, and so on.

Additional pages inserted into the Field Data Book after it has been paginated:
If a page is added after the FDB has been paginated, number that page with the previous page number and a letter. E.g. a page inserted after Part 6, page 15, would be Part 6, page 15A. If two pages had been added here, the second page would be Part 6, page 15B. The total number of pages that had been entered on page 1 is not revised. The addition of these pages to the Field Data Book must be noted on the table on the next page, with the initials of the person who inserted the pages and the date of entry. **Each row of the table should include only pages entered within one Part on one date (see example below); however all entries made on one date should be initialed and dated as a group. After all new pages have been entered on a particular date, a horizontal line must be drawn across the "Initials" and "Date" column to indicate which entries are confirmed by the initials and date above the line. This page should be kept just in front of the divider for Part 1.** Unused portions of this table should not be lined out.

Example: PAGES ADDED TO THE FIELD DATA BOOK AFTER INITIAL PAGINATION			
FDB Part	**Identity of inserted pages (e.g. 6A-B, 9A)**	**Initials**	**Date**
6	7A, 14A	GrL	8/8/15
7	2A, 14B		
4	3A-C	Rs	10/1/15
5	1A	KH	2/28/16
6	7B-F, 14C, 20A		

IR-4 HQ/October 2014
New Jersey Agricultural Experiment Station Publication No. A-27200-03-93.
Supported by State, U.S. Hatch Act, and other U.S. Department of Agriculture Funds.

PAGES ADDED TO THE FIELD DATA BOOK AFTER INITIAL PAGINATION
IMPORTANT: The information below is added by the person who inserts the new pages into the Field Data Book, not the field cooperator who is sending the new pages.
(See Page 4 for instructions on entering multiple pages on the same date—you only need to enter initials once on each date!)

FDB Part	Identity of inserted pages (e.g. 6A-B, 9A)	Initials	Date
3, 16a-d	QC Review Notes + email	AH	12/2/16
7, 20a	Stoker Pre-sample weight data		

Do not line out unused portions of this table.
(Additional "Pages Added" tables may be inserted if needed.)

GLP Compliance
Part 1

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196

FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 1. GOOD LABORATORY PRACTICE COMPLIANCE INFORMATION

A. STANDARD OPERATING PROCEDURES

Provide a verified true copy of the SOP index(s) ***or*** *complete the below section by listing all SOP's used in this research trial.*

SOP IDENTIFICATION *(INCLUDING REVISION NO.)*	DATE APPROVED *(by IR-4 Regional Field Coordinator)*
See following pages for SOP Index.	

ABOVE DATA ENTERED BY: _____ *DATE:* _____

Total number of pages in this section at initial pagination: 4

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE 8/3/15

University of Hawaii
College of Tropical Agriculture & Human Resources
Department of Plant and Environmental Protection Sciences

HAWAII IR-4 FIELD RESEARCH CENTER
2015 STANDARD OPERATING PROCEDURES
(INDEX AND APPROVAL PAGE)

SOP No.	TITLE	Date Revised
1	**Administration**	
1-1.3	Standard Operating Procedures (SOP'S)	02/23/15
1-2.2	Personnel Records	02/23/15
2	**Data**	
2-1.1	Recording Raw Data	04/11/13
2-2.0	Determining Significant Figures and Rounding Numbers	04/02/12
2-3.1	Transferring IR-4 Field Data Books and Raw Data to IR-4	02/23/15
3	**Test System and Test Site**	
3-1.0	Site Selection	04/02/12
3-2.0	Plot Layout Requirements	04/02/12
3-3.0	Crop Establishment, Maintenance and Destruction	04/02/12
3-4.0	Collecting Phytotoxicity Data	04/02/12
4	**Test Substance**	
4-1.1	Receipt and Storage of Test Substance and Adjuvants	02/23/15
4-2.0	Determining Spray Volume	04/02/12
4-3.1	Determining Test Substance and Adjuvant Amounts for Spray Mix	04/11/13
4-4.0	Measuring Test Substances	04/02/12
4-5.1	Transferring a Test Substance or Adjuvant from the Original Container to Secondary Containers	02/23/15
4-6.1	General Procedures for Mixing a Test Substance	04/11/13
4-7.0	General Procedures for Application of Test Substances	04/02/12
4-8.0	Cleaning Test Substance Application Equipment	04/02/12
5	**Equipment**	
5-1.0	Calibration, Use, and Maintenance of Balances	04/02/12
5-2.0	Calibration of Standard Weights	04/02/12
5-3.0	Calibration, Use, and Maintenance of Automatic Pipettors	04/02/12
5-4.1	Calibration, Use, and Maintenance of Boom Sprayers	04/11/13
5-5.1	Calibration, Use, and Maintenance of Backpack Mistblowers	04/11/13
5-6.1	Calibration, Use, and Maintenance of Granular Applicators	04/11/13
5-7.0	Calibration, Use, and Maintenance of Flow Meters	04/02/12
5-8.0	Use and Maintenance of Anemometers	04/02/12
5-9.1	Calibration, Use, and Maintenance of Sling Psychrometers	04/11/13
5-10.1	Calibration, Use, and Maintenance of Max-Min Thermometers	04/11/13
5-11.1	Calibration, Use, and Maintenance of Digital Probe Thermometers	04/11/13
5-12.1	Calibration and Maintenance of Combination Temperature and Humidity Meters	04/11/13
5-13.1	Calibration, Use, and Maintenance of Hobo Recorders	02/13/14
5-14.0	Calibration, Use, and Maintenance of GPS Receivers	04/02/12
5-15.0	Calibration, Use, and Maintenance of New and Borrowed Equipment	04/02/12
5-16.1	Use and Maintenance of Freezers	04/11/13

SOP Numbering Format: [SOP category]-[SOP number].[Revision number]

VERIFIED EXACT COPY
Univ. of Hawaii, Field Lab
location of original
JC 3/5/15
verified by/date

University of Hawaii
College of Tropical Agriculture & Human Resources
Department of Plant and Environmental Protection Sciences

HAWAII IR-4 FIELD RESEARCH CENTER
2015 STANDARD OPERATING PROCEDURES
(INDEX AND APPROVAL PAGE)

SOP No.	TITLE	Date Revised
5-17.1	Use and Maintenance of Sensaphone Monitoring System	02/23/15
5-18.0	Calibration and Use of NIST Thermometers	02/13/14
6	**Residue Sampling and Shipping**	
6-1.1	Residue Sample Collection and Identification	04/11/13
6-2.2	Handling and Storing Residue Samples	02/13/14
6-3.2	Sample Shipping Procedure	02/13/14
7	**Coffee Processing**	
7-1.1	Processing Fresh Coffee Cherries into Coffee Green Beans (RAC)	04/11/13
7-2.1	Processing Coffee Green Beans into Roasted Coffee Beans and Freeze Dried Coffee Fractions	02/13/14
7-3.1	Use and Maintenance of the Coffee Pulper-Demucilager	02/13/14
7-4.0	Calibration, Use, and Maintenance of the Precision Oven	04/02/12
7-5.0	Calibration, Use, and Maintenance of Moisture Meters	04/02/12
7-6.1	Use and Maintenance of the Coffee Huller	02/13/14
7-7.2	Use and Maintenance of the Coffee Roaster	02/13/14
7-8.1	Use and Maintenance of the Coffee Grinder	02/13/14
7-9.0	Calibration, Use, and Maintenance of TDS (Total Dissolved Solids) Meters	04/02/12
7-10.1	Use and Maintenance of the Freeze Dryer	02/13/14
8	**Pineapple Processing**	
8-1.1	Processing Fresh Pineapple Fruit into Pineapple Juice and Process Residue	04/11/13
8-2.1	Use and Maintenance of the Waring Juicer	02/13/14

SOP Numbering Format: [SOP category]-[SOP number].[Revision number]

SOP's Submitted and Reviewed by: Michael K Kawate — 02/23/15
Dr. Michael K. Kawate, FRD, University of Hawaii — Date

James Kam — 2/23/15
James Kam, FRD, University of Hawaii — Date

Julie Coughlin — 2/23/15
Julie Coughlin, FRD, University of Hawaii — Date

SOP's Approved by: Mika P. Tolson — 2/26/15
Mika Tolson, Assistant Regional Field Coordinator — Approval Date

VERIFIED EXACT COPY
Univ. of Hawaii, Field Lab
location of original
JC 3/5/15
verified by/date

FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 1. GOOD LABORATORY PRACTICE COMPLIANCE INFORMATION

B. GOOD LABORATORY PRACTICE STATEMENT

INSTRUCTIONS: The Field Research Director should print his/her name, sign, and date the Good Laboratory Practice statement. Additionally, the GLP compliance status of data in this study should be documented.

I, Julie Coughlin, served as "Field Research Director" for this research trial. I have reviewed the appropriate raw data and I attest that the data accurately reflect the conduct of and the observations made during this trial. All activities associated with this trial were conducted according to *Chapter 40, Code of Federal Regulations, Part 160* or OECD Good Laboratory Practices, except for those noted below (check appropriate GLP status column):

GLP Compliant			DATA CATEGORY **FIELD PERSONNEL SHOULD NOT LINE OUT BLANK CELLS ON THIS PAGE**
YES	NO	NA[1]	
	X		Weather, irrigation, and soil characterization data are not required by the protocol to be compliant with GLP's and are noted as non-compliant in the final report for the study.
	X		TEST SITE HISTORY (chemical applications prior to the trial year) (FDB Part 5)
	X		CULTURAL PRACTICES (dating back to harvest of the previous crop), MAINTENANCE FERTILIZERS AND PESTICIDES (current trial year) (FDB Part 5)
			In U.S. trials, GLP-compliant equipment must comply with 40 CFR 160, Subpart D, which includes 160.81 (b) (11). Adjuvants in U.S. trials must comply with 40 CFR 160.83.
X			ADJUVANT LABELING AND RECEIPT INFORMATION (check missing items): Receipt of the adjuvant at the field facility (usually the purchase date): _____ Identity and concentration of the adjuvant (on the adjuvant label): _____ Recommended storage conditions (on the adjuvant label): _____ Expiration date (if not on the label, then assigned by field personnel): _____
X			ENVIRONMENTAL MONITORING DEVICES for test substance storage (FDB Part 4)
X			GLOBAL POSITIONING DEVICE used to determine plot location (FDB Part 5)
		X	FLOW METERS and similar SPRAYER OUTPUT CALIBRATION EQUIPMENT used to measure water (**excluding** marked, calibrated beakers, graduated cylinders or flasks suitable for scientific research) (FDB Part 6)
	X		pH METER or STRIP for measuring the acidity of the carrier (water) (FDB Part 6)
	X		RESIDUE SAMPLE WEIGHING EQUIPMENT (FDB Part 7)
X			ENVIRONMENTAL MONITORING DEVICES for sample storage (FDB Part 7)
			List below additional *non*-compliant items (additional pages may be used for more items)

[1]"NA" should be checked for equipment that was not used in this trial and if adjuvants were not used.

Julie Coughlin
SIGNATURE OF FIELD RESEARCH DIRECTOR

10/8/15
DATE

Personnel
Part 2

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 2. PERSONNEL INVOLVED IN TRIAL

A. IDENTIFICATION OF INDIVIDUALS

INSTRUCTIONS: Complete this form to document the Field Research Director and other personnel involved in the trial. Also include all individuals who entered data and/or worked on this trial (these include scientists, technicians, summer interns, and their supervisors). General field workers and Quality Assurance Unit personnel should not be included. Upon completion of this section participants may use their initials to verify data. ***Original signatures and initials are preferred on this page, but a true copy is acceptable.***

FIELD RESEARCH DIRECTOR

NAME *(print)*: Julie Coughlin

AFFILIATION: University of Hawaii at Manoa

ADDRESS: 3190 Maile Way, St. John, Rm. 307

CITY: Honolulu, HI

STATE or PROVINCE: Hawaii ZIP (Postal Code): 96822

TELEPHONE: (808) 956-2003 FAX: (808) 956-9675

E-MAIL ADDRESS: jcoughli@hawaii.edu

SIGNATURE: Julie Coughlin DATE: 7/15/15

INITIALS: JC

OTHER TRIAL PERSONNEL

PRINT NAME	SIGNATURE	INITIALS	DATE
MICHAEL KAWATE	Michael Kawate	MK	07/21/15
James Kam	James Kam	JK	8/3/15
			JC 10/5/15

Total number of pages in this section at initial pagination: 18

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 2. PERSONNEL INVOLVED IN TRIAL

B. QUALIFICATIONS SUMMARY

INSTRUCTIONS: Provide current curriculum vitae containing the education, training and experience records of trial personnel, concentrating on items that are applicable to field research with pesticides and good laboratory practices for every individual listed on Part 2-A. If this is not available complete a copy of this Form.

NAME _____ _____
(PRINTED) (SIGNATURE)

EDUCATION SUMMARY: See following pages for CV's and training records.

WORK EXPERIENCE SUMMARY: _____

SPECIAL TRAINING, QUALIFICATIONS OR ACCOMPLISHMENTS: _____

ABOVE DATA ENTERED BY: _____ *DATE:* 8/6/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

CURRICULUM VITAE

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/25/115
verified by/date

Name: Julia A. Coughlin
Maiden Name: Julia A. Lynch

Address: (Home) 84-302 Makau St.
Waianae, Hawaii 96792

(Business) University of Hawaii
Department of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm. 307
Honolulu, Hawaii 96822
Ph# (808) 956-2003 * Mobile: (808) 542-3933 * FAX (808) 956-9675
Email: jcoughli@hawaii.edu

Education

B.S. University of Hawaii. 1983. Major: Horticultural Science
M.S. University of Hawaii. 1986. Major: Entomology. Thesis title: Distribution of *Liriomyza* leafminers and associated hymenopterous parasites on watermelon in Hawaii.

Experience

June 1989 to Present

Research Associate III (June 1989 to March 1997)
Research Associate IV (April 1997 to Present) University of Hawaii, Department of Environmental Biochemistry, Honolulu, HI.
Supervisor: Dr. Michael Kawate

Independently design, conduct and coordinate pesticide efficacy and residue trials following U.S. EPA's good field and laboratory practices standards (GLP's). Review draft protocols. Apply pesticides to field plots; calibrate and maintain spray equipment; evaluate pesticide efficacy and phytotoxicity and record the data; statistically analyze data and prepare reports. Design and conduct laboratory insecticide bioassays to screen prospective insecticides. Consult with chemical company representatives regarding pesticide rates, use patterns and support of individual registration projects. Conduct and coordinate field efficacy and residue trials on neighbor islands in collaboration with growers and county agents (involves 1-2 day travel).

Licenses

- Hawaii Driver's License
- Commercial Pesticide Applicator's License, Hawaii, Category #10, Demonstration and Research.

Awards

- Merit tuition waiver, Dept. of Entomology, Univ. of Hawaii 1984.
- Certificate of Achievement, Gamma Sigma Delta 1986.
- Graduate Student Organization Travel Fund Award 1986.
- Ehrhorn Fund Travel Award 1986.
- Western Region IR-4 Outstanding Technical Service Award, 1996.
- Western Region IR-4 Technical Service Award, 2005.

Publications

Johnson, M. W., L. C. Caprio, J. A. Coughlin, B. E. Tabashnik, J. A. Rosenheim & S. C. Welter. 1992. Effect of *Trialeurodes vaporariorum* (Homoptera: Aleyrodidae) on yield of fresh market tomatoes. Journal of Economic Entomology 85: 2370-2376.

JC 1/6/15

Johnson, M. W., L. C. Caprio, J. A. Lynch, B. E. Tabashnik, S. C. Welter & J. A. Rosenheim. 1991. Yield response of fresh market tomatoes to greenhouse whitefly infestations in Hawaii, pp. 101-103. *In* M. W. Johnson, D. E. Ullman & A. Vargo [ed.], 1989 ADAP Crop Protection Conf. Proc. Honolulu, Hawaii.

Kawate, M. K. & J. A. Coughlin. 1995. Increased green onion yields associated with abamectin treatments for *Liriomyza sativae* (Diptera: Agromyzidae) and *Thrips tabaci* (Thysanoptera: Thripidae). Proceedings of the Hawaiian Entomological Society Vol. 32, p. 103-112.

Kawate, M. K. & J. A. Coughlin. 1993. Mediterranean fruit fly control on persimmon, 1989. Insect. and Acar. Tests Vol. 18, p. 78.

Kawate, M. K. & J. A. Coughlin. 1993. Mediterranean fruit fly control on persimmon, 1991. Insect. and Acar. Tests Vol. 18, p. 78.

Kawate, M. K. & J. A. Coughlin. 1993. Evaluation of permethrin for control of Stevens leafhopper, 1991. Insect. and Acar. Tests Vol. 18, p. 367.

Lynch, J. A. & M. W. Johnson. 1991. Mass rearing the greenhouse whitefly parasitoid *Encarsia formosa* for augmentative releases in fresh market tomatoes in Hawaii, pp. 123-127. *In* M. W. Johnson, D. E. Ullman & A. Vargo [ed.], 1989 ADAP Crop Protection Conf. Proc. Honolulu, Hawaii.

Lynch, J. A. & M. W. Johnson. 1987. Stratified sampling of *Liriomyza spp.* (Diptera: Agromyzidae) and associated hymenopterous parasites on watermelon. Journal of Economic Entomology 80: 1254-1261.

Special Training

- Good Laboratory Practices (GLP) Workshop. Hawaiian Sugar Planter's Association, March 3, 1991.
- IR-4 GLP Training Workshop, San Francisco, CA., March 19-21, 1998.
- Hazardous Materials Transportation Training, 09/29/00, 11/30/05, 10/15/08, 09/08/11.
- Biological Commodities Shipping and Receiving Training, May 10, 2001.
- IR-4 GLP and Field Residue Training, Davis, CA, March 5-6, 2002.
- National Pesticide Information Retrieval System (NSPIRS) Basic Training, Univ. of HI, June 6-7, 2002.
- IR-4 Field Research Director Training, Univ. of California at Riverside, October 10, 2003.
- IR-4 Field Residue Training Workshop (Field, Laboratory, and GLP), University of California, Davis, March 8-9, 2005.
- IR-4 National Education Conference Training, Phoenix, AZ., Feb. 28., 2006 to March 2, 2006.
- Western Region IR-4 Residue Training Workshop (Field, Laboratory, and GLP), Jan. 17-18, 2007, University of Hawaii, Manoa.
- GLP Training. Application of GLP's to Field Studies. Debi Garvin, West Coast Quality Training. Nov. 12-13, 2007, Hood River, Oregon.
- IR-4 National Education Conference. GLP Training, San Antonio, Texas, Feb. 24-25, 2009.
- IR-4 Western Region field and GLP Training Workshop, Kearney Research and Extension Center, Parlier, CA. Feb. 2-3, 2010.
- IR-4 National Education Conference. GLP Training. San Antonio, Texas, Feb. 27-28, 2013.
- EPA Facility Inspection, Mark Lehr, US EPA. June 11-12, 2013.
- IR-4 eQA Training Program. Quality Assurance training for online system. Sept. 23, 2013.
- Globally Harmonized System Training. University of Hawaii, online training. Dec. 6, 2013.

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/25/15
verified by/date

REVIEWED BY: Julie Coughlin DATE: 1/6/15

TRAINING RECORD

EMPLOYEE'S NAME: Julie Coughlin

Period: Jan. 1, 2014 to Dec. 31, 2014

DATE	DESCRIPTION OF TRAINING AND/OR EXPERIENCE	DOCUMENTATION* (Y/N)	EMPLOYEE'S INITIALS & DATE
1/14/14	IR-4 West Webinar training. Smart moves by FRD's.	Y	JC 1/14/14
1/17/14	Univ. of Hawaii, IR-4 Field Program, SOP review	Y	JC 2/20/14
2/24/14	Univ. of Hawaii, SOP distribution and training. SOP Manual 2014.	Y	JC 2/24/14
3/4/14	IR-4 West Webinar Training, eQA system update, etc.	Y	JC 3/4/14
7/8/14	IR-4 West Webinar Training, Mistakes, corrections and human beans.	Y	JC 7/8/14
5/13/14	IR-4 West Webinar Training, Coffee processing, documentation, etc.	Y	(LE) JC 7/17/14
8/21/14	Hazardous Materials Disposal Annual Training / Testing for Certification	Y	JC 8/21/14
11/12/14	IR-4 West Webinar Training, Notebook examples.	Y	JC 11/12/14
			JC 3/25/15

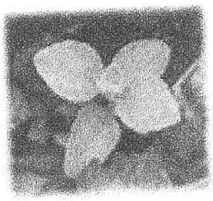
*Is documentation available? (yes or no), *e.g.*, certificate, attendence log, *etc.*

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/25/15
verified by/date

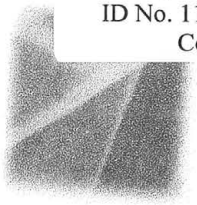
Michael Kawate 01/30/15
Supervisor's signature and date

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR4 - WEST 2014 Training Webinar




Julie Coughlin

has attended the following Crop Residue/GLP Training Sessions:

☑ **It's Fall - Hit the Books** 11/12/2014

Topics: Notebook examples, Getting to your "A" game, Communications Log, Page Proliferation Syndrome, Maintenance Records, Deviations, Changed Pages and Reminders

☑ **Mistakes, Corrections and Human Beans** 7/8/2014

Topics: Canadian Notebook Harmonization. Mistakes in the GLP environment, correcting errors and maintaining team relationships

☑ **What's on YOUR Mind? Questions/Answers/Discussion** 5/13/2014

Topics: Hawaii Coffee Processing Trials, Documentation of Repeated Events, Recheck versus Recalibration

☑ **Making IR-4 Field Research Centers Work in a Resource Limited World** 3/4/2014

Topics: eQA Update, Targeted Trials, Managing Field Research Centers: Big v. Small, Common Issues, Annuals v. Perennials, Station Managers, Tricks to get it done

☑ **Highlights of Smart Moves by Our FRD** 1/14/2014

Topics: Customized FDN Forms, Facility Records, Protocol Instructions, Challenging Crops, Digital Maps, Sample Reduction, PPE, Checklists, Confirming Deposition, Drying Techniques, Temporary Workers, Equipment Mods, Working Together

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JL 3/25/15
verified by/date

The IR-4 Project

Rebecca Sisco
Western Region IR-4 Field Coordinator
University of California, Davis

Certificate Digitally Signed and Created: *13-Nov-14*

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin





WR-IR4 2015 WEBINARS

Julie Coughlin

has attended the following Crop Residue/GLP Training Sessions:

☑ **Crunch Time - Getting It Done: Freezer Alarms, New Adjuvant Requirement** 7/13/2015

Topics: Freezer Alarm Examples and Experience; New Adjuvant Requirements; Seed Treatment Trials, Adjuvant Calculator and Maintaining Integrity, Notebooks on Website, Phytotoxicity Evaluations, Custom Soil Report, Test Substance Sign-Out/In, Identifying Emails

☑ **Spring Training and Field Warmup** 4/13/2015

Topics: Notebook changes for 2015, Application types, Wind speed, Trial differentiation, Deviations, Maintenance pesticides, Documenting phytotoxicity, Sample Cooling, and Web resources

☑ **Starting the Year off Right: Strategies for Planning/Organizing Field Trials** 1/12/2015

Topics: Tools for planning field trials: Calendars, Spreadsheets, Field plot layouts, Test substance information, Great things FRDs do (email, timely data recording, revising SOPs), Handling changed pages in Field Data Notebooks, and Adjuvant storage and use

The IR-4 Project

Rebecca Sisco
Western Region IR-4 Field Coordinator
University of California, Davis

Certificate Digitally Signed and Created: *13-Jul-15*

CURRICULUM VITAE
(from 2009 for IR-4 Field Data Book)

Michael K. Kawate

Business
University of Hawaii
Dept of Plant & Environmental Protection Sciences
3050 Maile Way, Gilmore 310
Honolulu, HI 96822
Phone: (808) 956-6008
Fax: (808) 956-9675

Home
99-1301 Aiea Heights Drive
Aiea, HI 96701
Phone: (808) 488-1303

CAREER OBJECTIVE

To conduct research in agronomic or horticultural crops with emphasis in pest control.

EDUCATION

PhD Oregon State University. 1987. Major: Crop science. Area of study: Weed science. Thesis: Factors affecting glyphosate availability in soil. Major advisor: Dr. Arnold Appleby.

MS University of Hawaii. 1983. Major: Horticulture. Area of study: Weed science. Thesis: Response of several weed species to low volume glyphosate application methods. Major advisor: Dr. Roy Nishimoto.

BS University of Hawaii. 1979. Major: Horticulture.

PROFESSIONAL EXPERIENCE

February 1988 to Present

Specialist. University of Hawaii, Department of Environmental Biochemistry, Honolulu, HI. Duties: Coordinate activities required to register pesticides in Hawaii's minor crops; communicate with extension personnel, pesticide manufacturers, commodity groups, individual growers, Inter-regional Research Project No. 4 (IR-4), Hawaii State Department of Agriculture, and the Environmental Protection Agency; determine pesticide needs; establish protocols and implement efficacy, phytotoxicity, and residue field trials, and oversee residue analyses of samples following EPA's Good Laboratory Practices regulation; collect, analyze, and report data; follow-up on establishment of tolerances and registration of uses. (Assistant Specialist, February 1988 to June 1994; Associate Specialist, July 1994 to June 1999; Specialist, July 1999 to present.)

November 1987 to January 1988

Research Technician. Irrigated Agriculture Research and Extension Center, Prosser, WA. Worked on Inter-regional Research Project No. 2 (IR-2); used electron microscope techniques to detect virus in plant material. Specifically worked on detecting (developing protocols for) apple stem grooving virus and an unknown virus.

January 1987 to October 1987

Research Technician. Irrigated Agriculture Research and Extension Center, Prosser, WA. Designed and implemented laboratory and greenhouse experiments to investigate interaction between weeds, peas, pathogens, and glyphosate. Assisted in establishing weed control practices for an integrated pest management project in peas. Also, conducted field trials to evaluate herbicide efficacy and injury in peas. Data were collected, analyzed, and summarized.

EXTENSION & INSTRUCTION

Invited Presentations:

Working with Researchers. 2014 Annual Pesticide Program Workshop. Hawaii Dept. of Agriculture, November 20, 2014.

Imidacloprid Residue Study. 2014 DuPont Pioneer Hawaii Agronomy Conference. Kunia Camp Gym, September 18, 2014.

Banana Pesticide Registration Update. 2014 Banana Mini-Conference, Kaneohe Cooperative Extension Office, August 27, 2014.

Fungicide Registration Update for Ti Leaf Growers. Key Project, Kahaluu. February 18, 2014.

VERIFIED EXACT COPY -- The original is located: IR-4 Headquarters Initials/Date JC 3/25/15

Basil Workshop for Growers. Fungicide Evaluation for Basil Downy Mildew Control – Waimanalo Experiment Station-2012. Pearl City Urban Garden Center, Oahu. December 04, 2013.

Sustainable and Organic Agriculture Program's Extension and Research Update – Sustaining Hawaii's Farms, Farmers and Cooperative Extension Service. IR-4 Minor Crop Registration Program: New Registrations and Pipeline Items. Hale Tuahine, Oahu. September 25, 2013.

CTAHR Open House for Legislatures. LIFE in Hawaii: 5 year Progress Report. Sugano, J., S. Fukuda, S. Nakamoto, S. Swift, A. Kawabata, R. Hamasaki, M. Diaz-Lyke, J. Uyeda, R. Shimabuku, K. Sewake, A. Kawabata, S. Motomura, R. Tsutsui, A. Arakaki, B. Bushe, C. Tamaru, K. Wang, M. Kawate, T. Radovich, J. Uchida, B. Fox, J. Tavares, J. Hollyer, and Donna Meyer. Hale Tuahine, Oahu. September 19, 2013.

Panel Discussion: The Pesticide Story. Presentations (2x): The IR-4 Program in Hawaii. 2013 Hawaii Crop Improvement Association Annual Meeting, 22 May 2013, Lihue, HI.

Workshop: Best Management Practices for *Asperisporium* Black Spot of Papaya. Presentation: Pesticide Registration Support for the Papaya Industry. 25 August 2011, Calavo packing plant, Keaau, Hawaii Island.

Workshop: Banana Update for Statewide Banana Growers. Presentation: Pesticide Registration Update. 19 April 2011; Univ. of Hawaii, Windward Comm. Coll.

The Coffee Berry Borer Invades Kona; How to Live with CBB? 2011 (March). Western Region IR-4 State Liaison Representative/Commodity Liaison Committee Meeting; UC Davis.

Update on Past and Present Banana Insecticide Residue Work. Understanding the Process Behind Conducting Field Trials in Hawaii and Getting new Chemical Registered With the US EPA. 2009 (August). Presented to: Honolulu County growers (Update on Banana Developments on Oahu).

Demonstrations/Field Days:

Basil Road Show. Sprayer calibration; 1/128th method. Pearl City Urban Garden Center. December 14, 2012. (Sugano, Fukuda, Uyeda, Uchida, Kawate)

Basil Road Show. Basil downy mildew fungicide efficacy trial and boom sprayer calibration. Waimanalo Experiment Station. December 7, 2012. (Sugano, Fukuda, Uyeda, Uchida, Kawate)

2012 Risk Management School: Spray Coverage Clinic. Katsu Kobashigawa's Farm. August 10, 2012 (Sugano, Fukuda, Shimabuku, Kawate)

Improving Spray coverage to Oahu's Sweet Corn Producers. December 15, 2010. Kaneohe Extension Office. (Sugano, Fukuda, Shimabuku, Kawate)

Spray Coverage Workshop. 2010 (Waimea, Kauai Island; Fukuda, Kawate, Shimabuku, Sugano). Seed corn industry.

Spray Coverage Workshop. 2009 (Waimea, Hawaii Island; Hamasaki, Fukuda, Kawate, Shimabuku). Vegetable (cabbage) growers.

Workshops:

Mini-Training of NPIRS for extension personnel in Hilo via Lync. October 17, 2014. (Tarutani, Kawate)

Pest Management Strategic Plans (PMSP) for banana, papaya, watercress, macadamia, turf, cucurbits (2009), coffee, orchids (2010).

EXTRAMURAL FUNDING (CONTRACTS AND GRANTS)

Kawate, M.K. 2014. Hawaii IR-4 Food Use Field Projects. Funding Agency: University of California at Davis. $40,500.

Kawate, M.K., 2014, 2013. Regional Comments Coordinator for the American-affiliated Pacific Islands. Funding Agency: University of California at Davis (Western IPM Center). $21,000, $30,000.

Kawate, M.K. 2013. Hawaii IR-4 Food Use Field Projects. Funding Agency: University of California at Davis. $63,000.

Kawate, M.K., 2012. Regional Comments Coordinator for the American-affiliated Pacific Islands. Funding Agency: University of California at Davis (Western IPM Center, supplemental request). $17,500.

Kawate, M.K. 2012. Hawaii IR-4 Food Use Field Projects. Funding Agency: University of California at Davis. $60,000.

Kawate, M.K., 2012. Regional Comments Coordinator for the American-affiliated Pacific Islands. Funding Agency: University of California at Davis (Western IPM Center). $17,500.

Kawate, M.K. 2011. Hawaii IR-4 Food Use Field Projects. Funding Agency: University of California at Davis. $60,000.

Kawate, M.K., 2011. Regional Comments Coordinator for the American-affiliated Pacific Islands. Funding Agency: University of California at Davis (Western IPM Center). $17,500.

Sugano, J., M. Kawate, J. Uchida, C. Kadooka, and M. Melzer. 2010-2012. Leaf spotting and ifs affect on ti leaf (Cordyline terminalis or fruticosa) for laulau operations. Hawaii Department of Agriculture. $74,000 (over 2 years).

Kawate, M.K., 2011. Regional Comments Coordinator for the American-affiliated Pacific Islands. Funding Agency: University of California at Davis (Western IPM Center). $35,000.

Kawate, M.K., 2010. Regional Comments Coordinator for the American-affiliated Pacific Islands. Funding Agency: University of California at Davis (Western IPM Center). $35,000.

Kawate, M.K. 2010. Hawaii IR-4 Food Use Field Projects. Funding Agency: University of California at Davis. $15,000.

Kawate, M.K. 2009. Hawaii IR-4 Food Use Field Projects. Funding Agency: University of California at Davis. $66,500.

Kawate, M.K., 2009. Regional Comments Coordinator for the American-affiliated Pacific Islands. Funding Agency: University of California at Davis (Western IPM Center). $25,000.

Kawate, M.K. 2009. Hawai'i Pest Management and Regulatory Information and Notification Network (HIPMRINN). Funding Agency: University of California at Davis (Western IPM Center). $25,000.

INTRAMURAL FUNDING

Kawate, M.K. 2012. Subscription fee for NSPIRS. CTAHR Supplemental Grant. $1000.

Kawate, M.K. 2010-2012. Index to pesticides for selected tropical crops in Hawaii. CTAHR Research/Extension Supplemental Grant. $33,000 (over 2 years).

Shimabuku, R., M. Kawate, J. Sugano, R. Hamasaki, 2011-2012. Edible crops of Maui – Improving the efficacy of pesticide sprays and spray coverage. CTAHR. $22,500.

Uchida, J, M. Kawate, J. Sugano. 2012-2013. Basil downy mildew control research proposal. CTAHR, $93,960.

GRANT-IN-AID

Kawate, M.K. 2010. Grant-in-aid for the Pesticide Registration Program from Bayer CropScience. $3,000.

Kawate, M.K. 2009. Grant-in-aid for the Pesticide Registration Program from Bayer CropScience. $7,000.

PESTICIDE REGISTRATION DATA PACKAGES SUBMITTED (to IR-4, HDOA, or EPA)

Field Studies

Acequinocyl:	Magnitude of the Residue in Guava (2014)
Acequinocyl:	Magnitude of the Residue in Lychee (2014)
Fluazifop:	Magnitude of the Residue in Coffee (2014)
Pyrethrins+PBO:	Magnitude of the Residue in Coffee (2013, RAC; processed, 2014)
Lamda-cyhalothrin:	Magnitude of the Residue in Guava (2013)
Diquat:	Magnitude of the Residue in Guava (2013)
Novaluron:	Magnitude of the Residue in Lychee (2013)
Fenpyroximate:	Magnitude of the Residue in Banana (2013)
Diquat:	Magnitude of the Residue in Banana (2013)
Cyantraniliprole:	Magnitude of the Residue in Coffee (2013)
Difenoconazole:	Magnitude of the Residue in Guava (2013)
Difenoconazole:	Magnitude of the Residue in Papaya (2012)
Diquat:	Magnitude of the Residue in Banana (2012)
Indaziflam:	Magnitude of the Residue in Coffee (2012)
Spirotetramat:	Magnitude of the Residue in Pineapple (2011)
Bifenazate:	Magnitude of the Residue in Banana (2011)
Fludioxonil:	Magnitude of the Residue in Pineapple (2011)
Spinosad:	Magnitude of the Residue in Coffee (2010)
Fluazifop:	Magnitude of the Residue in Coffee (2010)
Spirotetramat:	Magnitude of the Residue in Coffee (2010)

Spirotetramat: Magnitude of the Residue in Banana (2010)
Chlorantraniliprole: Magnitude of the Residue in Papaya (for All Crops) (2009)
1,3-Dichloropropene: Magnitude of the Residue in Pineapple (2009)
Fludioxonil: Magnitude of the Residue in Pineapple (2009)

Other Reports

Coffee Sucker Control Trial – 2014. (Kawate, Kam, Coughlin. June-July 2014. Waimanalo Experiment Station.)

2014 Surfactant Phyto-toxicity Trial on Papaya. (Sugano, Kawate, Uyeda, Fukuda, Coughlin, Kam; March-June 2014, Poamoho Research Station.)

Efficacy of sodium-tetraborohydrate decahydrate, *Bacillus thuringiensis* subsp. i*sraelensis*, neem oil, azadirachtin, and chlorpyrifos on the coffee berry borer, 2012, 2014. (Kawate, Coughlin, Kawabata, Tsutsui, 2014.)

Phytotoxicity testing for DryTec Calcium Hypochlorite Granular (EPA Reg. No. 1258-427) on selected leafy vegetables and fruit in Hawaii. 11/20/2013. (Kawate, Tarutani, Coughlin, Kam, Meyer)

Efficacy and phytotoxicity of various inseticides and insecticide rotations on *Thrips parvispinus* control in papaya: 2013. (Kawate, Kam, Coughlin, Sugano, Fukuda, 2013).

Phytotoxicity of fluazifop-butyl (Fusilade DX) and clethodim (Select Max) to papaya, and efficacy of fluazifop-butyl, clethodim, and glyphosate (Honcho Plus) on star grass (Chloris divaricata); 2013.

Efficacy of spinetoram, spinosad, chlorpyrifos, potassium salts of fatty acids, and tolfenpyrad on the coffee berry borer, 2012. (Kawate, Kam, Coughlin, Kawabata, 2012).

Efficacy of imidacloprid, spirotetramat, spinosad and bifenthrin on the coffee berry borer, 2012. (Kawate, Kam, Coughlin, Kawabata, 2012).

Efficacy of cyantraniliprole and pyrethrins+PBO on the coffee berry borer, 2012. (Coughlin, Kawate, Kam, Kawabata, 2012)

Best management practices for *Asperisporium* black spot of papaya. (Sugano, Hamasaki, Kawate, Diaz-Lyke, Nakamoto, 2011)

Toxicity of azadiractin, pyrethrins + piperonyl butoxide, spirotetramat, spinosad, fenpropathrin, and imidacloprid to the coffee berry borer. (Kawate, Coughlin, 2011)

Toxicity of neem oil, cyantraniliprole, tolfenpyrad, bifenthrin, and imidacloprid to the coffee berry borer. (Kawate, Coughlin, 2011)

Field phytotoxicity evaluation trial of indaziflam on coffee in Hawai`i, 2010-2011. (Kawate, Kam, 2011)

Efficacy of fenamidone, cyazofamid, fluopicolide, V-10208, and QGU42 on Phytophthora on papaya, 2010. (Kawate, Uchida, Kadooka, 2011)

Efficacy of spirotetramat and imidacloprid on green scale in coffee in Hawaii, 2010. (Coughlin, Kam, Kawate, 2010)

Bioassay of indaziflam on morningglory and maunaloa vines in Hawaii, 2010. (Kawate, Kam, Coughlin, 2010).

Efficacy of fenamidone and cyazofamid on Phytophthora on papaya, 2005. (Kadooka, Uchida, Kawate, 2010).

Efficacy of indaziflam, oxyfluorfen, and pendimethalin on various weeds in coffee in Hawaii, 2010 (Kawate, Kam, Coughlin, 2010).

Efficacy of spirotetramat on green scale on coffee in Hawaii, 2009 (Kawate, Ebesu, Coughlin, Kam, 2009).

Control of postharvest stem end rot on papaya in Hawaii, 2009 (Kawate, Bushe, 2009).

Control of papaya leaf edgeroller mite on papaya in Hawaii, 2009 (Kawate, Kam, Coughlin, 2009).

Control of gray mealybug on pineapple in Hawaii, 2008 (Coughlin, Kawate, Oda, 2009).

Exploratory testing of ReTain® and other PGR's on Coffee (Kawate, Ebesu, 2009).

OTHER DOCUMENTS PREPARED OR REVIEWED

Hanai'Ai / The Food Provider. Ti leaf (Cordyline terminalis or fruiticosa) diseases in Hawaii's commercial orchards. March|April|May 2014. (Kawate, Uchida, Coughlin, Melzer, Kadooka, Kam, Sugano, and Fukuda)

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JL 3/25/15
verified by/date

The Western Front. Newsletter of the Western Integrated Pest Management Center. The Coffee Berry Borer (CBB) Invades Kona, Hawaii: How Can Growers Live With CBB? October 2011. (Kawate and Tarutani)

Pest Management Science. Reviewed one (1) manuscript, 2011.

Pest Management Strategic Plans. Banana, 2003; Watercress, 2004; Macadamia, 2006; Papaya, 2008. Coffee, 2009. Editor and/or reviewer (along with others) of the documents. USDA CSREES IPM Centers.

PROFESSIONAL TRAINING & IMPROVEMENT

Globally Harmonized System (GHS) Training (OSHA, Hazard Communication Standard: 12/13

IR-4 National Education Conference, San Antonio, TX. 02/27-28/13. (Included eQA training.)

Western Region IR-4 Training Webinars; 2012: 01/13, 02/10, 05/11, 06/08, 10/12, 11/09; 2013: 01/08, 04/09, 08/13; 2014: 01/14

Preventing Sexual Harassment (online course) UH Manoa, Honolulu, HI, 07/29/2011.

NPIRS Training, UH Manoa, Honolulu, HI, 2011

Western Region IR-4 Training Workshop, Parlier, CA, 2010

Restricted Use Pesticide Certification, Category 10. 10/2009-2014.

Hazardous Waste Training (UH). 1998, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014

Annual GLP Training (UH). 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014

AWARDS

CTAHR Excellence in Extension Award to a Specialist for Outstanding Performance and Results in a Statewide Project. 2007.

IR-4 Meritorious Service Award. 1996.

SERVICE

Reviewer of 24(c), Special Local Needs pesticide registrations for the Hawaii Department of Agriculture (ongoing).

CTAHR-PEPS, Search Committee for Host-Pathogen Interaction Researcher. 2012.

CTAHR-PEPS, Search Committee for Landscape and Turf Pest Management Spec., 2011, 2012.

CTAHR-PEPS, Space Committee, 2010.

UH, Tenure and Promotion Review Committee, 1998 (Chair), 2000, 2009, 2012.

CTAHR Faculty Senate, 2004-2009; Election Committee Chair, 2004-2006; SEC 2007-2009.

CTAHR-PEPS, Department Personnel Committee, 2002-2004, 2006-2008, 2009-2011, 2012-2013.

Epsilon Sigma Phi, Local Chapter Treasurer, 2005-2011; ongoing member.

01/09/2015

01/09/2015

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/25/15
verified by/date

TRAINING RECORD

EMPLOYEE'S NAME: Michael Kawate Period: January 01, 2014 to December 31, 2014

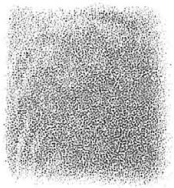
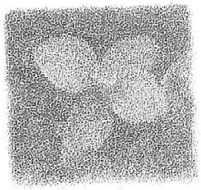
DATE	DESCRIPTION OF TRAINING AND/OR EXPERIENCE	DOCUMENTATION* (Y/N)	EMPLOYEE'S SIGN. / INITIALS & DATE
01/09/14	University of Hawaii at Manoa – Hazardous Waste Refresher Course Certification	Y	MK 01/15/14
01/14/14	Western Region IR-4 GLP Residue Training Webinar – Highlights of Smart Moves by Our Field Research Directors	Y	MK 01/15/14
01/17/14	University of Hawaii at Manoa – 2014 SOP Review	Y	MK 03/04/14
02/24/14	2014 SOP Training and Distribution	Y	MK 03/04/14
03/04/14	Western Region IR-4 GLP Residue Training Webinar – eQA System Update and Making IR-4 FRC Work in a Resource Limited World	Y	MK 03/04/14
05/13/14	Western Region IR-4 GLP Residue Training Webinar – What's on Your Mind?	Y	MK 07/08/14
07/08/14	Western Region IR-4 GLP Residue Training Webinar – Mistakes, Corrections and Human Beans	Y	MK 07/08/14
11/28/14	Listened to Western Region IR-4 GLP Residue Training Webinar recording, held on 11/12/14; completing notebooks, eQA updates, IR-4 freezer advisory, etc.	N	MK 11/20/14

*Is documentation available? (yes or no), *e.g.*, certificate, attendance log, *etc.*

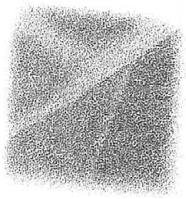
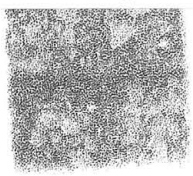
Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JL 3/25/15
verified by/date

Supervisor's signature and date

IR4 - WEST 2014 Training Webinar

Mike Kawate

has attended the following Crop Residue/GLP Training Sessions:

✓ **Mistakes, Corrections and Human Beans** — 7/8/2014

Topics: Canadian Notebook Harmonization. Mistakes in the GLP environment, correcting errors and maintaining team relationships

✓ **What's on YOUR Mind? Questions/Answers/Discussion** — 5/13/2014

Topics: Hawaii Coffee Processing Trials, Documentation of Repeated Events, Recheck versus Recalibration

✓ **Highlights of Smart Moves by Our FRD** — 5/12/2014

Topics: Customized FDN Forms, Facility Records, Protocol Instructions, Challenging Crops, Digital Maps, Sample Reduction, PPE, Checklists, Confirming Deposition, Drying Techniques, Temporary Workers, Equipment Mods, Working Together

✓ **Making IR-4 Field Research Centers Work in a Resource Limited World** — 3/4/2014

Topics: eQA Update, Targeted Trials, Managing Field Research Centers: Big v. Small, Common Issues, Annuals v. Perennials, Station Managers, Tricks to get it done

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JL 3/25/15
verified by/date

The IR-4 Project

Rebecca Sisco
Western Region IR-4 Field Coordinator
University of California, Davis

Certificate Digitally Signed and Created: 08-Jul-14

07/08/14

James K. F. Kam

94-1020 Awalua Street, Waipahu, Hawaii 96797 Phone: (808) 228-1675

Education

B.S. University of Hawaii at Manoa, 1982. Major: Horticulture Science.
M.S. University of Hawaii at Manoa. 1984. Major: Horticulture.
Project: Dendrobium as a flowering potted plant.

Experience

August 1990 to present

Research Support. University of Hawaii. Plant and Environmental Protection Science. Supervisor - Dr. Michael Kawate.
DUTIES: Independently design, conduct and coordinate pesticide residue trials following good field and laboratory practices (GLP's). Apply pesticides accurately to small scale research plots using various spray equipment; calibrate and maintain spray equipment; keep accurate and detailed records of experimental data and daily tasks; evaluate pesticide efficacy and phytotoxicity using routine visual and quantitative methods; perform routine data analysis, summarize data, and prepare reports and collect and prepare plant samples for shipment to the laboratory for pesticide residue analysis. Coordinate residue trials on neighbor islands in collaboration with growers and county agents. Assist in writing and updating a Quality Assurance Plan for the Pesticide Registration Program.

Successfully completed and ongoing pesticide residue trials:

Banana:	Diazinon (1991), Diuron (1995), Imidacloprid (2001), Tebuconazole (1991), Oxyflurofen (1997), Spinosad (1999, 2001)
Coffee:	Buprofenzin (2004), .Cyantraniliprole (2012), Ethephon (1995), Fluazifop-p-butyl (2008), Imidacloprid (1997), Indaziflam (2011, 2012), Oxyflurofen (2007, 2008), Pyrethrins+PBO (2013), Spinosad (1999, 2008), Spirotetramat (2009)
Guava:	Acequinocyl (2014), Cyprodinil + Fludioxonil (2010, 2011), Difenoconazole (2012), Diquat (2013), Propamocarb-HCL (2011, 2012):
Lychee:	Acequinocyl (2014), Spirodiclofen (2007), Novaluron (2013)
Macadamia:	Fosetyl-Al (1992, 94), Malathion (1993)
Mango:	Imidacloprid (1992)
Papaya:	Chlorantraniliprole (2009), Chlorothalonil (1991, 94), Imidacloprid (2005), Malathion (1993), Mefenoxam (2002), Methalaxyl + Copper (1994, 95), Myclobutanil (2000), Permethrin (1994), Trifloxystrobin (2003)
Passion fruit:	Malathion (1995)
Pejibaye:	Oxyflurofen (1998)
Pineapple:	Quizalofop (1992)
Rambutan:	NAA (2006)
Taro:	Metaldehyde (2006)
Trop Fruits:	Fenpropathrin on Atemoya, Guava, and Lychee (2005)

Successfully completed pesticide efficacy trials:

Powdery Mildew on Papaya (1996, 98, 99, 2003)
Powdery Mildew on Mango (1996)
Foliar aphids and Phytophthora on Taro (1996)
White rust on Chinese cabbage (1997, 99) Peach
Scale on Papaya (2003-07)
Herbicides on Papaya (2003)
Herbicides on Ginger, Taro, Papaya (2004)
Rely on Coffee (2004)
Anthracnose on Papaya (2005-07)
Fungicides on Papaya (2006)
Black spot on Papaya (2010-11)
Fungicides on Ti (2010-11)
Thrips on Papaya (2012-13)

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
3/25/15
verified by/date

Performed Quality Assurance (QA) Inspections on the following field and laboratory trials:

Blueberry: Fosetyl-Al (1994)
Taro: Methyl bromide (1992)
Watercress: Diazinon (1993)

January 1990 to August 1990

Graduate research assistant. University of Hawaii. Department of Horticulture. Supervisor - Dr. Charles Murdoch.
DUTIES: Assist in planning, installation and maintenance of experimental turf grass plots. Assist with laboratory analysis of various chemical components of turf grasses. Assist in data collection, data analysis and manuscript preparation of experiments on various phases of turf grass management.

August 1988 to January 1990.

Teaching Assistant. University of Hawaii. Department of Horticulture. Supervisor – Ms. Catherine Cavaletto, Chairperson
DUTIES: Assist faculty in lecture and laboratory preparation; collect samples for laboratory work, conduct class sessions, plan course schedules and lecture content, grade exams and other course work.

February 1987 to August 1990

Nursery consultant/contractor.
Contracted by: Asset Multipliers (Export nursery), Cytokinetics (BioTechnology). Myles Hirota (Landscape nursery), International Plant Lab (InVitro Lab), Pacific Palms Nursery (Local/export nursery), Plant Place (Local/export nursery), Plant Research Corp. (InVitro Lab), and Tropical Foliage (Export nursery).
Nursery contract responsibilities: Advise or participate in all phases of nursery production and development. Handle construction and structural maintenance. Develop nursery layouts, bench space utilization, and irrigation system. Institute insecticide and fungicide program, scheduling and application. Help with crop selection and rotation, irrigation schedules, media preparation, sanitation procedures, potting and other daily nursery functions. Identify the different ornamental plant pathogens and develop protocols for their control. Train and manage employees in daily nursery operations.

Laboratory contract responsibilities: Develop unique tissue culture techniques for food production, pharmaceutical, specialty chemicals, gene pool conservation, and other plant propagation from cultured plant parts and cells. Educate and train employees in general aseptic techniques and specialty procedures.

October 1985 to February 1987

Research Associate. International Plant Research Laboratory, Inc. Supervisor - Dr. Joan Harris.
DUTIES: Direct the development of a commercial orchid nursery. Specific duties included: irrigation and pesticide application and fertilization scheduling, disease identification and other daily nursery functions. A dendrobium orchid breeding program was developed for cut flower and potted plants. Developed shipping techniques for orchids and various stages of foliage plants. Develop nursery procedures for growing of micro-cuttings from tissue culture. Train, supervise, and coordinate work crews. Host educational tours on a regular basis for students, customers, educators, and others of the trade.

February 1985 to October 1985

Research associate - Agriculture, Research and Technology Group, Inc. Supervisor - Dr. Joan Harris.
DUTIES: Initiation of spathiphyllum into tissue culture, from explants to final steps for nursery production. Orchids, seeds and clones, anthuriums, bromeliads, dracaena, ficus, cordyline, musa and ferns are a few of four hundred varieties of plants worked on. Research and development of different media and compounds were initiated. Instruct, train and supervise workers in laboratory and nursery production.

January 1985 to August 1985

Lab and Field Assistant. University of Hawaii. Department of Horticulture. Supervisor - Dr. Charles Murdoch.
DUTIES: Aid in ongoing research with Rhizoctonia on crop production and perform research on water retention and infiltration studies to predict field conditions.

January 1983 to December 1984

Graduate Research Assistant. University of Hawaii. Department of Horticulture. Supervisor: Dr. Haruyuki Kamemoto.
DUTIES: Conduct research on breeding of dendrobiums. Perform general orchid culture; aseptic techniques, greenhouse production and conducted other activities associated with the breeding program. Record, summarize and analyze data using mainframe and personal computers. Phototechniques were developed for plant material documentation.

January 980 to January 1983

Student Hire, Laboratory Technician. University of Hawaii. Department of Horticulture. Supervisor - Mr. Richard Sakuoka.
DUTIES: Assist in production and sale of University of Hawaii developed vegetable seeds. Field work included planting, harvesting, and selection of seed and seed materials.Lab work consisted of seed cleaning, packaging and sales. As senior lab technician was responsible for supervision of other student helpers and daily lab routine.

Publications

Evaluation of Dendrobium selections under tests with cooperators. Horticulture Digest. Hawaii Cooperative Extension Services. No. 76. May 1985.

Dendrobium Lynne Horiuchi - a seed propagated flower potted plant cultivar. Horticulture Digest. Hawaii cooperative Extension Services. No. 76. May 1985.

Presentations

1989 - Lecturer for horticulture plant propagation class. Instructor in plant tissue culture.
1990 - Guest speaker at the Hawaii Anthurium Society. Topic: *Tissue culture of anthuriums.*
1990 - Guest speaker at the Honolulu Orchid Society Show. Topic: *The use of tissue culture in plant propagation.*
1991 - Lecturer for horticulture plant propagation class. Instructor in plant tissue culture.
1992 - Guest speaker at the Hawaii Anthurium Society. Topic: *Stage IV - growing out of tissue culture Anthuriums.*
1996 - Speaker at Papaya Conference Topic: *Pesticide Update.*
2006 - Speaker at Papaya Meeting Topic: *White Peach Scale Update.*

Licenses and Certificates:

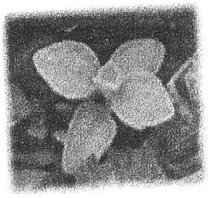
Commercial Pesticide Applicator's license - category 10
Hawaii State Driver's License.

Professional training

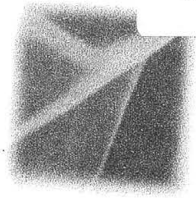
IR-4 Western Region Training, Webinar, January, March, May, July and November 2014
IR-4 Western Region Training, Webinar, January, April, August, November, and December 2013
IR-4 National Education Conference, San Antonio TX, February 2013
IR-4 Western Region Training, Monthly Webinars, January – December 2012
IR-4 Western Region Field Training, Kearney CA, February 2010
IR-4 National Education Conference, San Antonio TX, February 2009
IR-4 Western Region Field Training, Honolulu HI, January 2007
IR-4 National Education Conference, Phoenix *AZ.,* March 2006
IR-4 Western Region Residue Training, Davis CA, March 2005
IR-4 GLP Training Workshop, Riverside CA, October 2003
IR-4 GLP Training Workshop, Davis, CA., March 2002
Hazardous Waste Generator Training (UH) Sept. 2001
IR-4 GLP Training Workshop, San Francisco, CA., March 1998
GLP workshop, Hawaii Sugar Planters Assoc., March 1991

Reviewed by (date): James Kam 1/5/15

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JL 3/25/15
verified by/date

IR4 - WEST 2014 Training Webinar




James Kam

has attended the following Crop Residue/GLP Training Sessions:

☑ **It's Fall - Hit the Books** 11/12/2014

Topics: Notebook examples, Getting to your "A" game, Communications Log, Page Proliferation Syndrome, Maintenance Records, Deviations, Changed Pages and Reminders

☑ **Mistakes, Corrections and Human Beans** 7/8/2014

Topics: Canadian Notebook Harmonization. Mistakes in the GLP environment, correcting errors and maintaining team relationships

☑ **What's on YOUR Mind? Questions/Answers/Discussion** 5/13/2014

Topics: Hawaii Coffee Processing Trials, Documentation of Repeated Events, Recheck versus Recalibration

☑ **Making IR-4 Field Research Centers Work in a Resource Limited World** 3/4/2014

Topics: eQA Update, Targeted Trials, Managing Field Research Centers: Big v. Small, Common Issues, Annuals v. Perennials, Station Managers, Tricks to get it done

☑ **Highlights of Smart Moves by Our FRD** 1/14/2014

Topics: Customized FDN Forms, Facility Records, Protocol Instructions, Challenging Crops, Digital Maps, Sample Reduction, PPE, Checklists, Confirming Deposition, Drying Techniques, Temporary Workers, Equipment Mods, Working Together

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JL 3/25/15
verified by/date

The IR-4 Project

Rebecca Sisco
Western Region IR-4 Field Coordinator
University of California, Davis

Certificate Digitally Signed and Created: *13-Nov-14*

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 2C. TEMPORARY/SEASONAL PERSONNEL INVOLVED IN TRIAL

C. TRAINING SUMMARY

INSTRUCTIONS: Provide a brief narrative below of instructions given to temporary personnel for completion of tasks within this study. CVs and educational records are NOT required for personnel listed below.

TRAINER NAME: _____ _____
(PRINTED) (SIGNATURE)

INSTRUCTIONS: _____

PRINT NAME	TASK PERFORMED

ABOVE DATA ENTERED BY: _____ *DATE:* 9c

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE 10/5/15

Notes and Communications Part 3

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 3. NOTES AND COMMUNICATION LOG

INSTRUCTIONS: This section is to be used to document phone calls, fax communications, and e-mails associated with the field trial (e.g. call to inform Study Director of deviation, call to the laboratory to notify that samples will be shipped tomorrow, etc.), notes on events that relate to the integrity of the research, and data for which there is no specified location in the Field Data Book or for continued entries or explanations to other sections. Follow instructions on data entry, error correction, etc. in the General Instructions. Printed communications such as faxes and email messages that are inserted into this section should be initialed and dated. More than one day's entry may be made on one page in the NOTES AND COMMUNICATION LOG. However, each day's entry must be dated and initialed. Additionally, if a day's entry continues on more than one page, both pages must have the day's entry dated. Photocopy and insert additional pages if needed. Draw a line through all unused space to signify that no additional entries will be made on that page. Initial and date the line. ***Several trials within the same study under one Field Research Director may be documented on one form; however SEPARATE STUDIES MUST BE DOCUMENTED ON SEPARATE FORMS. When several trials are documented, true copies of the communication records must be placed in each Field Data Book to which the comments apply. (The original goes in one of the Field Data Books.)***

ENTRY DATE/ INITIALS	NOTES (include date of event described)
11/18/14 JC	Received test substance today. Box was undamaged and contents were intact, not leaking, and in good condition. Logged in test substance and placed into storage cabinet #F564KE.
7/17/15 JC	I measured the test substance into labeled secondary containers for the TRT 02 and TRT 03 soil applications. I followed SOP # 4-5.1. The test substance was transferred to secondary containers so that I would have pre-measured aliquots for the applications. I used amber-colored glass bottles with screwcaps for the secondary containers. I measured the test substance using Automatic pipettor # EPP-03. The pipettor was calibrated first using Mettler Balance, S/N J45684. I prepared 2 containers for the 2 soil applications (TRT 02 + TRT 03). The secondary containers were placed into Pesticide Storage Cabinet #F564KE.

Total number of pages in this section at initial pagination: 16

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
7/17/15 gc	They will be stored in this cabinet until the soil applications. The original test substance container was placed back into Pesticide Storage cabinet #F564KE.
7/21/15 gc	Made soil applications to the TRT 02 and TRT 03 plots today. Mike Kawate helped with the applications. I removed 2 secondary containers of test substance from Pesticide storage cabinet #F564KE for today's applications. I placed them in a small cooler bag with an ice pad and a Hobo recorder (Hobo #30). The Hobo was used to record transit temperatures to the field site and will be downloaded in the field when I mix the TRT 03 application. Hobo output is in Part 6F. Mike and I packed up the truck and drove to the field site. When we arrived we unpacked the equipment and set up to make the applications. The field was pre-wet by applying irrigation to the plots on the day before, and also, the grower turned on the irrigation first thing this morning. It is standard commercial practice to pre-wet the field prior to chemigation. We started with the TRT 02 plot and performed the leak test following the procedure outlined in Part 6F. Then, we did a calibration of the chemigation unit following the calibration procedure in Part 6F. Note that calibration is not necessary because the entire

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
7/21/15 gc	test substance mixture was injected on to the plot and there is no time requirement for the duration of the application. The calibration was done to check the chemigation unit and to make sure everything was operating correctly. Then we made the application to the TRT 02 plot following the procedures outlined in Part 6F. I mixed the test substance. Mike operated the chemigation unit. After the application the irrigation lines were flushed for 30 mins. to clean the lines. After the flush, the irrigation was turned off in the TRT 02 plot. Then we did the leak test, calibration, and application to the TRT 03 plot following the same procedures as the TRT 02 plot. After the TRT 03, 30 min. flush of the irrigation lines, The irrigation was left on in the TRT 03 plot. The TRT 02 irrigation valve was turned on and both plots were irrigated for 92 minutes to incorporate the test substance. This is standard commercial practice for a chemigation application to corn with Admire Pro. All mixing and application equipment was washed with soapy water and rinsed well. Cleaning was done between treatments and following the last application.
7/23/15 gc	Mike and I went to the field site to cut corn rows in the TRT 03 plot. We cut rows #2 and 7

(AW) gc 7/21/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
7/23/15 JC	In the TRT 03 plot, leaving the inner 4 corn rows and the outer 2 corn rows. We cut the rows to provide an alleyway for us to walk through the plot with the spray boom. The boom is 10 ft wide, and will cover 4 rows. The plot is large, and the inner 4 rows will provide more than enough crop needed to meet the sample requirements. The corn plants were cut at the base using lopers. The plants were placed in the next corn row on the ground. The inner 4 rows will be sprayed. The outer 2 rows will not be sprayed. Samples will only be collected in the inner 4 rows.
7/24/15 JC	Today, I assembled the new spray boom for the TRT 03 foliar applications. We decided to improve on the design of the spray boom that we used in the last corn trial (PR ~~#20~~ 11270.14-HI196) (EE) JC 7/24/15 We changed the PVC handles to aluminium pipe and replaced the cross-piece with aluminium pipe and new fittings, to make the boom more rigid so that it would be easier to handle. I completed boom assembly today. The boom ID is CORN-10-2015.
7/24/15 JC	I transferred 50 mL of WetCit surfactant into a labeled amber-colored bottle with screwcap. I

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
7/24/15 gc	did this in the field lab. I used a new, disposable pipettor tip. This subsample of adjuvant will be used to measure out the adjuvant aliquot in the field for the Foliar application spray dates. The amber bottle will be stored in Pesticide Storage Cabinet #F564KE. The adjuvant was measured into the amber bottle so that I didn't have to take the large container of adjuvant to the field on each application date. To prevent cross-contamination, with the test substance, the adjuvant will be measured using a clean, disposable pipette tip. The remaining adjuvant after all foliar applications are made, will be disposed of in the field. It will not be returned to the original container.
7/27/15 gc	Mike and I went to field site today for Foliar spray application #1 to the TRT 03 plot. When we arrived at the field site, we calibrated the sprayer. Mike operated the spray handle and I timed the output. Mike measured the output, and I recorded it in the field data notebook. Calibration was done following SOP # 5-4.1, Method 1. Then, Mike and I did the speed calibration following SOP 5-4.1. We held the spray boom while doing the speed calibration. The speed calibration was done on the corn plot to be sprayed: the TRT 03 plot.

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
7/27/15 gc	Only the 4 inner rows of the TRT 03 plot will be sprayed. Rows 2 and 7 have been cut out to provide a walkway for spraying. Samples will only be collected from the 2 inner rows. We only sprayed the 4 inner rows because this plot width (10 ft) matches the spray swath of the spray boom. 2 rows will provide considerably more crop than is needed to meet sample collection requirements. After the speed calibration, I mixed the test substance spray mixture. I mixed directly in the 3 gal spray tank. I followed SOP # 4-6.1, Method 2. The test substance was measured directly from the original container using Automatic Pipettor # EPP-03. I used a new, disposable, positive displacement pipette tip to measure. I measured the surfactant, WetCit, from the subsample held in the amber bottle. I measured the WetCit using a new, disposable positive displacement pipette tip. The surfactant was not contaminated with test substance. It was measured after the test substance was put away and the pipette tip was in a beaker of water away from the surfactant. After mixing, Mike and I made the spray application. Mike held the backpack with the spray tank and CO_2
(WE) gc 7/27/15	
(WE) gc 7/27/15	

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
7/27/15 gc	tank. Mike operated the spray handle. I held the other end of the boom. The spray boom was primed into beakers before spraying. There was one spray pass. We used metronomes to keep track of walking speed, and I used a stopwatch to time the pass. After spraying, we measured the overage and then sprayed it out on a weedy area away from the plot. The weather was hot and sunny today with light trade winds. Mike and I cleaned the equipment, packed up and drove back to the field lab. When we got back, I returned the original container of test substance to the Pesticide Storage cabinet #F564KE. I put the amber bottle of surfactant into that cabinet also. Spraying went fine today except that we noted an under-application of -5.78%, discovered after measuring the spray overage. The pass time was right on target.
7/28/15 gc	Emailed Study Director regarding under-application. See email to Keith Dorschner dated 7/28/15.
8/3/15 gc	Mike, James, and I went to field site to make the TRT 03, Foliar Application #2 today. The application was made the same way as described for Application #1 on 7/27/15, but James sprayed

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

IR-4 FIELD DATA BOOK

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
8/3/15 gc	the plot with Mike instead of me. James helped with sprayer calibration and with cleaning the spray equipment after the application. We also made a modification to the target pass time to compensate for the decreased output of the sprayer when the boom is held overhead during the spray application. See Part 6D and the additional page added following Part 6D for the full explanation of what was done. Spraying went well. The weather was clear and dry.
8/10/15 gc	Went to field site to make Foliar Application #3 to the TRT 03 plot and to collect forage samples from all 3 plots. The spray equipment and test substance was loaded onto the pick-up truck. All sampling coolers and equipment was loaded into a separate vehicle (my car). We did this so that the sampling equipment was kept separate from the spraying equipment to avoid contamination. When we arrived at the field, I parked my car with the sample equipment upwind from the TRT 03 plot. We unloaded the spray gear on the truck at the TRT 03 plot. Mike and James were there to help with the spray application and sampling. All spray application procedures that were described for spray application #2 on 8/3/15 were followed today. gc 8/10/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
8/10/15 gc	Spraying went well with no problems. After spraying all of the spray equipment was washed thoroughly with soap and water and rinsed completely. All spray gear was packed up and loaded on the pick-up truck. Then, we all washed our hands and changed our shirts to clean shirts. Then, we unloaded the sampling equipment in front of the TRT 02 plot. We had a tent to provide shelter from the sun, and we set-up the equipment under the tent. We covered 2 large tables with a new plastic tarp. We set up the field balance on another table. We collected the forage samples following the procedures described in Part 7. After each sample was harvested, cut and bagged, all tools were washed with soap and water, rinsed and dried with paper towels. The tarp that covered the tables was wiped clean with a
(EE) gc 8/10/15	~~sam~~ sponge. The sponge was rinsed with water and the tarp was wiped clean again, then wiped with paper towels. This was done between each sample. Nitrile gloves were ~~worn~~ (SP) gc 8/10/15 worn by Mike, James and myself and changed between each sample. The weather was very windy during sampling. The TRT 03 plot was completely dry before collecting the forage sample. We made the spray application to the TRT 03 plot

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
8/10/15 gc	at 10:30 am and we started sampling at 1:05 pm.
	in the TRT 03 plot. After completion of sampling,
	we loaded my car with the sample coolers and equipment
	and I drove to the University of Hawaii. Upon
	arrival, samples were placed into the lab freezer, RF-17.
8/25/15 gc	I harvested corn stover pre-samples today at the
	field site. I collected the pre-samples from the corn
	buffer areas. These pre-samples will be dried down
	to determine percent moisture and to calculate the
	target weight range for the stover samples. See Part
	7 for stover pre-sampling documentation.
8/31/15 gc	James and I harvested grain and stover samples
	today. See Part 7 for all sampling details. When
	we arrived back to the field lab after sampling,
	I placed the grain samples in lab freezer RF-17.
	I placed the TRT 02 and TRT 03 stover samples into the
	drying oven located in the field lab, St. John, Rm. 006.
	I was going to place the TRT 01 stover samples M+N into
	the drying oven located in Ag. Sci. Rm. 103, but the oven
	controller was broken so the oven temperature could not
	be set and there was no heat to the oven. I asked
	a professor in our college, Skip Bittenbender, if I
	could borrow his drying oven for the TRT 01 Stover
	samples. He agreed, so the TRT 01 Stover Samples
	M+N were placed into the drying oven located in

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 3. NOTES AND COMMUNICATION LOG

ENTRY DATE/ INITIALS	NOTES (include date of event described)
8/31/15 JC	St. John, Room 112.
9/9/15 JC	All stover samples were dried to the appropriate moisture content specified in the protocol. All stover samples were removed from the drying ovens today. See Part 7 for a full description of stover drying and sampling.
9/14/15 JC	I shipped all corn samples from this trial to the residue lab today. James Kam helped package the samples.
9/16/15 JC	Checked FedEx tracking. All sample boxes were delivered to the lab today.
	JC 10/5/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Julie Coughlin

From: Keith Dorschner <dorschner@AESOP.Rutgers.edu>
Sent: Wednesday, May 6, 2015 8:51 AM
To: 'Julie Coughlin'
Cc: 'Rebecca Sisco'
Subject: RE: Seed Corn PR 11270 trial schedule

Aloha Julie,

I have no problem with your plan. Very likely it's a good idea to spread the trials out in time. Thanks for letting me know.

Mahalo to you too!

K.

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Wednesday, May 06, 2015 2:01 PM
To: Keith Dorschner
Cc: Rebecca Sisco
Subject: Seed Corn PR 11270 trial schedule

Hi Keith,

My trial schedule has changed for the Imidacloprid/Seed Corn trials. The original plan was 2 field trials last year in 2014, and 2 trials this year. I only did one trial last year because I lost my 2nd field to virus before I started applications. I have 2 corn fields planted now, and plan to do the 2014 trial and one of the 2015 trials this year. I would like to do the last trial in early 2016. Are you OK with that? I'm thinking that moving the last trial into 2016 would help with trial differentiation.

Mahalo!

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

qc 5/6/15

Julie Coughlin

From: Julie Coughlin <jcoughli@hawaii.edu>
Sent: Tuesday, July 28, 2015 10:05 AM
To: 'Keith Dorschner'
Cc: 'Rebecca Sisco'
Subject: RE: Imidacloprid/Corn PR 11270.15-HI196

Hi Keith,

Thanks so much for responding and for your guidance. I think your solution makes perfect sense, and Becky also suggested I put the calculations in the book. I will put the calcs. in the books and write a deviation for each trial. I can do it as a late entry. I won't be able to get to this until Thursday, but I will do it then. I'll email the deviations.

MAHALO!!

Julie

From: Keith Dorschner [mailto:dorschner@AESOP.Rutgers.edu]
Sent: Tuesday, July 28, 2015 9:57 AM
To: 'Julie Coughlin' <jcoughli@hawaii.edu>
Cc: 'Rebecca Sisco' <rsisco@ucdavis.edu>
Subject: RE: Imidacloprid/Corn PR 11270.15-HI196

Hi Julie,

I just did your amendment for the adjuvant. Sorry for not responding to this issue.

Normally we wouldn't even know about this slight underapplication. I think you should put the data in the book for your overage measurement, show your calculations, and then issue a deviation. Can you do that as a late entry?

I don't feel as though we can simply ignore this and if we do a deviation, we need data to back it up. And that data should be in the file, if not in the book.

Does this sound OK?

Mahalo, Keith

P.S. I think what you do is excellent science and a step towards understanding what is actually done in the field. What really happened.

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Tuesday, July 28, 2015 3:44 PM
To: Keith Dorschner
Cc: 'Rebecca Sisco'
Subject: Imidacloprid/Corn PR 11270.15-HI196

Hi Keith,

JC 7/28/15

Mike and I made the first foliar application to our corn plot for trial 11270.15-HI196, yesterday, 7/27/15. The pass time was right on target (+0.46%), but when we measured the overage, the calculation puts us at -5.78% under the target rate. We figured out what is happening: the CO2 spray boom is calibrated on the ground, and when we raise the boom over the corn rows, the output drops (about 5%). Even though the boom is pressurized, it still puts out less because of gravity (boom is held about 8 ft. off the ground). Next time, we plan to calibrate, and then bump up the pressure to get approx. 5% more output and do a recheck at the higher pressure, to account for the drop in flow when the boom is elevated.

The same thing happened in the previous trial (PR 11270.14-HI196) and I sent you an email, but you were away, and I don't see any response to it in my emails. Here's the email for the previous trial:

From Email to you dated 6/30/15: *"We made the first foliar application to the imidacloprid/corn field plot on 06/26/15. The application was made in one pass, and the calculation of actual application rate using the pass time was close to target at +0.52%. This is the calculation that's in the Field data book for this application. However: we measured the spray overage, and that calculation puts us at -6%, under the target rate (this calculation is not in the book, we just do it for our own verification). We think that there was a slight pressure drop in the system during the application, as Mike noticed the gauge reading a little lower than it was during calibration. I called Becky, and she recommended that I let you know what happened. I intended to email sooner, but was busy and just remembered. "*

Please let me know if I should prepare protocol deviations or not. And let me know if you have any questions.

Thanks!!

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

gc 7/28/15

Julie Coughlin

From: Keith Dorschner <dorschner@AESOP.Rutgers.edu>
Sent: Tuesday, August 4, 2015 2:24 AM
To: 'Julie Coughlin'
Subject: RE: Protocol Deviations PR 11270

VERY sweet! Thank you, Julie.

K.

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Monday, August 03, 2015 8:19 PM
To: 'Keith Dorschner'
Subject: RE: Protocol Deviations PR 11270

Hi Keith,

Please see attached Protocol Deviations for 11270. Originals in the mail....

MAHALO!!

Julie

From: Keith Dorschner [mailto:dorschner@AESOP.Rutgers.edu]
Sent: Monday, August 3, 2015 6:34 AM
To: 'Julie Coughlin' <jcoughli@hawaii.edu>
Subject: RE: Protocol Deviations PR 11270

Hi Julie,

If you'd like to tear them up and write others which say you detected the under-application by measuring unsprayed mix, I wouldn't argue with you!

☺

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Monday, August 03, 2015 12:24 PM
To: 'Keith Dorschner'
Subject: RE: Protocol Deviations PR 11270

Yes, that is correct. I have not put the deviations in the mail yet, so I won't mail them. Right?

Happy Monday!!

Julie

From: Keith Dorschner [mailto:dorschner@AESOP.Rutgers.edu]
Sent: Monday, August 3, 2015 3:13 AM
To: 'Julie Coughlin' <jcoughli@hawaii.edu>

PART 3 PAGE 15

JC 8/4/15

Cc: 'Rebecca Sisco' <rsisco@ucdavis.edu>
Subject: RE: Protocol Deviations PR 11270

Thanks Julie.

I would like to add in my assessment that this was discovered by measuring unsprayed mixture after the application was completed.

Is that a correct statement? Just want to be sure.

Mahalo, K.

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Friday, July 31, 2015 7:50 PM
To: Keith Dorschner
Cc: 'Rebecca Sisco'
Subject: Protocol Deviations PR 11270

Hi Keith,

Attached please find 2 protocol deviations documenting the under applications that occurred at two of the corn field sites, for PR 11270.14-HI196 and PR 11270.15-HI196. The original forms are in the mail. I have included rate confirmation calculations using overage amounts in both field data books following our email correspondence.

Thanks so much for your time in helping me address this issue. Have a great weekend!

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

jc 8/4/15

jc 10/5/15

Stephen Flanagan

From: Julie Coughlin <jcoughli@hawaii.edu>
Sent: Tuesday, November 29, 2016 3:46 PM
To: Stephen Flanagan
Cc: 'Keith Dorschner'; Rebecca Sisco; Mika Pringle Tolson
Subject: RE: QC Review 11270.15-HI196 Imidicloprid Corn Coughlin
Attachments: QC Review 11270.15-HI196 Imidicloprid Corn Coughlin 02.docx; Stover Presample Weights 11270.15-HI196.pdf

Stephen,

Attached please find my response to your QC review for PR 11270.15-HI196. Should I mail the original pages that have the stover pre-sample weights, or is the scan sufficient?

Thanks!

Julie

From: Stephen Flanagan [mailto:srflanagan@ucdavis.edu]
Sent: Wednesday, November 23, 2016 1:18 PM
To: Julie Coughlin <jcoughli@hawaii.edu>
Cc: Keith Dorschner <dorschner@AESOP.Rutgers.edu>; Rebecca Sisco <rsisco@ucdavis.edu>; Mika Pringle Tolson <mptolson@ucdavis.edu>
Subject: QC Review 11270.15-HI196 Imidicloprid Corn Coughlin

Julie:

Attached is my QC review of your SECOND excellent & detailed Seed Corn notebook. Please address these questions after the break and I'll make any necessary changes.

Thanks for your work in support of US specialty crop growers,

S

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Stephen Flanagan
Assistant Regional Field Coordinator
Western Region IR4
541-688-3155

12/2/16

Part 3, Page 16a

FRD: Julie Coughlin
Study Director: Keith Dorschner
Location: Waialua, Hawaii

Reviewer: SR Flanagan
Date: 11/23/16

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Julie:

Attached are my comments regarding the QC review of your above mentioned IR4 field data notebook. Please respond **within two weeks** to the listed concerns and I will make any changes to the notebook per your responses. You will be copied with any pages that are edited before your notebook is forwarded to IR4 QA.

Sincerely,

Stephen

1) Part 4, Page 2: What is the location of the shipping container? Please provide and I will add this information.

The shipping container (a cardboard box) was recycled. The shipping label was removed from the shipping container and taped to a piece of paper. This paper is in the study file in my office at the University of Hawaii.
JC 11/29/16

Note added SJ 12/2/16

2) Part 4, Pages 3 & 4: GLP Chain of Custody: This documentation from the manufacturer states 2 containers were received for studies listed as HI196 & HI197. May I assume that one container was used for this study and the second was used for HI197? If so I will add a note with your direction.

Yes, please add a note that one container was used for this study, and the other container was used for HI197.
JC 11/29/16

Notes added to Part 4, Page 1, SJ 12/2/16

3) Part 6, Page 3: Excellent drip system diagram. Was there a backflow preventer/check valve located between the injector and the well head? If so I will add a note with your permission.

No backflow preventer device was used because the water source was non-potable and was not connected to any municipal water source. Part 6, page 4 has a footnote explanation.
JC 11/29/16

✓ SJ 12/2/16, no changes

4) Part 6, Page 40: Hands down the University of Hawaii Field Research Group wins the 2016 "Whoa Look at that Spray Boom!" Memorial Award - quite a handful!

Mike's brilliant design! *JC 11/29/16*

Part 3, Page 16b

5) Part 6, Page 74: Inserted Part 6J Page from 11270.14-HI196, please allow me to correct the rounding error on this page.

Yes, please correct the rounding error to +1%. corrected, AF 12/2/16
JC 11/29/16

6) Part 7, Corn Stover Moisture Estimation, Pre-Samples, Page 20: Were there any weights recorded as the samples approached no weight change? If so please provide for inclusion. If the weights were not recorded, how did the researcher remember the weights for all six samples between readings?

Yes, the weights were recorded but I inadvertently did not include them in the field data notebook. See attached weight sheet to be included in the field data notebook.
JC 11/29/16 Inserted original from JC, AF 12/2/16

Part 3, Page 16c

TRT Date	TRT Number	TRT Area Length (Feet)	# of Nozzles	Nozzle Spacing (Inches)	Swath Width (Feet)	# of Passes	Treated Area (Sq.Ft.)	Total Pass Time (Sec)	Vol. of form. Used (ml)	Vol. of Carrier (ml)	Vol of Adj. (ml)	Total Mix Vol. (ml)	Adj %v/v	Boom Discharge Rate (ml/sec)	Calc. Del. Rate (ml/A)	Calc. Del. Rate (gal/A)	form/ Acre (gal/A)	Conc. of Form (lb ai/gal)	Actual Rate (lb ai/A)	Protocol Rate (lb ai/A)	% Dev.
Calculations					**(D*E)/12**		**C*F*G**					**J+K+L**	**(L/M)*100**		**((O*I)/H) * 43560**	**P/3785**	**(Q*J)/M**		**S*R**		**((T-U)/ U)*100**
27-Jul	03	100	6	20	10	1	1000	69.13	1.07	7821	9.17	7831	0.117%	94.5	284568	75	0.01	4.600	0.047	0.047	1%
3-Aug	03	100	6	20	10	1	1000	72.84	2.12	7821	9.17	7832	0.117%	95	301426	80	0.022	4.600	0.099	0.0934	6%
10-Aug	03	100	6	20	10	1	1000	74.41	2.12	7821	9.17	7832	0.117%	94.61	306659	81	0.022	4.600	0.101	0.0934	8%
Interval													**oz/100gal**	**%v/v**							
7													15	0.117%	Grower practice						
7													25	0.195%	Low label rate						
Soil-Irrigation Injection Apps																					
21-Jul	02	100		20			2000		18.93								0.109	4.600	0.501	0.5	**0.21%**
21-Jul	03	100		20			2000		10.22								0.059	4.600	0.271	0.27	**0.19%**

Wet: All applications within SD approved commercial practices.

Soil Applications, all test substance applied to plot, 100% of target.

Part 3, Page 66

12/2/16

Application Type: Broadcast Liquid

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Test Substance
Part 4

* one container for this study, other container for HI 197, ## 12/2/16 per JC

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 4. TEST SUBSTANCE RECORDS

A. RECEIPT, STORAGE AND DISPOSITION OF TEST SUBSTANCE--*INSTRUCTIONS:*
*Complete a separate form for **each different** batch/lot of test substance that has been received.*

NAME OF TEST SUBSTANCE ON CONTAINER LABEL *E.g. Darnitall 2 EC or GroundUp or XYZ8-0.*	Admire Pro		
BATCH/LOT NO.	NK41CX0578	DATE OF RECEIPT	11/18/14
Provide the batch/lot number of the test substance as it appears on the test material container label		TEST SUBSTANCE EXPIRATION DATE	10/24/16
Do not assign an expiration date if none is provided with the test substance—contact the Study Director.			
SOURCE OF EXPIRATION DATE	On container label and on certificate of analysis (COA).		
Note the source of the expiration date of the test substance (e.g., expiration date noted on test material container label, expiration date listed on documentation provided by manufacturer, expiration date obtained by IR-4 Headquarters)			

CARRIER THAT TRANSPORTED TEST SUBSTANCE	Federal Express		
INDIVIDUAL WHO RECEIVED TEST SUBSTANCE	Julie Coughlin		
WAS A BILL OF LADING/WAYBILL RECEIVED?	YES ✓ NO ___		
BILL OF LADING/WAYBILL/TRACKING NO. *Insert true copy if a Bill of Lading or Waybill was included in the shipment*	6059 0836 8340		
APPROXIMATE AMOUNT RECEIVED	475 mL	NUMBER OF CONTAINERS	~~1~~ * 2
CONTAINER DESCRIPTION (*glass bottles, water soluble packets, etc.*)	Plastic bottle		
CONDITION OF CONTAINER ON ARRIVAL (*intact, bags broken, etc.*)	Intact, not leaking		
GLP STATUS KNOWN AT TIME OF RECEIPT (*Check YES if the documentation provided by the manufacturer or information on the test material container claims that the test substance has been characterized per GLP requirements. If NO is checked, contact the Study Director.*)	YES ✓ NO ___		
IF "NO", ENTER THE DATE THAT THE STUDY DIRECTOR WAS INFORMED	N/A		
IF "YES", SOURCE OF GLP STATUS INFORMATION	container label and shipping form		
Label, shipping form, etc. Insert the Certificate of Analysis (COA) in this FDB Part if a COA has been received. It is not necessary to insert the MSDS in this FDB. Two-sided documents should not be inserted.			

WE, ## 12/2/16

STORAGE LOCATION	Univ. of HI, St. John, Rm. 006, Pesticide Storage Cabinet # F564KE		
Provide the location (building name, cabinet numbers, etc.) where the test substance will be stored during the trial.			
WAS THE TEST SUBSTANCE HELD TEMPORARILY* IN ANOTHER LOCATION PRIOR TO TRANSFER TO ITS LONG-TERM STORAGE LOCATION DURING THE FIELD TRIAL?	YES ___ NO ✓		
*Temperature monitoring should begin within 2 days of receipt of the test substance, regardless of where it is held or stored.			
IF YES, ENTER LOCATION	N/A		
DATES	N/A	ESTIMATED TEMPERATURE prior to monitoring	N/A

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 11/18/14

Total number of pages in this section at initial pagination: 40

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

COPY* of airbill from shipping box. gc 11/18/14 *original@ UH in study file, part of UH facility records. gc 12/2/16

ORIGIN ID:MXEA (919) 549-2388
JOHN ADAMS
BAYER CROPSCIENCE
2 TW ALEXANDER

DURHAM, NC 27709
UNITED STATES US

SHIP DATE: 14NOV14
ACTWGT: 6.0 LB MAN
CAD: 0091809/CAFE2806

BILL SENDER

TO JULIE COUGHLIN
UNIVERSITY OF HAWAII
3190 MAILE WAY
ST. JOHN HALL 307
HONOLULU HI 96822
(808) 956-7460
DEPT: ENVIRONMENTAL SCIENCE

REF: CJ93716002.6421100

S21C1/616C/6F03

FedEx Express

J141214073801av

TUE - 18 NOV PM
** 2DAY **

TRK# 0201 6059 0836 8340

IDG RES
96822
HI-US HNL

SY HIKA

Part # 156148-434 RIT2 03/12

gc 11/18/14

Order Pick List

2 T.W. Alexander Drive
Durham, NC 27709

Bayer CropScience

Master Order No.: 14-03637

M14-03637

Ship To: Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant & Env. Protection Science
3190 Maile Way
St. John RM 307
Honolulu, HI 96822 USA
Phone #: 808-956-7460

Ordered By: Fernandez, Jessica
Entered By: Guess, Pam
Date/Time Entered: Nov-13-2014 11:46:28 AM
Cost Center: CJ93716002
Requested Delivery Date: Nov-14-2014

Comments: None

GLP Items to be Shipped:

Formulation	Container	Qty	Forecast Study	Study No./ Trial No.	DOT Reg.
ADMIRE PRO	475 ML	2	IR-4 2014 GLP STUDIES	11270.15-HI96, 15-HI97	No

© Bayer CropScience, 2014

GLP Chain of Custody

2 T.W. Alexander Drive
Durham, NC 27709 USA

Bayer CropScience

Master Order No.: 14-03637
Ship To: Julie Coughlin
Phone #: 808-956-7460

Address: University of Hawaii at Manoa
Dept. of Plant & Env. Protection Science
3190 Maile Way
St. John RM 307
Honolulu, HI 96822 USA

<< Reprinted >>
Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

PART 4 PAGE 4

Formulation	*Batch/Lot No.*	*Container*	*Study No. / Trial No.*	*Container ID*
ADMIRE PRO	NK41CX0578	475 ML	11270.15-HI96, 15-HI97	602818
ADMIRE PRO	NK41CX0578	475 ML	11270.15-HI96, 15-HI97	603478

The "Shipped By" and "Received By" fields listed below are to be signed in ink.

BAYER CROPSCIENCE SHIPPING LOCATION USE
Sample Shipped By: [signature] Date: 11-14-14

COOPERATOR FACILITY USE ONLY
Received By: Julie Coughlin Date: 11/18/14
Amount Received Agrees with Amount Requested: Yes ✓ No ____

Comments: ____

File the original or an exact copy of the COC in each study/trial notebook.

© Bayer CropScience, 2014
Confidential

Certificate of Analysis

Bayer CropScience

COA No.: 214RP4486 **In Spec:** Yes **Certified Status:** Certified
Formulation Name: ADMIRE PRO **SP/RSN:** SP102000012448
FT-LIMS Code: L1472-A

Sample Identity: **Batch/Lot No.:** NK41CX0578

Analysis:
Assay Site: Bayer Crop Science, Monheim, Germany
Physical Appearance: Blue green **Specific Gravity:** 1.289
Date of Analysis: Oct-13-2014 **Specific Gravity Temp.:** 20 °C
GLP Analysis Protocol No.: FAR01809-00
Expiration Date: Oct-24-2016
Storage Requirements: 2°C to 30°C

Comments: None

Active Ingredient Name	*Common Name*	*Assay %*	*Assay GM/*
IMIDACLOPRID (CAS#138261-41-3)	(AE F106464)	43.80	

I certify that this material was analyzed in a laboratory following Good Laboratory Practice Standards.
Characterization data and a reserve sample for this material are located at Bayer Crop Science, Monheim, Germany.

11-13-2014

Authorization **Date**

Handling Requirements: Normal handling precautions should be taken to prevent the material entering the eyes, being inhaled or coming into contact with the skin, food, drink or smoking materials.

© Bayer CropScience, 2014

Bayer CropScience

Bayer CropScience LP
P.O. Box 12014
2 T.W. Alexander Drive
Research Triangle Park, North Carolina 27709
1-866-99BAYER (1-866-992-2937)

ACCEPTED

January 19, 2012

Under Hawaii Pesticides Law as Supplement to Product No. 9529.202

ADMIRE® PRO *Systemic Protectant*

Only for Use on Field Corn Grown for Seed Production, Research and Breeding Purposes

EPA Reg. No. 264-827
SLN. No. HI-110002

Issue Date: November 10, 2011
Expiration Date: November 9, 2016
Revised Date: January 19, 2012

24(c) Special Local Need

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF HAWAII

DIRECTIONS FOR USE
It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. This label must be in the possession of the user at the time of pesticide application. All applicable directions, restrictions and precautions on the EPA registered label are to be followed. This label is valid until November 9, 2016 or until otherwise amended, withdrawn, cancelled or suspended.

IMPORTANT
THIS LABEL IS ONLY FOR USE BY AUTHORIZED BAYER CROPSCIENCE PERSONNEL, MEMBERS, OR THEIR GROWERS UNDER THE **HAWAII CROP IMPROVEMENT ASSOCIATION** AND MAY NOT BE COPIED OR RE-TRANSMITTED IN ANY FORM. NO PART(S) OF THE CROP TREATED WITH **ADMIRE PRO *Systemic Protectant*** SHALL BE DIVERTED AS FOOD FOR HUMAN CONSUMPTION OR FEED FOR ANIMAL CONSUMPTION.

IMPORTANT
Bayer CropScience has not investigated the use of **ADMIRE PRO *Systemic Protectant*** for potential adverse interactions with any other crop protection or fertilizer products used in seed corn production, nor across potential commercial breeding lines. Therefore, adverse effects arising from the use of **ADMIRE PRO *Systemic Protectant*** on seed corn cannot be predicted and are therefore the responsibility of the User.

IMPORTANT
Before using this product, read and carefully follow the directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.

FIELD CORN GROWN FOR SEED PRODUCTION, RESEARCH, AND BREEDING PURPOSES

SOIL APPLICATIONS	
Pests Controlled	**Rate fluid ounces/Acre**
Aphids Planthoppers	7.0 – 14.0
Restrictions: Regardless of formulation or method of application, apply no more than 0.5 lb active ingredient (imidacloprid) per acre per season, including seed treatment, soil and foliar uses: (0.50 lb AI/Acre)	
Seed Corn – Soil Application Restrictions Pre-Harvest Interval (PHI): **15 days. No part(s) of the treated crop shall be diverted to use as food or feed.** Minimum interval between soil applications: **21 days** Maximum soil-applied ADMIRE® PRO allowed per crop season: 14.0 fl. oz Do not apply when bees are actively foraging. Do not graze livestock in treated areas.	
Seed Corn – Soil Applications Apply specified dosage in one of the following methods: 1. In-furrow spray during planting directed on or below seed; 2. In a narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting; 3. Basal, soil drench in a minimum of 30 milliliters (mLs) total solution per plant; 4. Chemigation into root-zone through low-pressure drip or trickle irrigation.	

JC 5/6/15

PART 4 PAGE 6

FIELD CORN GROWN FOR SEED PRODUCTION, RESEARCH, AND BREEDING PURPOSES

FOLIAR APPLICATIONS	
Pests Controlled	**Rate fluid ounces/Acre**
Aphids Planthoppers	1.3 – 2.6
Restrictions: Regardless of formulation or method of application, apply no more than 0.5 lb active ingredient (imidacloprid) per acre per season, including seed treatment, soil and foliar uses: (0.50 lb AI/Acre)	
Seed Corn – Foliar Application Restrictions Pre-Harvest Interval (PHI): **15 days. No part(s) of the treated crop shall be diverted to use as food or feed.** Minimum interval between foliar applications: **7 days** Maximum foliar-applied ADMIRE® PRO allowed per crop season: 6.5 fl. oz. Do not apply when bees are actively foraging. Do not graze livestock in treated areas.	
Seed Corn – Foliar Applications Apply specified dosage as a broadcast or directed spray to infested area insuring thorough coverage. Apply ADMIRE® PRO through properly calibrated ground or aerial application equipment. Aerial application of ADMIRE® PRO may result in slower activity and reduced control relative to results from ground application.	

For MEDICAL And TRANSPORTATION Emergencies ONLY Call 24 Hours A Day 1-800-334-7577
For PRODUCT USE Information Call 1-866-99BAYER (1-866-992-2937)

HI-SAL: November 10, 2011

ADMIRE is a registered trademark of Bayer.

1/19/2012

jc 5/6/15

jc 5/6/15

Bayer CropScience
SAFETY DATA SHEET

ADMIRE® PRO SYSTEMIC PROTECTANT

Version 3 / USA
102000012448

1/11
Revision Date: 09/03/2013
Print Date: 09/04/2013

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	ADMIRE® PRO SYSTEMIC PROTECTANT
Product code (UVP)	06480373
SDS Number	102000012448
EPA Registration No.	264-827

Relevant identified uses of the substance or mixture and uses advised against

Use	Insecticide
Restrictions on use	See product label for restrictions.

Information on manufacturer

Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency telephone no.
All Emergencies, 24hr/ 7 days 1-800-334-7577

Product Information Telephone No. 1-866-99BAYER (1-866-992-2937)

SDS Information or Request SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Eye irritation : Category 2B
Acute toxicity (Oral, Inhalation): Category 4



Signal word: Warning

Hazard statements
Causes eye irritation.
Harmful if swallowed or if inhaled.

Precautionary statements
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid breathing mist and spray.
Use only outdoors or in a well-ventilated area.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

yc 11/18/14

If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF INHALED: Call a POISON CENTER or doctor/ physician if you feel unwell.
Dispose of contents/container in accordance with local regulation.

Other hazards
No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Average % by Weight
Imidacloprid	138261-41-3	42.80
Glycerine	56-81-5	14.00

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms
No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

Treatment
Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

yc 11/18/14

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Foam, Dry chemical, Water spray
Unsuitable	None known.
Special hazards arising from the substance or mixture	Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for fire-fighters	Wear self-contained breathing apparatus and protective suit.
Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	> 100 °C
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Explosivity	not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Keep in suitable, closed containers for disposal.
Additional advice	Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

gc 11/18/14

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.
Hygiene measures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Imidacloprid	138261-41-3	0.7 mg/m3 (TWA)		OES BCS*
Glycerine (Mist.)	56-81-5	10 mg/m3 (TWA)	02 2012	ACGIH
Glycerine (Total dust.)	56-81-5	15 mg/m3 (PEL)	02 2006	OSHA Z1
Glycerine (Respirable fraction.)	56-81-5	5 mg/m3 (PEL)	02 2006	OSHA Z1
Glycerine (Total dust.)	56-81-5	10 mg/m3 (TWA)	1989	OSHA Z1A
Glycerine (Respirable fraction.)	56-81-5	5 mg/m3 (TWA)	1989	OSHA Z1A
Glycerine (Total dust and mist.)	56-81-5	10 mg/m3 (TWA)	06 2008	TN OEL
Glycerine (Respirable fraction and dust or fume.)	56-81-5	5 mg/m3 (TWA)	06 2008	TN OEL

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the

gc 11/18/14

following recommendations would apply.

Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.
Hand protection	Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)
Eye protection	Safety glasses with side-shields
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	blue to blue green
Physical State	Liquid
Odor	slightly perceptible
Odour Threshold	no data available
pH	6.5 - 8.5 (100 %) at 23 °C
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	1.29 g/cm³ at 20 °C
Evapouration rate	no data available
Boiling Point	no data available
Melting / Freezing Point	no data available
Water solubility	dispersible
Minimum Ignition Energy	not applicable
Decomposition temperature	not applicable

JC 11/18/14

Partition coefficient: n-octanol/water	no data available
Viscosity	< 250 mPa.s
Flash point	> 100 °C
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Explosivity	not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	not applicable
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	no data available
Incompatible materials	no data available
Hazardous decomposition products	no data available

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Ingestion, Eye contact, Skin contact, Inhalation
Immediate Effects	
Eye	Moderate eye irritation.
Skin	May cause slight irritation. Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.

jc 11/18/14

Inhalation	Harmful if inhaled.

Information on toxicological effects

Acute oral toxicity	LD50 (female rat) 643 mg/kg LD50 (male rat) > 500 - < 825 mg/kg
Acute inhalation toxicity	LC50 (female rat) > 1.02 - < 2.02 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. LC50 (male rat) 2.5 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. LC50 (female rat) > 4.1 - < 8.1 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50. LC50 (male rat) 10.0 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Acute dermal toxicity	LD50 (male/female combined rat) > 2,000 mg/kg
Skin irritation	Slight irritation (rabbit)
Eye irritation	Minimally irritating. (rabbit)
Sensitisation	Non-sensitizing. (guinea pig)

Assessment repeated dose toxicity
Imidacloprid did not cause specific target organ toxicity in experimental animal studies.

Assessment Mutagenicity
Imidacloprid was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity
Imidacloprid was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH
None.

NTP
None.

IARC
None.

jc 11/18/14

OSHA
None.

Assessment toxicity to reproduction
Imidacloprid caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Imidacloprid is related to parental toxicity.

Assessment developmental toxicity
Imidacloprid caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Imidacloprid are related to maternal toxicity.

Further information
Acute toxicity studies have not been performed on this product as formulated.
Acute toxicity studies have been bridged from a similar formulation(s).
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Rainbow trout (Oncorhynchus mykiss)) 211 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient imidacloprid.
Toxicity to aquatic invertebrates	EC50 (Water flea (Daphnia magna)) 85 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient imidacloprid. LC50 (Chironomus riparius (non-biting midge)) 0.0552 mg/l Exposure time: 24 h The value mentioned relates to the active ingredient imidacloprid.
Toxicity to aquatic plants	EC50 (Desmodesmus subspicatus) > 10 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient imidacloprid.
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

JC 11/18/14

Bayer CropScience
SAFETY DATA SHEET

ADMIRE® PRO SYSTEMIC PROTECTANT

Version 3 / USA
102000012448

9/11
Revision Date: 09/03/2013
Print Date: 09/04/2013

Product	Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Contaminated packaging	Triple rinse containers. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.
RCRA Information	Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR	Not dangerous goods / not hazardous material
IMDG	
UN number	**3082**
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (IMIDACLOPRID SOLUTION)
IATA	
UN number	**3082**
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (IMIDACLOPRID SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-827

US Federal Regulations

TSCA list

Glycerine 56-81-5

qc 11/18/14

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.
***SARA Title III* - Section 302 - Notification and Information**
None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting

CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Glycerine	56-81-5	MN, RI

Canadian Regulations

Canadian Domestic Substance List

Glycerine	56-81-5

Environmental

CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Glycerine	56-81-5

EPA/FIFRA Information:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal word:	Caution!
Hazard statements:	Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes and clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling.

SECTION 16: OTHER INFORMATION

jc 11/18/14

Bayer CropScience
SAFETY DATA SHEET

ADMIRE® PRO SYSTEMIC PROTECTANT

11/11

Version 3 / USA
102000012448

Revision Date: 09/03/2013
Print Date: 09/04/2013

NFPA 704 (National Fire Protection Association):
Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)
Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: The following sections have been revised: Section 5: Fire Fighting Measures. Section 9: Physical and Chemical Properties.

Revision Date: 09/03/2013

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

JC 10/5/15

JC 11/18/14

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 4. TEST SUBSTANCE RECORDS

B. USE LOG

*INSTRUCTIONS: Complete a separate form for **each different** container of test substance used. Insert records on form or provide equivalent information. Indicate use of the stated container of the test substance by recording the dates that test substance was removed, the amount of test substance removed on each date, the purpose of the use **(include trial ID# for all uses on IR-4 studies)**, and the initials of the individual responsible for the removal.*

CHEMICAL NAME Imidacloprid (Admire Pro)

BATCH/LOT NUMBER NK41CX0578 CONTAINER ID 2014-09

DESCRIPTION OF TEST SUBSTANCE Blue green liquid
(e.g. brown liquid, white powder. Note any unusual characteristics or changes here.)

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 11/18/14

DATE REMOVED	AMOUNT (*UNITS*) REMOVED	PURPOSE (include trial ID#) *[e.g. apply treatments, used in other research, etc.]*	INITIALS/DATE
7/17/15	18.93 mL	PR 11270.15-HI196, TRT 02, Soil Appl. #1	JC 7/17/15
7/17/15	10.22 mL	PR 11270.15-HI196, TRT 03, Soil Appl. #1	JC 7/17/15
7/27/15	1.07 mL	PR 11270.15-HI196, TRT 03, Foliar Appl. #1	JC 7/27/15
8/3/15	2.12 mL	PR 11270.15-HI196, TRT 03, Foliar Appl. #2	JC 8/3/15
8/10/15	2.12 mL	PR 11270.15-HI196, TRT 03, Foliar Appl. #3	JC 8/11/15 (LE) 8/11/15 JC
			JC 10/5/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 4. TEST SUBSTANCE RECORDS

C. DISPOSITION OF TEST SUBSTANCE CONTAINERS

INSTRUCTIONS: Complete the appropriate part (PART 1, PART 2 or PART 3) that best explains the disposition of the test substance containers after the completion of applications for the trial or provide equivalent information. Line-out the parts that do not apply to this trial.

PLEASE NOTE: **Test substance containers may not be discarded without prior approval from the Study Director or confirmation that the study has been completed (final report signed by the Study Director) or cancelled. Field Research Directors may contact the Study Director or their Regional Field Coordinator to determine if a waiver from EPA permits proper test substance container disposal, or regarding completion of the final study report (study completion confirmation can also be determined from an IR-4 database search using the "Test Substance Container Disposal Approval" link). Alternatively, some registrants will archive the test substance container(s).**

PART 1

If the container(s) were shipped and are no longer in the Field Research Director's possession, indicate where the containers were shipped (include address and to whose attention), date of shipment, carrier, bill of lading number and the name of the individual responsible for shipment. ***A chain of custody form should be included in the shipment. The Field Research Director may use a form on the letterhead of his/her facility, or the form on the IR-4 website: ir4.rutgers.edu/FoodUse/FieldBook/TSCOC***

SHIPPED CONTAINERS TO _____

_____

DATE SHIPPED _____ CARRIER _____ BILL OF LADING NO. _____

SHIPPED BY _____ JC 10/5/15

PART 2

If the containers will remain in the possession of the Field Research Director, indicate location where the containers are stored.

STORING CONTAINERS AT:

University of Hawaii at Manoa, 3190 Maile Way, St. John, Rm. 006,
Field lab, Pesticide Storage Cabinet # F564KE.

PART 3

If containers were not handled by any of the above methods briefly explain how they were handled.

_____

_____

_____ JC 10/5/15

_____

ABOVE DATA ENTERED BY: Jimi Coughlin *DATE:* 10/5/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 4. TEST SUBSTANCE RECORDS

D. IDENTIFICATION AND RECEIPT OF ADJUVANTS (SPRAY ADDITIVES)

NOTE: The use of adjuvants with the test substance must be approved in the protocol or in a protocol amendment. Adjuvants are considered to be reagents, not test substances. No GLP characterization is expected, but the GLP compliance statement must indicate if information pertaining to the receipt of the adjuvant at the field facility (usually the purchase date), recommended storage conditions (from the adjuvant label or MSDS), identity and concentration of the adjuvant (also from the label or MSDS), or the expiration date (either from the label or assigned by field personnel) is missing or incomplete.

INSTRUCTIONS: Complete one section for each adjuvant used in the trial. ***Also***, place a copy of the label after this page.

NAME OF THE ADJUVANT ON CONTAINER LABEL Wet Cit

TYPE OF ADJUVANT: NONIONIC SURFACTANT (NON-SILICONE) ___

SILICONE SURFACTANT ___ CROP OIL CONCENTRATE ___ VEGETABLE OIL ___

METHYLATED SEED OIL ___ METHYLATED SPRAY OIL ___

OTHER: A wetting agent and penetrant

DATE OF RECEIPT 09/24/14 RECEIVED BY Julie Coughlin

BATCH/LOT NO. [If this information is not available, check here: ____] V 2013128

EXPIRATION DATE [If this date has been assigned by the field personnel, check here: ✓] 09/24/19

AMOUNT RECEIVED 2.5 gallons

CONTAINER DESCRIPTION *(e.g. glass bottles)* White plastic jug with handle

CONDITION ON ARRIVAL *(e.g. good, bags broken, etc.)* Good, unopened, new container

STORAGE CONDITIONS Ambient temp. approx. 26°C

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/23/15

NAME OF THE ADJUVANT ON CONTAINER LABEL ___

TYPE OF ADJUVANT: NONIONIC SURFACTANT (NON-SILICONE) ___

SILICONE SURFACTANT ___ CROP OIL CONCENTRATE ___ VEGETABLE OIL ___

METHYLATED SEED OIL ___ METHYLATED SPRAY OIL ___

OTHER: ___

DATE OF RECEIPT ___ RECEIVED BY ___

BATCH/LOT NO. [If this information is not available, check here: ____] ___

EXPIRATION DATE [If this information has been assigned by the field personnel, check here: ____] ___

AMOUNT RECEIVED ___

CONTAINER DESCRIPTION *(e.g. glass bottles)* ___

CONDITION ON ARRIVAL *(e.g. good, bags broken, etc.)* ___

STORAGE CONDITIONS ___

ABOVE DATA ENTERED BY: ___ *DATE:* ___

JC 7/23/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. ___ INITIALS ___ DATE ___

PART 4 PAGE 22

WETCIT

A PENETRANT AND WETTING AGENT TO ENHANCE THE EFFICACY OF INSECTICIDES, MITICIDES, FUNGICIDES, HERBICIDES, PLANT GROWTH REGULATORS AND NUTRIENTS.

PRINCIPAL FUNCTIONING AGENTS

Alcohol Ethoxylate	8.15%
Constituents Ineffective as Spray Adjuvants	91.85%
Total	100.00%

KEEP OUT OF REACH OF CHILDREN

WARNING / AVISO

Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle.
If you do not understand the label, find someone to explain it to you in detail.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS.

WARNING: Causes substantial but temporary eye injury. Harmful if absorbed through skin or inhaled. Do not get in eyes or on clothing. Avoid contact with skin. Wear goggles, face shield or safety glasses. Avoid breathing spray mist. Wash hands before eating, drinking, chewing gum; using tobacco or using the toilet. Remove contaminated clothing and wash clothing before reuse.

FIRST AID: IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. **IF INHALED:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice. **IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

For Chemical Emergency (spill, leak, fire or accident), call CHEMTREC (800) 424-9300.

MANUFACTURED BY:
ORO AGRI INC.
3816 S. Willow Ave. Ste.101
Fresno, CA. 93725
Copyright © Jan 2014
Oro Agri Inc. All Rights Reserved
v2014129

NET CONTENTS

2.5 Gallons / 9.5 Liters
21.5 lbs / 9.8 kg

ANOTHER ORO PRODUCT

ID Reg. No. 67458A
WA Reg. No. 72662-05001
CA Reg. No. 72662-50001-AA

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

JC 7/23/15

PART 4 PAGE 23

GENERAL INFORMATION

WETCIT is a highly effective surfactant designed for use with insecticides, miticides, fungicides, herbicides, plant growth regulators, and nutrients requiring a wetting, spreading and penetrating agent. **WETCIT** assists in overcoming water repellence. A spray adjuvant added to some pesticide or pesticide tank mixes may cause some phytotoxicity to susceptible crops and plants. Caution should be used when applying **WETCIT**, it is advisable to apply to a small area before full scale treatments are made.

NOTE ON PESTICIDE EFFICACY EFFECTS

WETCIT may increase the response of translaminar, systemic and emulsifiable concentrate type insecticides, miticides, fungicides, herbicides, plant growth regulators and nutrients. Users and or applicator should therefore evaluate this response prior to widespread usage.

MIXING DIRECTIONS

Fill tank one-half full of water. Add the required amount of pesticide while agitating. Add remainder of the water. Add the recommended amount of **WETCIT** last and continue agitation until completion of spraying. For best results, use within 72 hours of mixing.

DO NOT ADD THIS PRODUCT AT A RATE THAT WILL EXCEED 0.8% (100 oz. per 100 gallons) OF THE FINISHED SPRAY VOLUME.

DIRECTIONS FOR USE

Prior to use, read all the directions on this label and on the label of the manufacturer's insecticides, miticides, fungicides, herbicides, plant growth regulators, nutrients, defoliants and dessicants being used with this product. The manufacturer's label for specific usage and restrictions has precedence over directions for use referred to on the **WETCIT** label. To ensure thorough mixing, it is suggested that you recirculate mini tanks and bulk tanks or shake containers before using. Ensure spray equipment is thoroughly cleaned before using **WETCIT**. Coatings in inner tank and spray lines, from previous chemicals sprayed, may be dissolved by **WETCIT**, thereby releasing it into the mix about to be sprayed. If in doubt, applying as directed, add 20 ounces of **WETCIT** to 20 gallons of water and circulate through system for 20 minutes, spray to waste. THEREAFTER, mix as prescribed for regular spraying. Treat a small area and observe results. If the results are satisfactory, proceed with a complete application. CAUTION: Do not apply to tree fruit or other sensitive crops without first consulting your Oro Agri representative.

NOT FOR AQUATIC USE IN WASHINGTON.

DIRECTIONS FOR USE (Continued)

WETTING / SPREADING / PENETRATING / SURFACE TENSION REDUCTION

Insecticides, Miticides and Fungicides – Use 25 to 100 fl. oz. of **WETCIT** per 100 gallons of pesticide and / or foliar fertilizer spray solution.

Plant Growth Regulators and Nutrients – Use 5 to 10 fl. oz. of **WETCIT** per 100 gallons of spray solution.

Herbicides – Use 25 to 100 fl. oz. of **WETCIT** per 100 gallons of spray solution.

Backpack or Hand Held Sprayers – Use 1/4 to 1/2 teaspoon of **WETCIT** per gallon of spray solution.

STORAGE AND DISPOSAL

STORAGE: Store in original container away from children, animals, foods, feeds and seeds. Handle in accordance with Precautionary Statements. In the event of spillage or leakage, soak up the material with absorbent clay, sand, sawdust or other absorbent material. Scrape up and dispose in accordance with Product Disposal. **PRODUCT DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. **CONTAINER DISPOSAL:** Triple rinse (or equivalent) during mixing and loading. Recycling decontaminated containers is the best option of container disposal.

WARRANTY STATEMENT

CONDITIONS OF SALE-LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES: Read the Conditions of Sale-Warranty and Limitations of Liability and Remedies before using this product. If the terms are not acceptable, return the product, unopened, and the full purchase price will be refunded. The directions on this label are believed to be reliable and should be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions or the failure to follow the label directions or good application practices, all of which are beyond the control of Oro Agri Inc. (the "Company") or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. The Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the factors noted above which are beyond the control of the Company. The Company makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose, and no such warranty shall be implied by law. The exclusive remedy against the Company for any cause of action relating to the handling or use of this product shall be limited to, at Company's election, one of the following:
1. Refund of the purchase price paid by buyer or user for product bought,
or
2. Replacement of the product used. To the extent allowed by law, the Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income. The Company and the seller offer this product and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

WETCIT and **ORO** are registered trademarks of Oro Agri Inc.

v2014'29

JC 7/23/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 4. TEST SUBSTANCE RECORDS

E. CHEMICAL STORAGE BUILDING TEMPERATURE LOG

INSTRUCTIONS: Use this (or an equivalent) form when chemical storage building temperatures are taken manually. For each day that temperatures are taken, directly record the date, the minimum and maximum air temperature, the degree units (°F or °C) and provide the initials of the person entering the data. When temperature records are monitored automatically, the original or certified true copy of the output (data logger disk, computer printout, etc.) must be placed in the Field Data Book.

UNIQUE IDENTIFIER FOR TEMPERATURE RECORDER: Hobo # 24

Enter Temperature Recorder ID—may be make/model/serial# or assigned identifier.

DATE	TEMP MIN/MAX	INITIALS	DATE	TEMP. MIN/MAX	INITIALS	DATE	TEMP MIN/MAX	INITIALS

See following pages for temperature charts.

JC 10/7/15

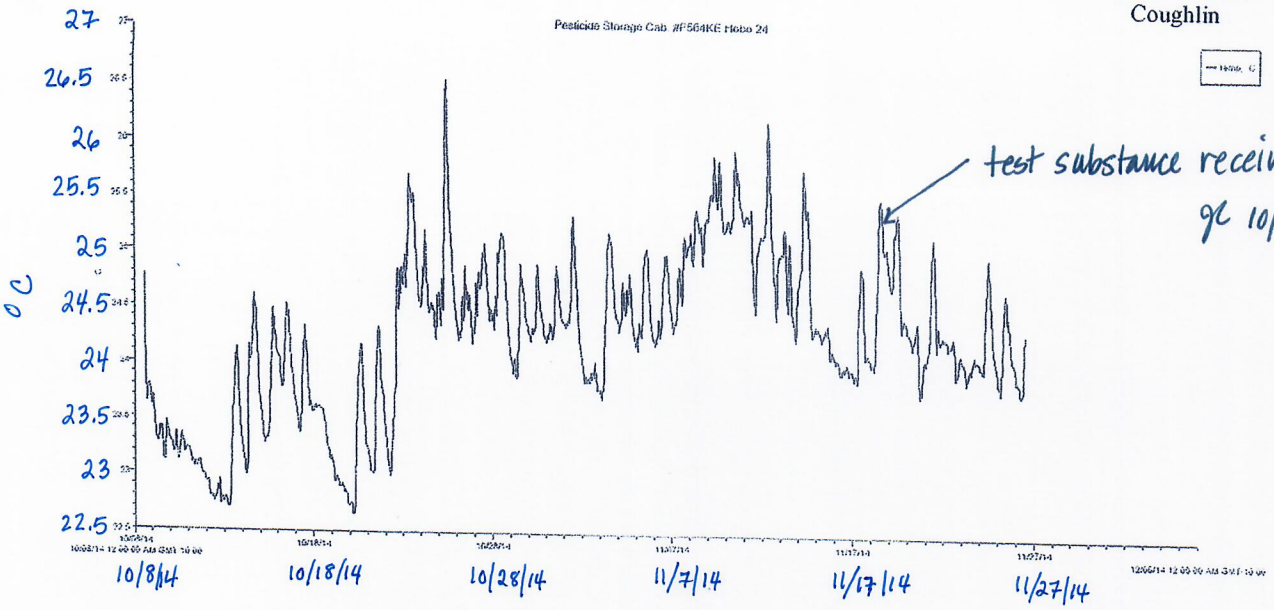
Please enter the overall minimum and maximum storage temperatures below, even if temperature printouts are inserted. The overall min/max temperatures should not include temperatures during transportation between storage and field. If there are two or more test substances (or separate shipments of test substance), then enter separate min/max temperatures below for each one, depending on the dates of receipt and application.

Test Substance 1:	Imidacloprid - Admire Pro - Container I.D. - 2014-09
Minimum test substance storage temperature between receipt and last application in this trial:	20.60 °C
Maximum test substance storage temperature between receipt and last application in this trial:	29.04 °C
Test Substance 2:	
Minimum test substance storage temperature between receipt and last application in this trial:	
Maximum test substance storage temperature between receipt and last application in this trial:	JC 10/7/15

Unless otherwise noted above, all temperature units are in (Check one): °C ✓ °F ____

Above data entered by: Julie Coughlin *Date* 10/7/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____



Note: The notations for date and temperature in the chart above were added because the chart copy was illegible. Notations were added on 2/16/17. JC 2/16/17

Details

Series: Temp, °C

Devices

Device Info

- Product: HOBO U23-001 Temp/RH
- Serial Number: 2224933
- Version Number: 1.10
- Manufacturer: Onset Computer Corporation
- Device Memory: 65536
- Header Created: 07/22/08 10:51:25 AM GMT-10:00

Deployment Info

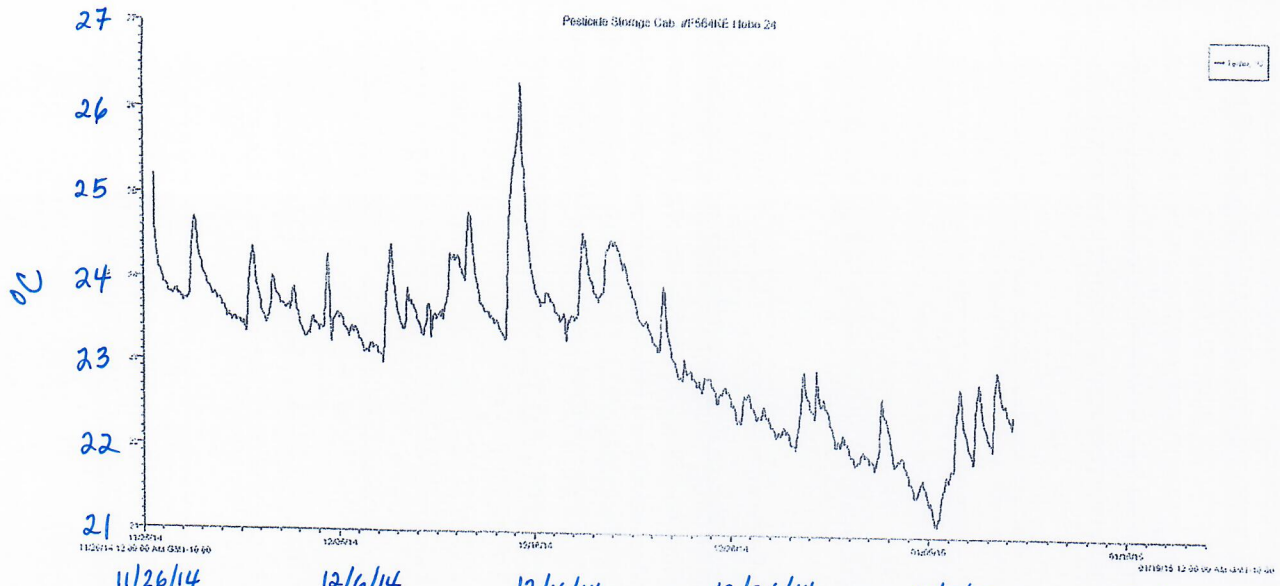
- Full Series Name: Temperature, °C
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Deployment Number: 65
- Launch Time: 10/08/14 02:49:28 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec
- Launch GMT Offset: -10 Hr 0 Min
- Battery at Launch: 3.24 Volts

Series Statistics

- Samples: 14,102
- Max: 26.549
- Min: 22.657
- Avg: 24.272
- Std Dev (σ): 0.725
- First Sample Time: 10/08/14 02:49:29 PM GMT-10:00
- Last Sample Time: 11/26/14 01:54:29 PM GMT-10:00

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/20/14
verified by/date

JC 11/26/14



(EE) JC 2/16/17 Note: The notations for date and ~~time~~ temperature in the chart above were added because the chart copy was illegible. Notations were added on 2/16/17. JC 2/17/16

Details

Series: Temp, °C

Devices

Device Info

- Product: HOBO U23-001 Temp/RH
- Serial Number: 2224933
- Version Number: 1.10
- Manufacturer: Onset Computer Corporation
- Device Memory: 65536
- Header Created: 07/22/08 10:51:25 AM GMT-10:00

Deployment Info

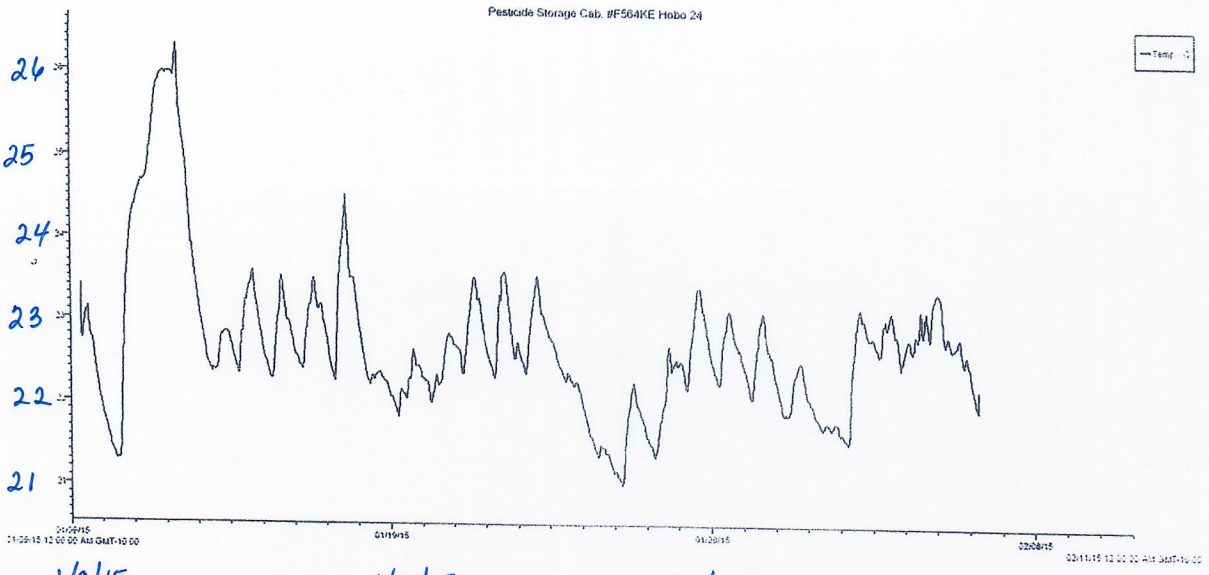
- Full Series Name: Temperature, °C
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Deployment Number: 66
- Launch Time: 11/26/14 02:03:25 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec
- Launch GMT Offset: -10 Hr 0 Min
- Battery at Launch: 3.21 Volts

Series Statistics

- Samples: 12,598
- Max: 26.329
- Min: 21.127
- Avg: 23.204
- Std Dev (σ): 0.876
- First Sample Time: 11/26/14 02:03:26 PM GMT-10:00
- Last Sample Time: 01/09/15 07:48:26 AM GMT-10:00

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/20/15
verified by/date

JC 1/9/15



Note: The notations for date and temperature in the chart above were added because the chart copy was illegible. Notations were added on 2/16/17.
JC 2/16/17

Details

Series: Temp, °C

Devices

Device Info

- Product: HOBO U23-001 Temp/RH
- Serial Number: 2224933
- Version Number: 1.10
- Manufacturer: Onset Computer Corporation
- Device Memory: 65536
- Header Created: 07/22/08 10:51:25 AM GMT-10:00

Deployment Info

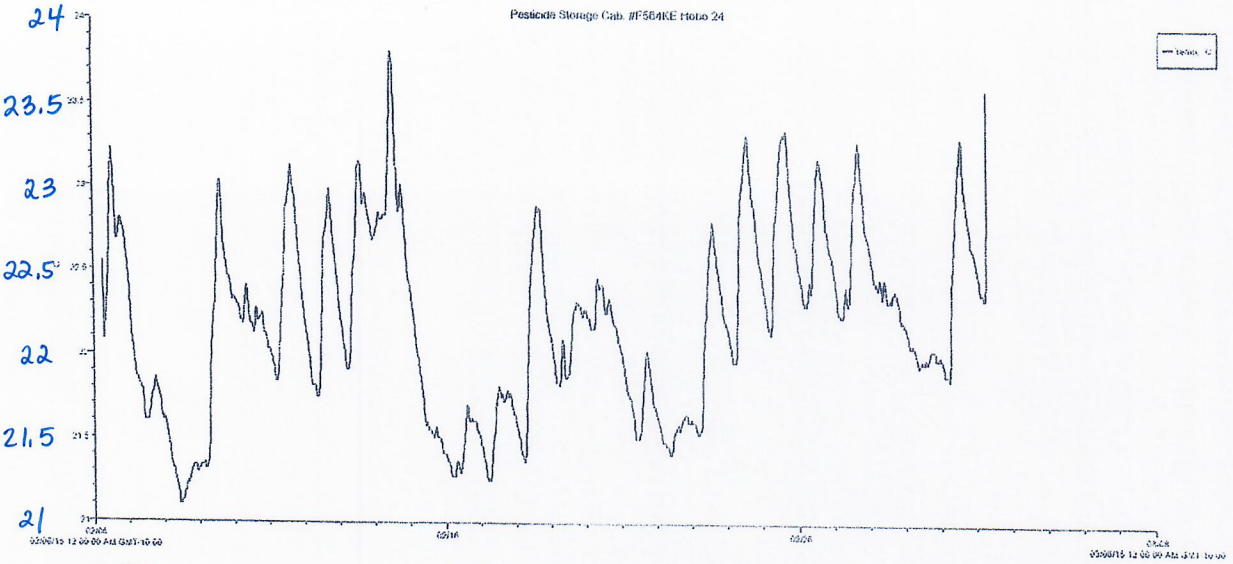
- Full Series Name: Temperature, °C
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Deployment Number: 67
- Launch Time: 01/09/15 07:57:32 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec
- Launch GMT Offset: -10 Hr 0 Min
- Battery at Launch: 3.18 Volts

Series Statistics

- Samples: 8,051
- Max: 26.329
- Min: 21.032
- Avg: 22.731
- Std Dev (σ): 0.905
- First Sample Time: 01/09/15 07:57:33 AM GMT-10:00
- Last Sample Time: 02/06/15 06:47:33 AM GMT-10:00

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/20/15
verified by/date

JC 2/6/15



Note: The notations for date and temperature in the chart above were added because the chart copy was illegible. Notations were added on 2/16/17.

gc 2/16/17

Details

Series: Temp, °C

Devices

Device Info

- Product: HOBO U23-001 Temp/RH
- Serial Number: 2224933
- Version Number: 1.10
- Manufacturer: Onset Computer Corporation
- Device Memory: 65536
- Header Created: 07/22/08 10:51:25 AM GMT-10:00

Deployment Info

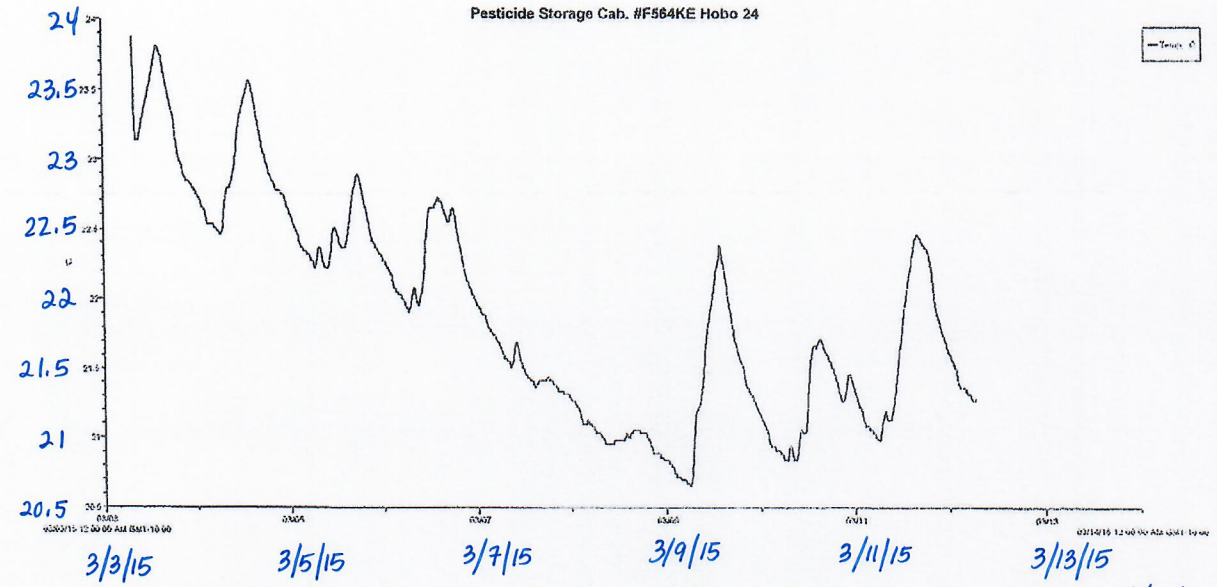
- Full Series Name: Temperature, °C
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Deployment Number: 68
- Launch Time: 02/06/15 06:54:16 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec
- Launch GMT Offset: -10 Hr 0 Min
- Battery at Launch: 3.00 Volts

Series Statistics

- Samples: 7,212
- Max: 23.809
- Min: 21.103
- Avg: 22.194
- Std Dev (σ): 0.545
- First Sample Time: 02/06/15 06:54:17 AM GMT-10:00
- Last Sample Time: 03/03/15 07:49:17 AM GMT-10:00

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
gc 3/20/15
verified by/date

gc 3/3/15



Note: The notations for date and temperature on the chart above were added because the chart copy was illegible. Notations were added on 2/16/17.
JC 2/16/17

Details

Series: Temp, °C

Devices

Device Info

- Product: HOBO U23-001 Temp/RH
- Serial Number: 2224933
- Version Number: 1.10
- Manufacturer: Onset Computer Corporation
- Device Memory: 65536
- Header Created: 07/22/08 10:51:25 AM GMT-10:00

Deployment Info

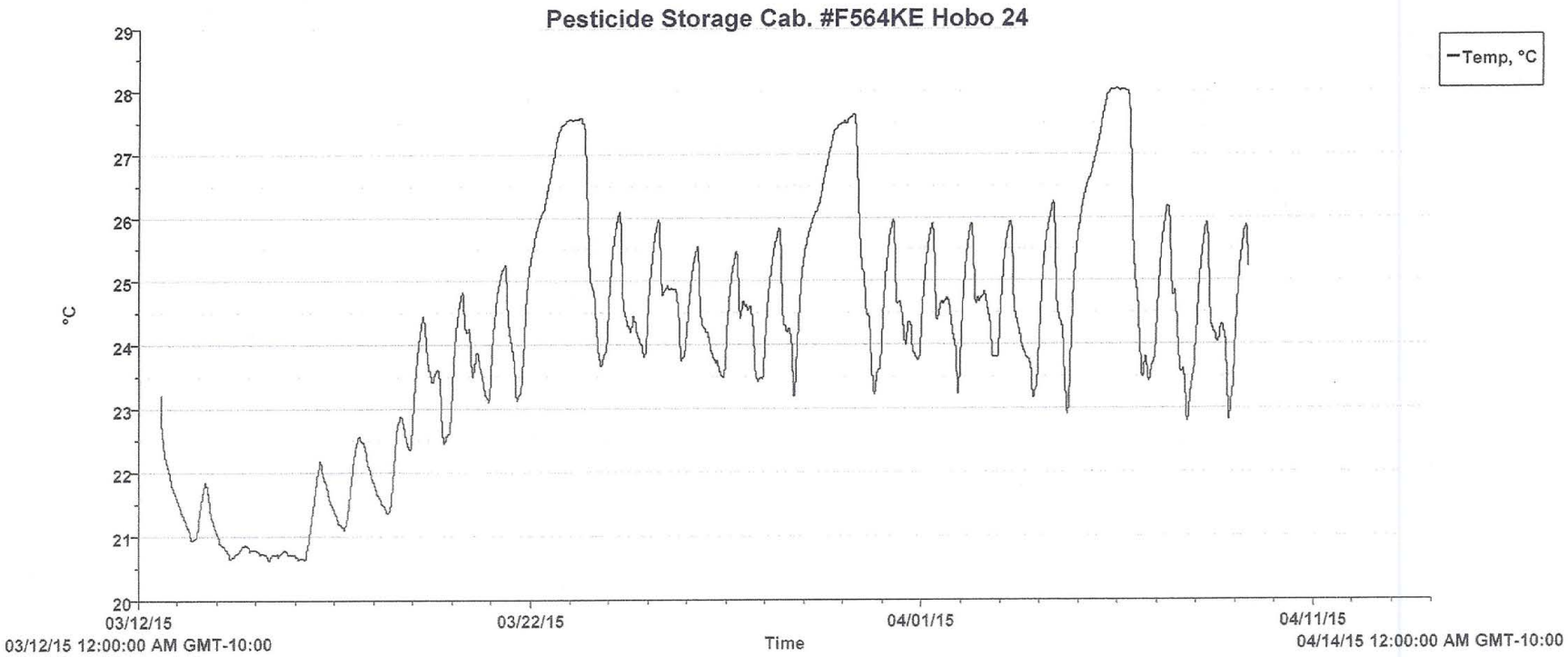
- Full Series Name: Temperature, °C
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Deployment Number: 69
- Launch Time: 03/03/15 07:55:25 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec
- Launch GMT Offset: -10 Hr 0 Min
- Battery at Launch: 3.10 Volts

Series Statistics

- Samples: 2,577
- Max: 23.881
- Min: 20.650
- Avg: 21.912
- Std Dev (σ): 0.783
- First Sample Time: 03/03/15 07:55:26 AM GMT-10:00
- Last Sample Time: 03/12/15 06:35:26 AM GMT-10:00

VERIFIED EXACT COPY
IR-4 Headquarters
location of original
JC 3/20/15
verified by/date

JC 3/12/15



Deployment Info

- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Launch Time: 03/12/15 01:41:44 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

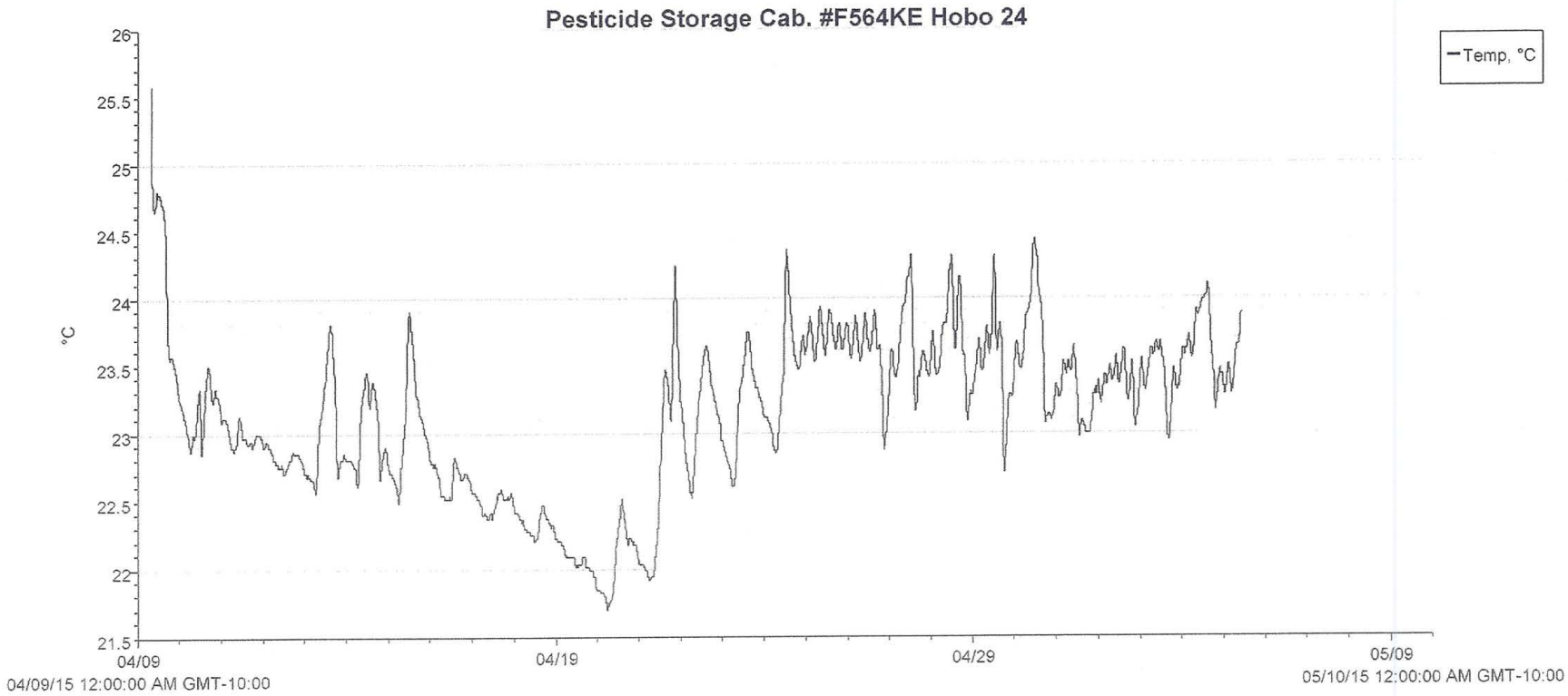
Series Statistics

- Samples: 7,994
- Max: 28.048
- Min: 20.603
- Avg: 24.123
- Std Dev (σ): 1.914
- First Sample Time: 03/12/15 01:41:45 PM GMT-10:00
- Last Sample Time: 04/09/15 07:46:45 AM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, Hobo Log
location of original
JC 10/7/15
verified by/date

JC 4/9/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin



Deployment Info

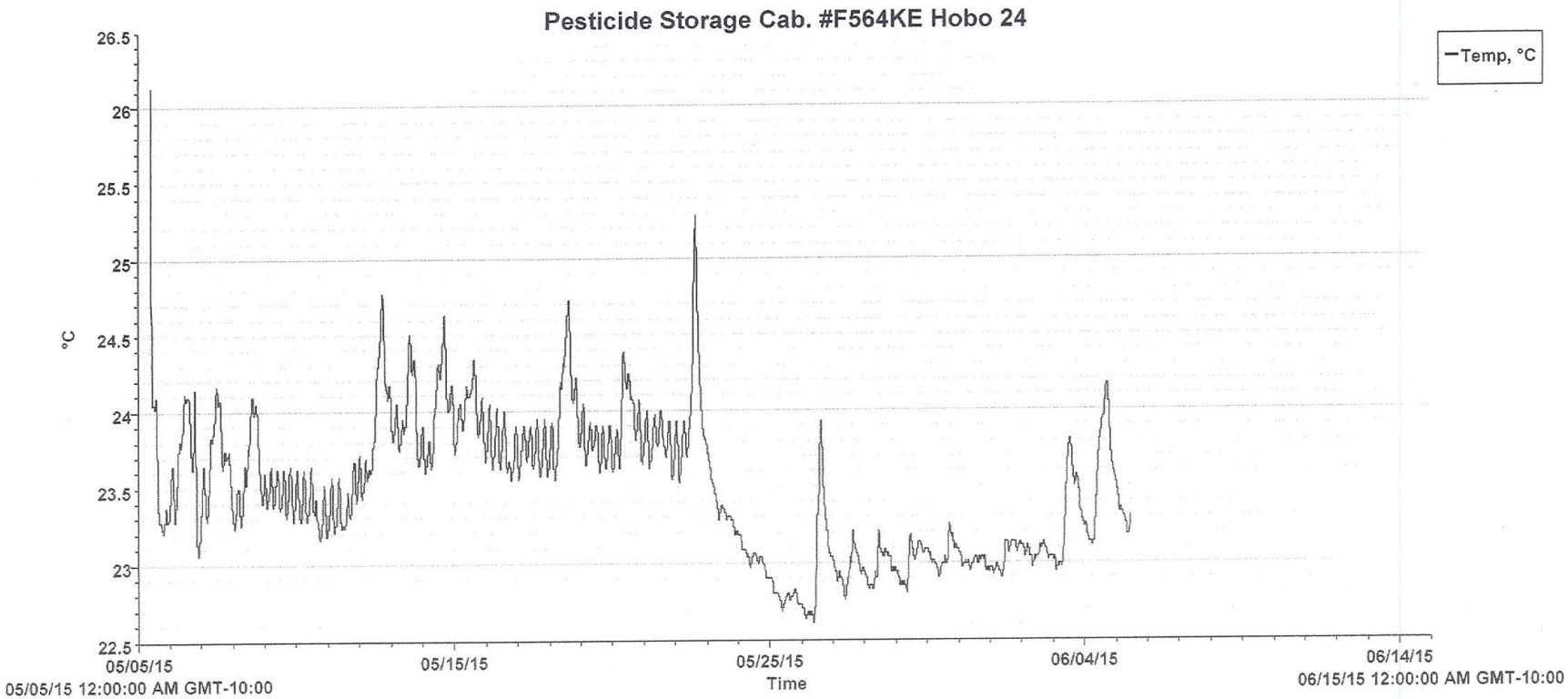
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Launch Time: 04/09/15 07:58:40 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 7,510
- Max: 25.574
- Min: 21.700
- Avg: 23.140
- Std Dev (σ): 0.594
- First Sample Time: 04/09/15 07:58:41 AM GMT-10:00
- Last Sample Time: 05/05/15 09:43:41 AM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, HoboLog
location of original
JC ~~10/6/15~~ 10/7/15
verified by/date
EE JC 10/7/15

JC 5/5/15



Deployment Info

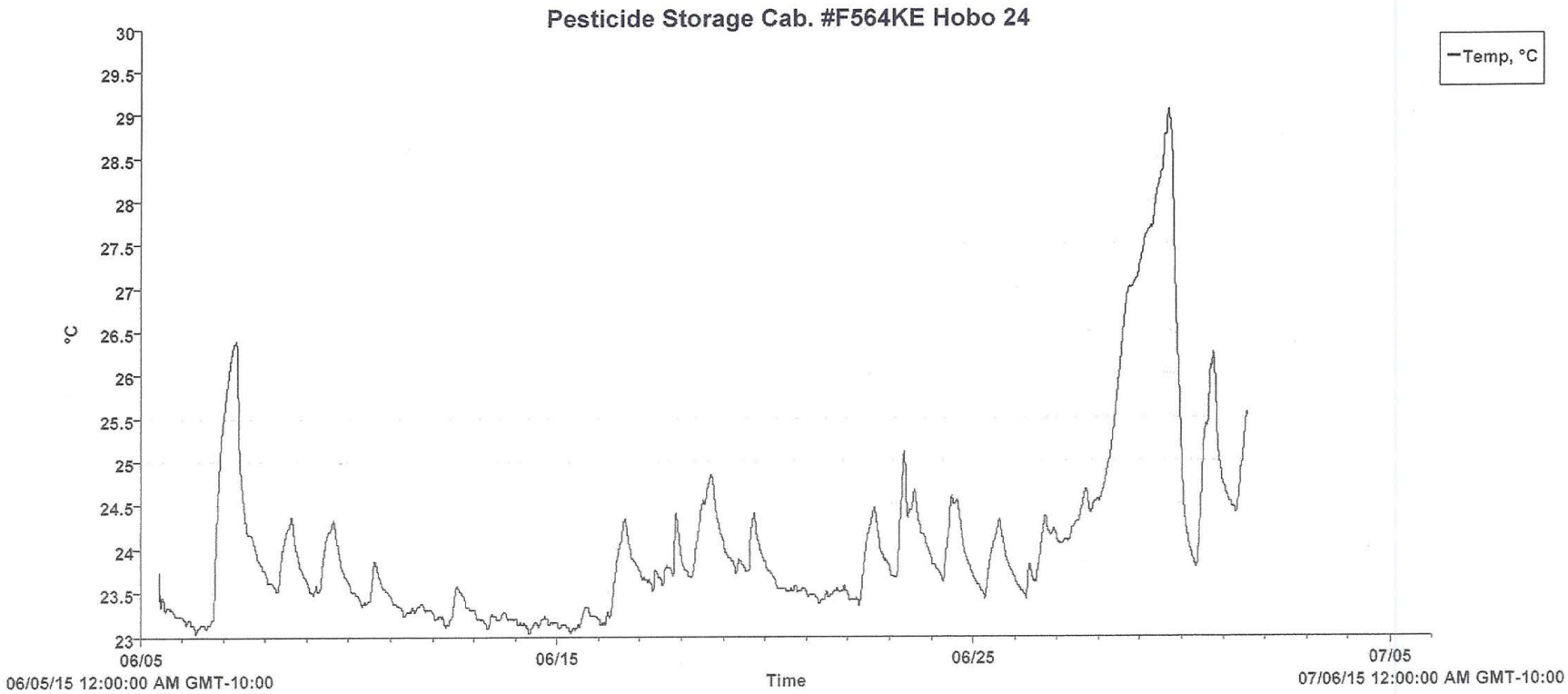
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Launch Time: 05/05/15 10:04:34 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 8,940
- Max: 26.134
- Min: 22.609
- Avg: 23.486
- Std Dev (σ): 0.456
- First Sample Time: 05/05/15 10:04:35 AM GMT-10:00
- Last Sample Time: 06/05/15 10:59:35 AM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, HoboLog
location of original
JC 10/7/15
verified by/date

JC 6/5/15



Deployment Info

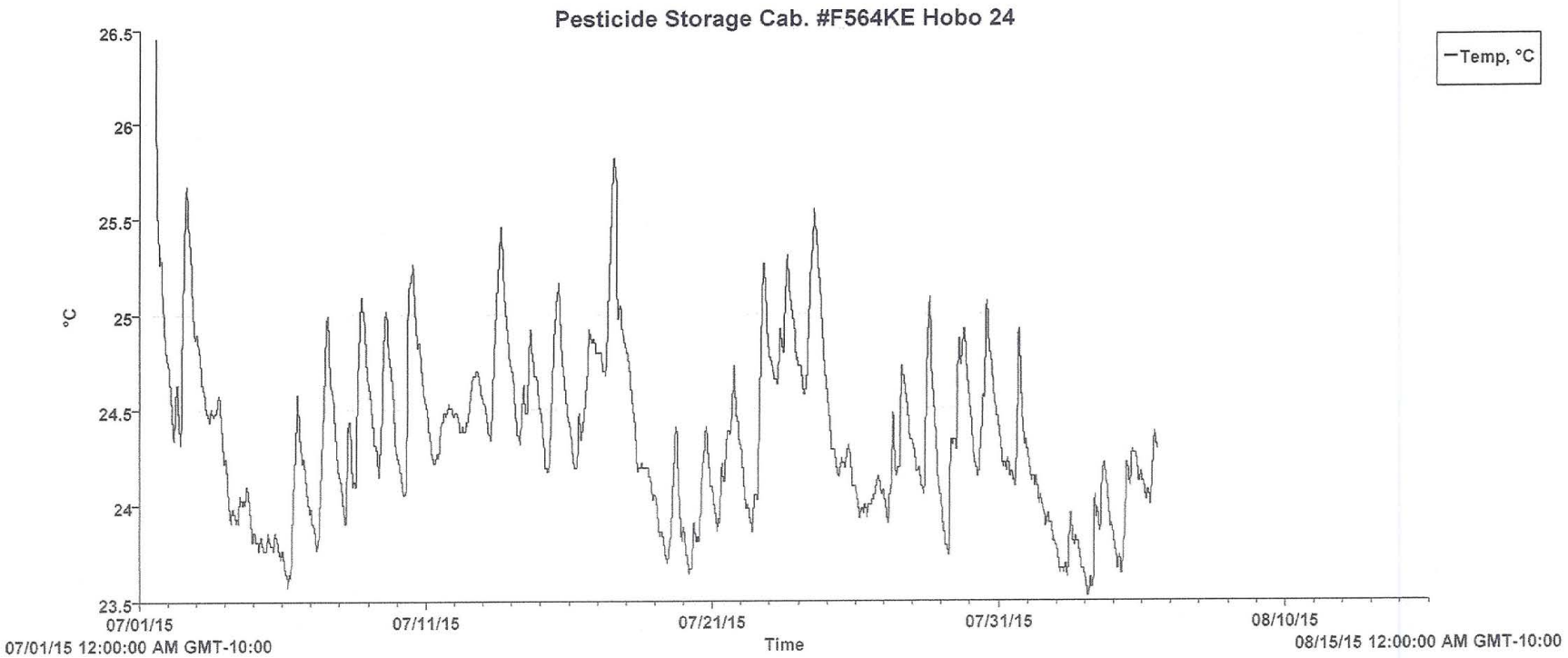
- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Launch Time: 06/05/15 11:09:57 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 7,523
- Max: 29.040
- Min: 23.040
- Avg: 24.044
- Std Dev (σ): 1.062
- First Sample Time: 06/05/15 11:09:58 AM GMT-10:00
- Last Sample Time: 07/01/15 01:59:58 PM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, HoboLog
location of original
JC 10/7/15
verified by/date

JC 7/1/15



Deployment Info

- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Launch Time: 07/01/15 02:11:05 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

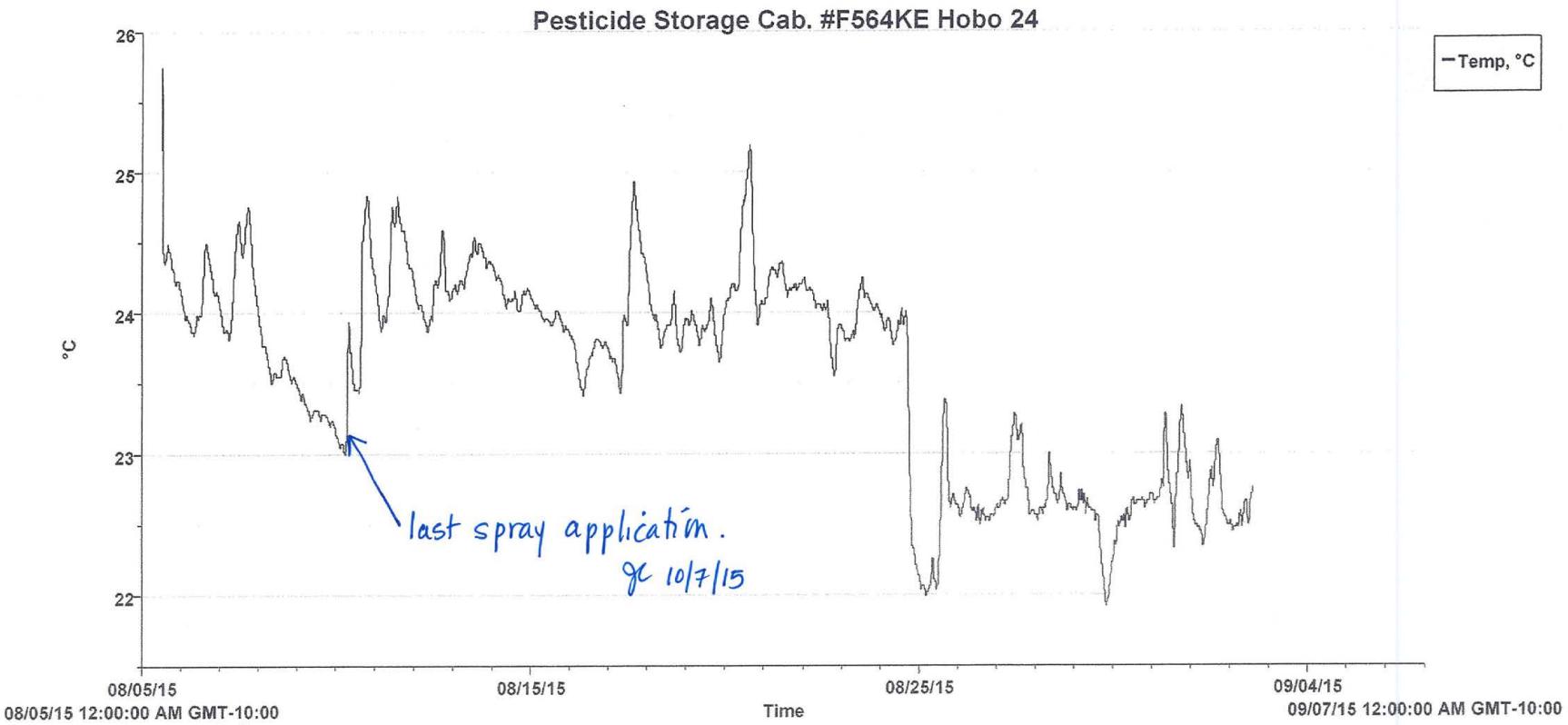
Series Statistics

- Samples: 10,060
- Max: 26.451
- Min: 23.521
- Avg: 24.365
- Std Dev (σ): 0.435
- First Sample Time: 07/01/15 02:11:06 PM GMT-10:00
- Last Sample Time: 08/05/15 12:26:06 PM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, Hobo Log
location of original
JC 10/7/15
verified by/date

JC 8/5/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin



Deployment Info

- Launch Description: Pesticide Storage Cab. #F564KE Hobo 24
- Launch Time: 08/05/15 12:39:29 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 8,073
- Max: 25.744
- Min: 21.915
- Avg: 23.569
- Std Dev (σ): 0.730
- First Sample Time: 08/05/15 12:39:30 PM GMT-10:00
- Last Sample Time: 09/02/15 01:19:30 PM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, Hobo Log
location of original
jc 10/7/15
verified by/date

jc 9/2/15

Imidacloprid/Corn (seed crop)
11270.15-HI1196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 4. TEST SUBSTANCE RECORDS

F. BALANCE CALIBRATION CHECK

INSTRUCTIONS: Complete this form or provide equivalent information when the test substance is a dry formulation. Check balance calibration by weighing standard weights that bracket the desired measurement. Record: date(s) that the balance calibration was checked, the standard weights, and the results. In addition, provide dates and a brief description of maintenance and repair work completed on the balance relevant to the trial. Be sure to initial all entries.

MAKE, MODEL, SERIAL NUMBER OR ASSIGNED IDENTIFIER: _____

Date	Stated Wt.	Recorded Wt.	Stated Wt.	Recorded Wt.	Initials

See following pages for balance and pipetter logs.

Stated Wt. = Stated mass of the standard weight(s) used in the calibration check
If more than one weight is used to attain the standard weight, indicate on the lines below the individual weights.
Recorded Wt. = Actual recorded mass of the standard weight(s)

RECORD DATES AND BRIEF DESCRIPTION OF ANY CALIBRATION, MAINTENANCE AND REPAIR WORK DONE ON BALANCE

_____

_____

_____

_____

_____

_____

_____

_____

_____

ABOVE DATA ENTERED BY: _____ *DATE:* _____

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 243

Equipment type: Mettler Top Loading Balance Model no.: BB2400 Serial no.: J45684

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
06/29/15 QK	C, U	09323.15-HI205	9.00 g	9.00 g	Y	Calibrate balance to calibrate pipettor. Use WT-05 standard weights.
			9.50 g	9.51 g		Balance is ok. Calibrate pipettor, EPP-03 to measure 1 appl. of
			10.00 g	10.00 g		clofentezine to guava (Apollo SC) for application today at Waimanalo.
			8.00 g	8.00 g		Calibrate pipettor for measuring 4 times 9.50 ml + 8.57 ml = 46.57ml
			8.57 g	8.57 g		
			9.00 g	9.01 g		
			5.00 g	5.00 g		Calibrate balance to calibrate pipettor. Use WT-05 standard weights.
			5.94 g	5.94 g		Balance is ok. Calibrate pipettor, EPP-03 to measure 1 appl. of
			6.00 g	6.01 g		R-11 for application today at Waimanalo. Turn off and clean pan.
7/2/15 JC	C,U	11270.14-HI196	2 g	2.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard
			2.12 g	2.13 g		weights. Calibrate pipettor, EPP-03. Will use pipettor in the field
			3 g	3.01 g		today to measure Admire Pro for Foliar Appl. #2.
7/2/15 JC	C,U	11270.14-HI196	3 g	3.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard
			3.87 g	3.87 g		weights. Calibrate pipettor, EPP-03. Will use pipettor in the
			4 g	3.99 g		field today to measure surfactant for Foliar App. #2.
7/8/15 JC	C,U	11270.14-HI196	2 g	2.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard
			2.12 g	2.12 g		weight set. Calibrate pipettor, EPP-03. Will use pipettor in the
			3 g	3.00 g		field today to measure Admire Pro for foliar appl. #3 on corn plot.
7/8/15 JC	C,U	11270.14-HI196	3 g	3.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard
			3.87 g	3.87 g		weights. Calibrate pipettor, EPP-03. Will use pipettor in the
			4 g	4.00 g		field today to measure surfactant for Foliar Appl. #3 to corn.
7/17/15 JC	C,U	11270.15-HI196	5 g	5.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 Standard
			6.31 g	6.30 g		weights. OK. Calibrate pipettor, EPP-03. Will use pipettor
			7 g	7.00 g		to measure Admire Pro for chemigation application to corn.

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, St. John, Rm. 006 INITIALS JC DATE 10/7/15

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Equipment type: Mettler Top Loading Balance Model no.: BB2400 Serial no.: J45684

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
7/17/15 JC	C, U	11270.15-HI196	4 g 5.11 g 6 g	4.00 g 5.11 g 6.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard weights. OK. Calibrate pipettor, EPP-03, Will use pipettor to measure Admire Pro for chemigation application to corn.
7/27/15 JC	C, U	11270.15-HI196	1 g 1.07 g 2 g	1.00 g 1.07 g 2.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard weight set. OK. Calibrate pipettor, EPP-03. Will use pipettor to measure Admire Pro, in the field today, for Spray Appl. #1.
7/27/15 JC	C, U	11270.15-HI196	9 g 9.17 g 10 g	9.00 g 9.17 g 10.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard weights. OK. Calibrate pipettor, EPP-03. Will use pipettor in the field today to measure surfactant for Foliar Appl. #1
8/3/15 JC	C, U	11270.15-HI196	2 g 2.12 g 3 g	2.00 g 2.11 g 3.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard weights. Calibrate pipettor, EPP-03. Will use pipettor in the field today to measure Admire Pro for Foliar Appl. #2 to TRT03 plot.
8/3/15 JC	C, U	11270.15-HI196	9 g 9.17 g 10 g	9.00 g 9.17 g 10.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard weights. Calibrate pipettor, EPP-03. Will use pipettor in the field today to measure surfactant for TRT03, Foliar Appl. #2.
8/10/15 JC	C, U	11270.15-HI196	2 g 2.12 g 3 g	2.00 g 2.12 g 3.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard weight set. Calibrate pipettor, EPP-03. Will use pipettor in field today to measure Admire Pro for Foliar Appl. #3, TRT03.
8/10/15 JC	C, U	11270.15-HI196	9 g 9.17 g 10 g	9.01 g 9.17 g 10.00 g	Y	Calibrate balance to calibrate pipettor. Used WT-05 standard weights. Calibrate pipettor, EPP-03. Will use pipettor in the field today to measure surfactant for TRT03, Foliar Appl. #3.
						JC 10/7/15

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, St. John, Rm. 006 INITIALS JC DATE 10/7/15

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 28

Equipment type: Eppendorf Maxipettor Model no.: 4720 Serial no.: EPP-03

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
7/8/15 gc	U	11270.14-HI196		gc 7/8/15	Y	Used pipettor to measure 2.12 mL Admire Pro and 3.87mL Spreader 90 surfactant for TRT 03, Foliar Appl. #3, to corn plot at Waimanalo.
7/17/15 gc	C, U	11270.15-HI196	5 mL 6.31 mL 7 mL	5.00 g 6.30 g 6.99 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Measure Admire Pro for chemigatrin appl. to TRT 02 plot, for corn trial. Measured 3 x 6.31 mL = 18.93 mL
7/17/15 gc	C, U	11270.15-HI196	4 mL 5.11 mL 6 mL	3.99 g 5.11 g 6.00 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Measure Admire Pro for chemigatrin appl. to TRT 03 plot for corn trial. Measured 2 x 5.11 mL = 10.22 mL
7/27/15 gc	C, U (EE) gc 7/27/15	11270.15-HI196	1 mL 1.07 mL 2 mL	1.00 g 1.07 g 2.00 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Will take pipettor to the field today to measure Admire Pro for TRT 03, Foliar Appl. #1 to corn plot in Waialua
7/27/15 gc	C, U (EE) gc 7/27/15	11270.15-HI196	9 mL 9.17 mL 10.0 mL	8.98 g 9.15 g 9.98 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Will take pipettor to field today to measure surfactant for TRT 03, Foliar Appl. #1 to corn plot in Waialua.
7/27/15 gc	U	11270.15-HI196		gc 7/27/15	Y	Used pipettor in the field today to measure 1.07 mL of Admire Pro and 9.17 mL of WetCit for the TRT 03, Foliar Appl. #1 to corn plot in Waialua.
8/3/15 gc	C	11270.15-HI196	2 mL 2.12 mL 3 mL	2.00 g 2.12 g 3.00 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Will take pipettor to the field today to measure Admire Pro for TRT 03, Foliar Appl. #2 to corn plot in Waialua.
8/3/15 gc	C	11270.15-HI196	9 mL 9.17 mL 10 mL	9.00 g 9.15 g 9.98 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Will take pipettor to the field today to measure surfactant for TRT 03, Foliar Appl. #2 to corn plot in Waialua.

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, St. John, Rm. 006 INITIALS gc DATE 10/7/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 29

Equipment type: Eppendorf Maxipettor Model no.: 4720 Serial no.: EPP-03

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
8/3/15 gc	U	11270.15-HI196		gc 8/3/15	Y	Used pipettor in field today to measure 2.12 mL Admire Pro and 9.17 mL Wetcit surfactant for TRT 03, Foliar Appl. #2 to corn plot in Waialua.
8/10/15 gc	C	11270.15-HI196	2 mL 2.12 mL 3 mL	2.00 g 2.12 g 3.01 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Will take pipettor to field today to measure Admire Pro for TRT 03, Foliar Appl. #3 to corn plot in Waialua.
8/10/15 gc	C	11270.15-HI196	9 mL 9.17 mL 10 mL	8.98 g 9.16 g 9.98 g	Y	Calibrate pipettor using Mettler Balance, S/N J45684. OK. Will take pipettor to the field today to measure surfactant for TRT 03, Foliar Appl. #3 to corn plot in Waialua.
8/10/15 gc	U	11270.15-HI196		gc 8/10/15	Y	Used pipettor in the field today to measure 2.12 mL Admire Pro and 9.17 mL Wetcit surfactant for TRT 03, Foliar Appl. #3 to corn plot in Waialua.
						gc 10/7/15

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, St. John, Rm. 006 INITIALS gc DATE 10/7/15

Trial Site
Part 5

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

A. DIRECTIONS TO TEST SITE

*INSTRUCTIONS: Indicate the name and location (street, town, state) of the test site (e.g. Banana Research Center, Rt. 3, Nenana, AK), the county (e.g. Denali), and provide directions from the nearest city or town **or** provide a map to the test site. The map can be sketched here; otherwise attach a clear photocopy or computer printout of the appropriate section of a state or county map with the test site location marked and the highways, nearest city or town identified.*

NAME AND LOCATION Dupont Pioneer, Waialua Parent Seed Plant
67-172 Farrington Hwy., P.O. Box 520
COUNTY Waialua, HI 96791-0520 Oahu County

DIRECTIONS FROM NEAREST CITY OR TOWN TO THE TEST SITE

DeLORME **Start to SR 930 - Directions** **DeLorme Topo USA® 7.0**

		Dist	Turn		Road	Exit	Total Time	Total Dist
◎			Start	at	Start		00:00:00	0.00 mi
			Go straight (SSW)	on	E West Rd (E West Rd)		00:00:00	0.00 mi
	in	0.23 mi	Turn right (W)	on to	Dole St		00:00:33	0.23 mi
	in	0.39 mi	Turn left (S)	on to	University Ave		00:01:28	0.62 mi
	in	0.10 mi	Keep right (WSW)	on to	I h-1 ramp		00:01:42	0.72 mi
	in	0.04 mi	Go straight (WNW)	on	I h-1 ramp		00:01:45	0.76 mi
	in	0.04 mi	Keep right (NW)	on to	I h-1		00:01:48	0.81 mi
	in	4.74 mi	Keep left (NW)	on to	Lunalilo Fwy (Moanalua Fwy|SR 78)		00:06:30	5.55 mi
	in	1.80 mi	Keep right (NNW)	on to	Moanalua Fwy (SR 78)		00:08:17	7.35 mi
	in	1.07 mi	Keep left (WNW)	on to	SR 78		00:09:20	8.42 mi
	in	1.22 mi	Keep right (WNW)	on to	I h-1 ramp		00:10:32	9.64 mi
	in	0.22 mi	Keep right (NW)	on	I h-1 ramp		00:10:51	9.86 mi
	in	0.39 mi	Keep right (WNW)	on to	I h-1		00:11:25	10.25 mi
	in	4.17 mi	Keep right (NW)	on to	I h-2 ramp	8A	00:15:33	14.42 mi
	in	0.11 mi	Keep left (NNW)	on	I h-2 ramp		00:15:42	14.53 mi
	in	0.25 mi	Keep left (NNW)	on to	I h-2		00:16:04	14.78 mi
	in	7.90 mi	Keep right (WSW)	on to	SR 99 (Wilikina Dr) ramp		00:23:54	22.69 mi
	in	0.03 mi	Go straight (WNW)	on to	SR 99 (Wilikina Dr)		00:23:56	22.72 mi
	in	1.75 mi	Keep left (NW)	on to	SR 803 (Wilikina Dr)		00:26:25	24.47 mi
	in	5.90 mi	Keep left (WNW)	on to	SR 930 (Farrington Hwy)		00:36:23	30.37 mi
◎	in	1.79 mi	Finish	at	SR 930		00:39:24	32.16 mi

Total Time: 00:39:24 Total Distance: 32.16 mi

ABOVE DATA ENTERED BY: Jami Coughlin *DATE:* 6/18/15

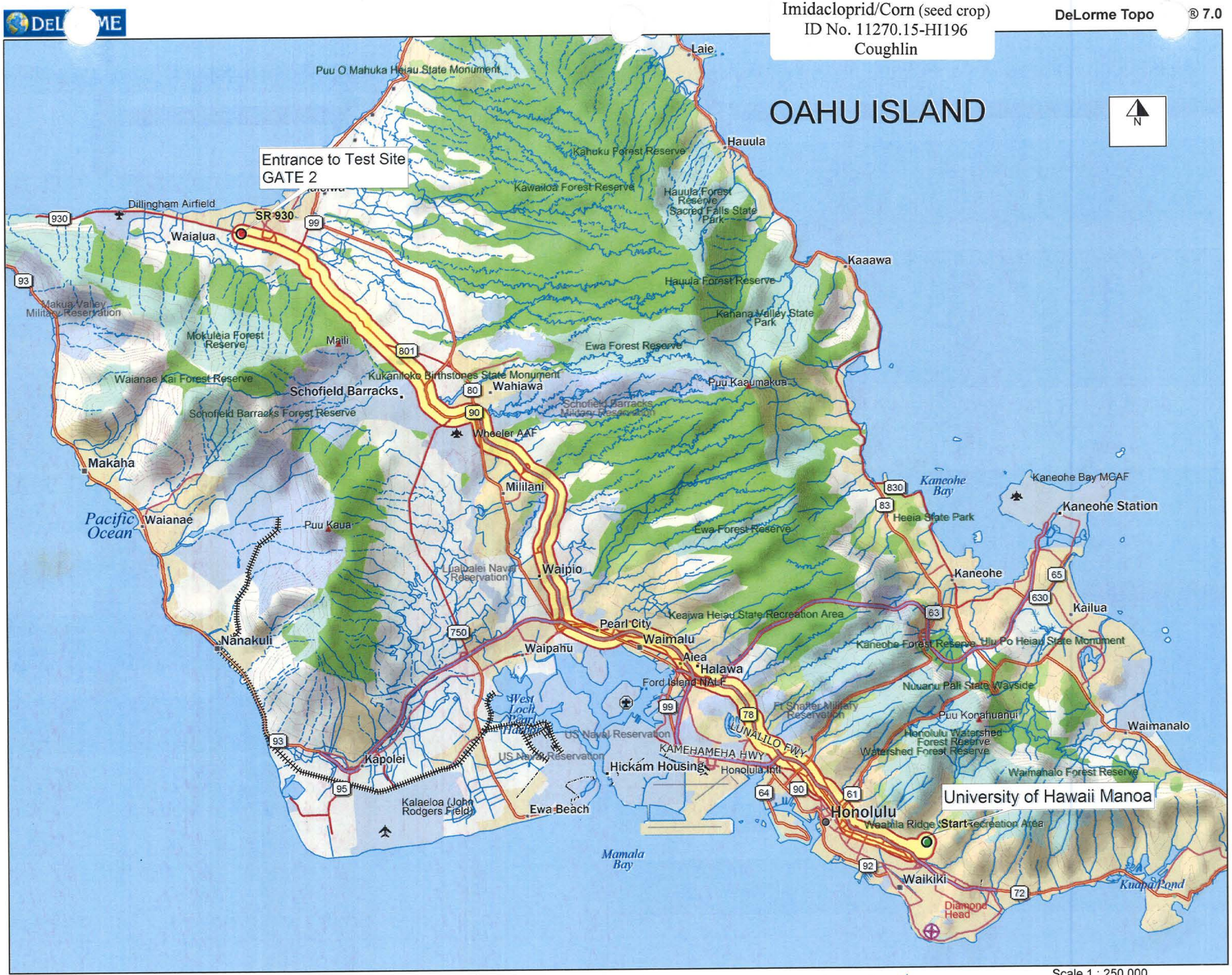
Trial Year 2015

Total number of pages in this section at initial pagination: 19

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin



PART 5 PAGE 2

Data use subject to license.

© DeLorme. DeLorme Topo USA® 7.0.

www.delorme.com

9c 6/18/15

Scale 1 : 250,000

1" = 3.95 mi

Data Zoom 9-6

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

B. DIRECTIONS TO TEST PLOT AREA

INSTRUCTIONS: Provide the general direction with distances from the entrance of test site to test plot area (indicate North direction) ***or*** *provide a map containing this information. (The entrance must be clearly indicated on the map.) Also indicate the irrigation source location and location of meteorological equipment if they are on site.*

See Plot Plan in Part 5.C.2 for location of irrigation source.

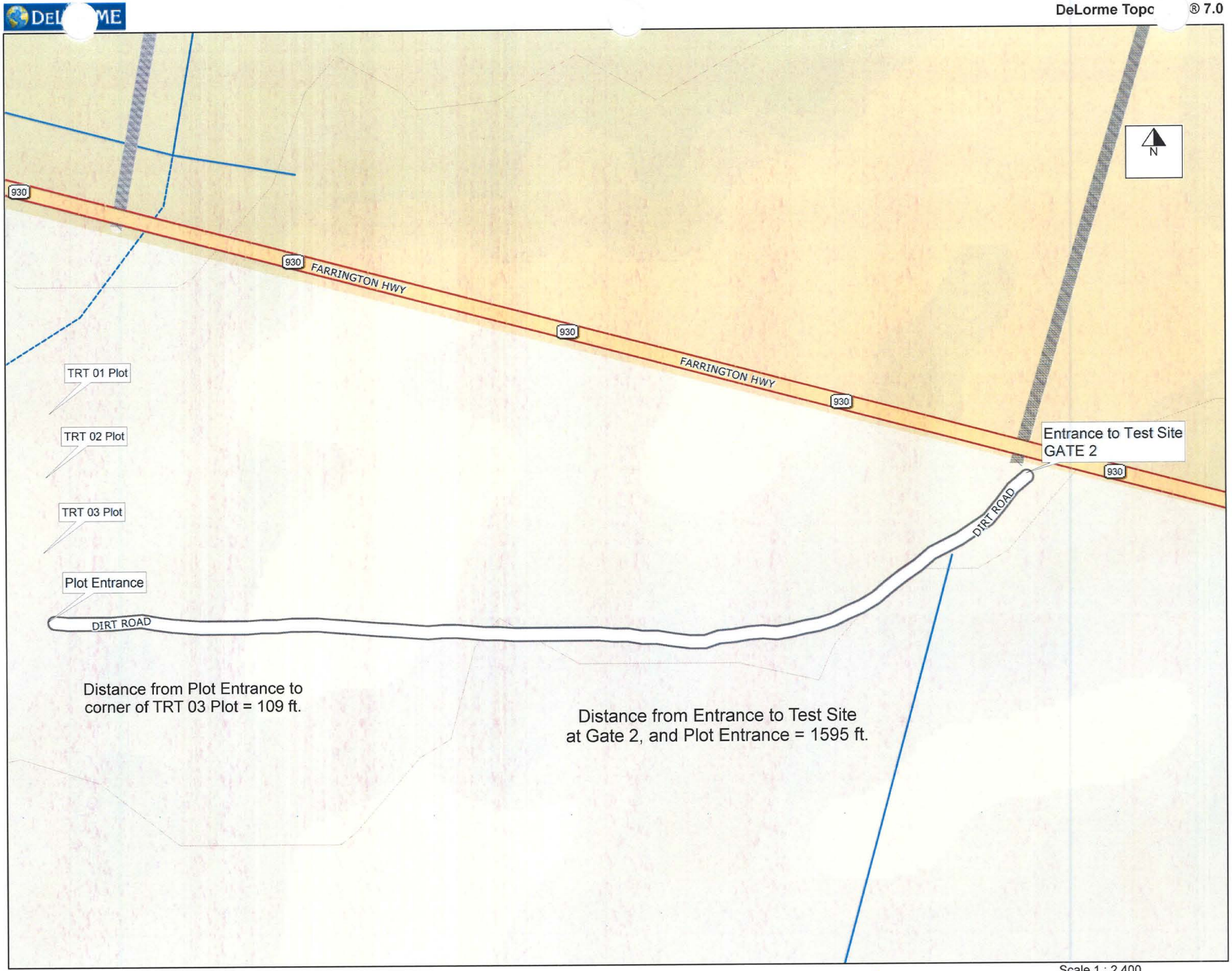
The meteorological equipment is located at Dupont, Pioneer, on site, approximately 2980 ft. from the test plots.

See following page for map to test plot area.

JC 6/18/15

ABOVE DATA ENTERED BY: Jillian Coughlin *DATE:* 6/18/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____



Data use subject to license.

© DeLorme. DeLorme Topo USA® 7.0.

www.delorme.com

qc 6/18/15

PART 5 PAGE 4

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

C.1. PLOT PLAN

INSTRUCTIONS: Legibly sketch on the next page the actual plot plan. Computer-generated plans are acceptable. ***Check off the required items in the table below to confirm that they have been included in the plot plan:***

Required items in the plot plan	√
The dimensions and locations of treated and untreated plots*	✓
Dimensions and locations of buffer zones	✓
Distances to permanent landmarks from at least two plot corners per plot (Optionally from two plot centers per plot for perennial crops) OR GPS coordinates for each corner of the plot**	✓
Distance between the untreated plot and all treated plots in this study	✓
The north direction	✓
Slope direction with an arrow pointing down slope	✓
The number of rows* and/or beds and their direction	✓
Label plot replicates (if applicable)	N/A
Distances and relative locations of <u>immediately</u> adjacent plots treated with test chemicals that are not part of the trial covered by this Field Data Book. *(Adjacent plots more distant than 50 feet/15 meters for row crops, or 100 feet/30 meters for tree fruits and nuts, from the plots in this trial do not need to be included.)*	N/A
<u>Identity of the test chemical(s) used on the adjacent plots</u> *Exception: Proprietary compounds that cannot be identified because of a secrecy agreement may be labeled as "experimental compound" in this Field Data Book.*	N/A
It is acceptable to have the information for the adjacent plots on a separate map that is inserted in this section behind the plot plan. In that case the plot plan would only have the items indicated for the trial plots. The information for the adjacent plots may alternatively be listed in a table beneath the plot plan; see "Part-5C alternate" on the IR-4 website.	
Initials and date of the person who checked off items above:	JC 6/18/15

**Items marked with an asterisk are also required in 5F; <u>please enter on both pages for clarity</u>.*

***Global Position System readings are acceptable for permanent reference points only if SOP's kept at the testing facility cover their use, accuracy, and precision. Also provide the date the test plots were measured and staked, the initials of the individual responsible for laying out the plots and the SOPs (include revision number) used in laying out the plots.*

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

C.2. PLOT PLAN

DATE OF PLOT LAYOUT 6/17/15 PERFORMED BY Julie Coughlin SOP UTILIZED 3-2.0

Are there adjacent plots treated with test substances as described in part 5.C.1? YES_____ NO ✓

If a global position system (GPS) was used for plot location, enter GPS-related SOP utilized 5-14.0

INCLUDE DIMENSIONS FOR EACH PLOT IN THIS TRIAL

Plot Dimensions:

Block Size (entire planted area) = 270 ft wide X 100 ft long (108 corn rows)
TRT 01 Plot – 20 ft X 100 ft = 2000 ft^2
TRT 02 Plot – 20 ft X 100 ft = 2000 ft^2
TRT 03 Plot – 20 ft X 100 ft = 2000 ft^2

8 Corn Rows/Plot
Row Spacing = 30"
Plant Spacing = 6"

Separate risers for each plot with separate flow meters for each plot.
Corn buffer zones on a different riser.

Distance from Permanent Marker (Riser #2) and:

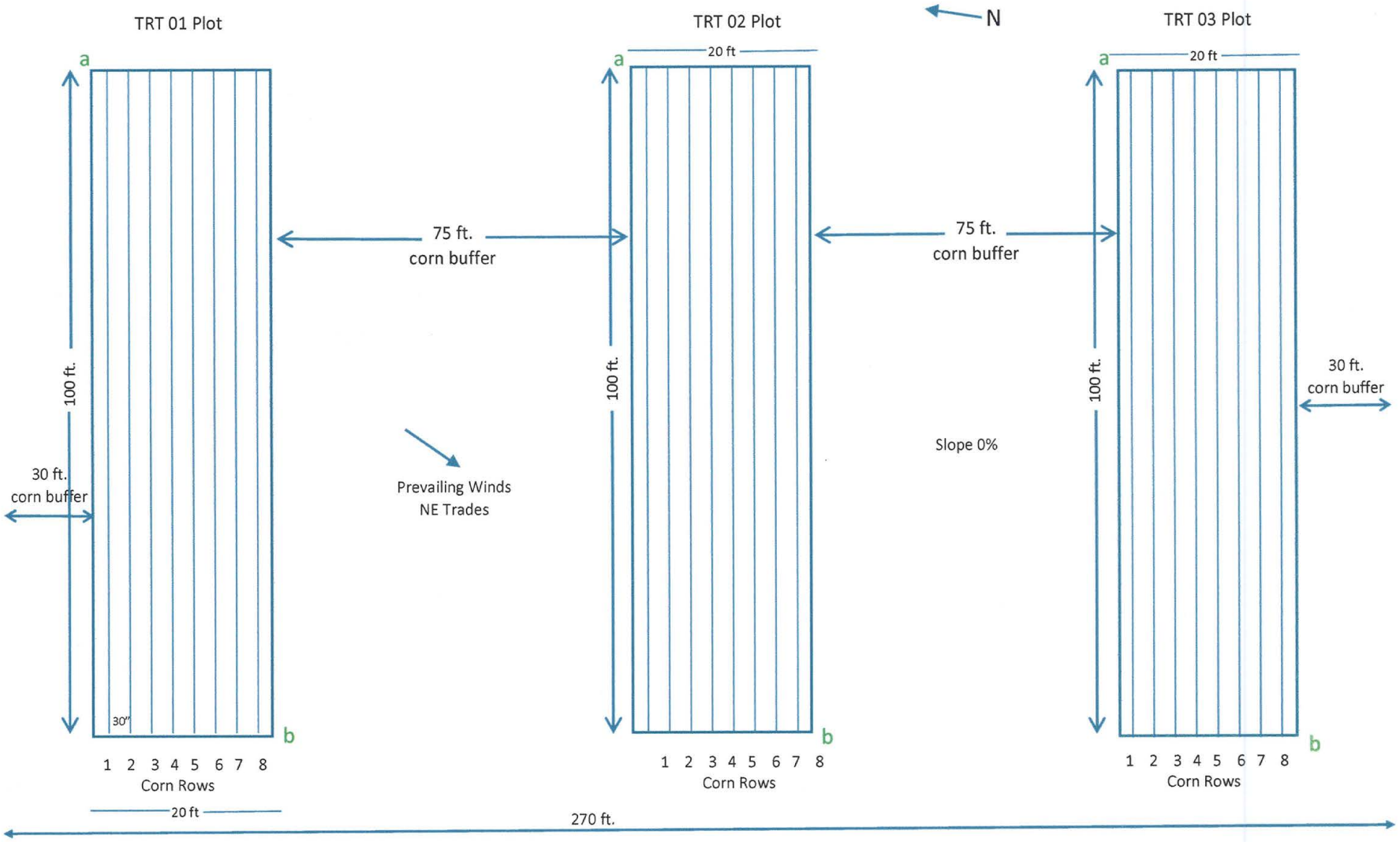
TRT 01 Plot Corner a = 180 ft
TRT 01 Plot Corner b = 99 ft
TRT 02 Plot Corner a = 136 ft
TRT 02 Plot Corner b = 35 ft
TRT 03 Plot Corner a = 163 ft
TRT 03 Plot Corner b = 125 ft

See following page for plot plan map. JC 6/18/15

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 6/18/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Seed Corn Plot Plan--Waialua Site



Map is not to scale

Part 5 Page 7

gc 6/18/15

TRIAL YEAR 2015

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

D. SITE AND SOIL INFORMATION CHARACTERISTICS

INSTRUCTIONS: Furnish soil description and classification information for the plot area. This information shall be transcribed from USDA Soil Conservation Service soil maps containing description of the soil series, land class capabilities, and soil characteristics or via soil sampling and laboratory analysis of the soil. ***All supporting information shall be placed in the IR-4 Field Data Book directly following this page.***

SITE IDENTIFIER	Waialua Corn Plot						
ESTIMATE OF SLOPE PERCENTAGE IN PLOT	0%, no slope						
TAXONOMIC NAME OF SOIL IN PLOT	Waialua Silty Clay (WkA)						
SOIL TEXTURE/TYPE (e.g., sandy loam)	silty clay						
SOIL TEXTURE PERCENTAGES	SAND	5%	SILT	37%	CLAY	58%	
ORGANIC MATTER %	3.5%	pH	6.7	CATION EXCHANGE CAPACITY (CEC) in meq/100 g		18.1	

IS THIS A GREENHOUSE TRIAL USING SOIL-LESS MEDIA? YES_____ NO ✓

~~IF YES, INCLUDE A LIST OF INGREDIENTS~~ (copy may be inserted): _____

JC 10/7/15

IF SOIL ANALYSIS IS PERFORMED, COMPLETE THE FOLLOWING AND INSERT THE ORIGINAL OR CERTIFIED TRUE COPY OF THE SOIL CHARACTERIZATION REPORT DIRECTLY FOLLOWING THIS PAGE.

SOIL SAMPLE DATE_____ PERFORMED BY_____ SOP UTILIZED_____

WAS SOIL SAMPLING REPRESENTATIVE OF SITE? *(Check one)* YES____ NO____

IF NO IS CHECKED, EXPLAIN: _____

DATE SOIL SAMPLE SHIPPED TO LABORATORY FOR ANALYSIS _____

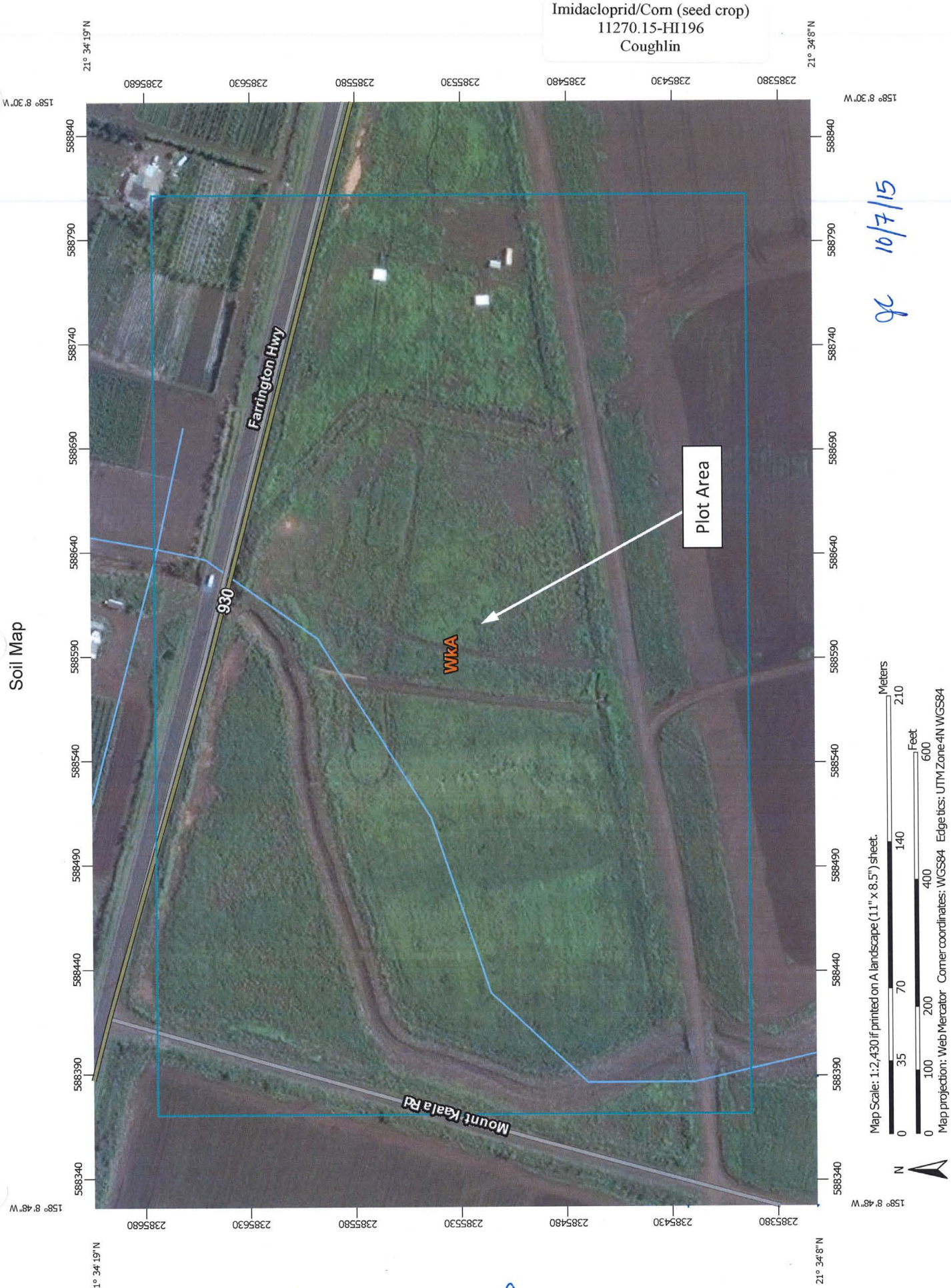
JC 10/7/15

NAME AND ADDRESS OF LABORATORY _____

ABOVE DATA ENTERED BY: Julia Coughlin *DATE:* 10/7/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin



9c 10/7/15

Map Unit Legend

Island of Oahu, Hawaii (HI990)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
WkA	Waialua silty clay, 0 to 3 percent slopes	30.8	100.0%
Totals for Area of Interest		**30.8**	**100.0%**

Table—pH (1 to 1 Water)

pH (1 to 1 Water)— Summary by Map Unit — Island of Oahu, Hawaii (HI990)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
WkA	Waialua silty clay, 0 to 3 percent slopes	6.7	30.8	100.0%
Totals for Area of Interest			**30.8**	**100.0%**

Table—Cation-Exchange Capacity (CEC-7)

Cation-Exchange Capacity (CEC-7)— Summary by Map Unit — Island of Oahu, Hawaii (HI990)				
Map unit symbol	**Map unit name**	**Rating (milliequivalents per 100 grams)**	**Acres in AOI**	**Percent of AOI**
WkA	Waialua silty clay, 0 to 3 percent slopes	18.1	30.8	100.0%
Totals for Area of Interest			**30.8**	**100.0%**

Table—Organic Matter

Organic Matter— Summary by Map Unit — Island of Oahu, Hawaii (HI990)				
Map unit symbol	**Map unit name**	**Rating (percent)**	**Acres in AOI**	**Percent of AOI**
WkA	Waialua silty clay, 0 to 3 percent slopes	3.50	30.8	100.0%
Totals for Area of Interest			**30.8**	**100.0%**

qc 10/7/15

Table—Percent Clay

Percent Clay— Summary by Map Unit — Island of Oahu, Hawaii (HI990)				
Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
WkA	Waialua silty clay, 0 to 3 percent slopes	58.0	30.8	100.0%
Totals for Area of Interest			**30.8**	**100.0%**

Table—Percent Sand

Percent Sand— Summary by Map Unit — Island of Oahu, Hawaii (HI990)				
Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
WkA	Waialua silty clay, 0 to 3 percent slopes	5.0	30.8	100.0%
Totals for Area of Interest			**30.8**	**100.0%**

Table—Percent Silt

Percent Silt— Summary by Map Unit — Island of Oahu, Hawaii (HI990)				
Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
WkA	Waialua silty clay, 0 to 3 percent slopes	37.0	30.8	100.0%
Totals for Area of Interest			**30.8**	**100.0%**

NOTE: This custom soil resources report was downloaded from Web Soil Survey, USDA, NRCS. Only relevant sections of this soil report were printed and included in the field data notebook.

gc 10/7/15

FIELD ID NO: Imidacloprid/Corn (seed crop) 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION

E. TEST SITE HISTORY FORM

*INSTRUCTIONS: Complete this form **or** provide equivalent information. Enter all pesticide and fertilizer applications for the time period specified in the protocol, a minimum of 1 year prior to planting of an annual crop or 1 year prior to the cropping cycle of a perennial crop (e.g. all chemicals needed to produce that crop of peaches). Note the active ingredient applied, along with the trade name (e.g. carbaryl/SEVIN 80 S), the rate of chemical and the units measured (e.g. lbs active ingredient {ai} per acre or pints {pts} product per acre), the approximate date (at minimum season and year) the pesticide/fertilizer was applied and the crop growing on the plot.*

Active Ingredient	TRADE NAME	RATE *(units)*	Date or season applied	CROP
Note: This field was fallow for 3 years prior to planting the corn crop used in this trial. No equipment entered the area and there were no spray applications or soil amendments applied during this time period. Plot preparation started in January of 2015. See Part 5G for plot preparation records.				

JC 9/16/15

APPLICABLE TREATMENT(S) ALL

If the treated and untreated plots have different histories, then provide the name of the treatment that this form covers. When the histories are the same, enter "ALL".

SOURCE OF DATA Grower's Records

(E.g. Facility logbook, farmer's records)

TEST SITE HISTORY DATA ARE (*Check one*): TRUE COPY___ TRANSCRIBED ✓

IF TEST SITE HISTORY DATA ARE TRANSCRIBED, CHECK APPROPRIATE LINE BELOW

_____DATA WERE VERIFIED BY_____

(Print name above of someone other than transcriber and Quality Assurance)

_____DATA WERE OBTAINED VERBALLY FROM GROWER (THEREFORE, DATA WERE NOT VERIFIED)

Please document this communication in Part 3 of this Field Data Book.

✓ DATA WERE TRANSCRIBED FROM WRITTEN RECORDS, BUT WERE NOT VERIFIED

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/16/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

F. TEST CROP RECORDS

CROP	Corn (seed crop)	VARIETY	Hybrid Genotype 39A87-210-UT
FIELD (TEST PLOT) PLANTING DATE or AGE OF ESTABLISHED CROP	5/5/15	PLANT SPACING *Indicate the distance (with units) between the plants within the row*	6 inches (untreated)
IF THE NUMBER OF ROWS PER BED = 1 (OR IF BEDS ARE NOT USED), THEN ENTER:			
ROW OR BED WIDTH *Distance (with units) between the centers of the crop row*	30 inches	NUMBER OF ROWS PER PLOT *Each treatment (Untreated, TRT 02, etc.) consists of one plot*	8 rows/plot
IF NUMBER OF ROWS/BED > 1, THEN ENTER: ***Rows/Bed must be 2 or more;*** *otherwise enter data above.*		NUMBER OF ROWS/BED ***Do not enter '1' in this space.***	N/A
BED WIDTH *Distance (with units) between the centers of the bed*	N/A	NUMBER OF BEDS PER PLOT *Each treatment (Untreated, TRT 02, etc.) consists of one plot*	N/A
TRT 01 (UNTREATED) PLOT DIMENSIONS		20 ft. x 100 ft = 2000 ft^2	
TRT 02 (TREATED) PLOT DIMENSIONS		20 ft. x 100 ft = 2000 ft^2	
TRT 03 (TREATED) PLOT DIMENSIONS		20 ft. x 100 ft = 2000 ft^2	
Indicate the dimensions (with units) of each plot (e.g. 6' x 50' or 2m x 15m)			
SOURCE OF SEED/TRANSPLANTS	Dupont Pioneer, Johnston, Iowa		
DATE SEEDS/TRANSPLANTS RECEIVED	Jan. 26, 2015		
LOT NO. OF SEED	Batch - 1049467; 39A87-210-hybrid genotype		
PLANTING METHOD *(Check One)*	SEEDED ✓ TRANSPLANTED ____ ESTABLISHED CROP ____		
TYPE OF PLANTER OR TRANSPLANTER	John Deere Max Emerge 2 planter (30" spacing)		
IF THIS IS A TREE FRUIT OR NUT TRIAL:		NUMBER OF TREES PER PLOT	N/A
IF THIS IS A FRUIT, NUT, OR ARTICHOKE TRIAL:		ESTIMATED BUSH/TREE HEIGHT	N/A
IS THIS IS A GREENHOUSE TRIAL? *(check one)*		YES ____ NO ✓	

Responses ~~that~~ do not fit above (e.g. Trt 04 plot dimensions or differing numbers of rows per plot) may be entered here:

JC 8/4/15

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/4/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION: Note: These records cover the time period from plot preparation on 1/15/15 to last sample collection on 8/31/15.

G. CULTURAL PRACTICES LOG

INSTRUCTIONS: List all soil preparation and crop maintenance activities (e.g., cultivation, pruning) performed on test site from the harvest of the previous crop until the residue samples are collected. If no crop was grown on the test site, collect data for a period beginning one year prior to planting the current crop. Include the activity (operation), dates performed, source of information (e.g., farmer), equipment used, and if appropriate, the depth into soil which the practice was performed (e.g., roto-tiller mixed soil to 6 inches) and initials/date of the individual responsible for collecting information.

OPERATION	DATE	INFO SOURCE ①	EQUIPMENT	INITIALS/DATE
Mow plot area	1/15/15	Kelcie Rico	Schulte Mower	9/16/15 JC
Plow	1/21/15	Kelcie Rico	Kello 42" disk - 2 rounds	9/16/15 JC
Plow	1/22/15	Kelcie Rico	Kello bilt 215 disk - 1 round	9/16/15 JC
Plow	1/26/15	Kelcie Rico	Kello bilt 215 disk - 1 round	9/16/15 JC
Plow	2/2/15	Kelcie Rico	Kello bilt 325 disk - 3 rounds	9/16/15 JC
Plow	3/18/15	Kelcie Rico	Kello bilt 325 disk - 2 rounds	9/16/15 JC
Plow	3/27/15	Kelcie Rico	Kello bilt 325 disk - 1 round	9/16/15 JC
Plow	4/21/15	Kelcie Rico	Kello bilt 325 disk - 1 round	9/16/15 JC
Plant Corn plot	5/5/15	Kelcie Rico	6 row John Deere Planter	9/16/15 JC
Note: Plowing depth was approximately 26" for the 215 disk, and 36" for the 325 disk.			42" for the Kello 42" disk,	
① Kelcie Rico is a field operator/researcher, at Pioneer Waialua Parent Seed Plant. She was responsible for coordinating this trial and providing us with all of the necessary field history and trial data.				

Cultural Practices Data Are (*Check all that apply*): ORIGINAL DATA___ TRUE COPY___ TRANSCRIBED ✓

IF CULTURAL PRACTICES DATA ARE TRANSCRIBED, CHECK APPROPRIATE LINE BELOW

_____DATA WERE VERIFIED BY_____
(Print name above of someone other than transcriber and Quality Assurance)

_____DATA WERE OBTAINED VERBALLY FROM GROWER (THEREFORE, DATA WERE NOT VERIFIED)
Please document this communication in Part 3 of this Field Data Book.

✓ DATA WERE TRANSCRIBED FROM WRITTEN RECORDS, BUT WERE NOT VERIFIED

ABOVE DATA ENTERED BY: Julia Coughlin *DATE:* 9/16/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196

FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

Note: These records (3 pages) cover the time period from planting on 5/5/15 to last sample collection on 8/31/15.

H. MAINTENANCE FERTILIZERS AND PESTICIDES (INCLUDE ADJUVANTS)

INSTRUCTIONS: Enter all maintenance pesticide and fertilizer applications during the trial. Include all chemicals necessary to produce the crop. (Row crops begin at first fertilizer, plowing and bed formation. Perennial crops include all maintenance materials necessary to produce that crop of fruit.) Note the date the chemical was applied, the ***active ingredient*** *applied, along with the trade name (**e.g. carbaryl/SEVIN 80 S**), the application rate of chemical and the units measured (i.e. lbs active ingredient per acre or pints product per acre), the purpose of the chemical (e.g., fertilizer, weeds, insects) and initials of the person responsible for direct supervision of the application with date of data entry. If two or more chemicals were tank mixed, list them together and bracket the tank mix on the form. If the crop was established from transplants, include all maintenance chemicals applied to the plants prior to transplanting. If treated seed was used, list treatment chemical (Date Applied would be "NA").*

If a facility or grower's list of all maintenance chemical applications is inserted here, the applications to the plots in this trial must be notated in some way to distinguish them from applications made to other areas of the farm or research facility.

DATE APPLIED	Active Ingredient	TRADE NAME	RATE *(units)*	PURPOSE	INITIALS/DATE
5/6/15	Pendimethalin	Prowl H2O	1 pt./A	Weed Control	JC 9/22/15
5/12/15	Bentazon	Basagran	2 pt./A	weed control	JC 9/22/15
5/15/15	Propiconazole	Tilt	2 oz./A	disease ~~control~~ control	JC 9/22/15 (AW) JC 9/22/15
5/15/15	Lambda-cyhalothrin	Warrior II	1.5 oz./A	insect control	JC 9/22/15
5/15/15	10-34-0	10-34-0	10 gal/A	fertigation	JC 9/22/15
5/15/15	Zinc	Zinc	2 qts/A	fertigation	JC 9/22/15
5/19/15	Bentazon	Basagran	2 pt./A	Weed control	JC 9/22/15
5/22/15	Esfenvalerate	Asana XL	8 oz/A	Insect control	JC 9/22/15
5/22/15	Chlorantraniliprole	Coragen	5 oz/A	Insect control	JC 9/22/15
5/25/15	Calcium Nitrate	CN	120 lb./A	fertigation	JC 9/22/15
5/25/15	20-20-20	NPK, 20-20-20	5 lb./A	fertigation	JC 9/22/15
5/26/15	Dimethoate	Dimethoate 4E	1 pt./A	insect control	JC 9/22/15
5/26/15	Spinetoram	Radiant SC	6 oz./A	Insect control	JC 9/22/15
5/29/15	Topramezone	Impact	0.75 oz/A	weed control	JC 9/22/15

MAINTENANCE FERTILIZERS AND PESTICIDES DATA ARE (*Check all that apply*):

ORIGINAL DATA____ TRUE COPY____ TRANSCRIBED ✓

IF MAINTENANCE FERTILIZERS AND PESTICIDE DATA ARE TRANSCRIBED, check appropriate line below

____DATA WERE VERIFIED BY_____
(Print name above of someone other than transcriber and Quality Assurance)

____DATA WERE OBTAINED VERBALLY FROM GROWER (THEREFORE, DATA WERE NOT VERIFIED)
Please document this communication in Part 3 of this Field Data Book.

✓ DATA WERE TRANSCRIBED FROM WRITTEN RECORDS, BUT WERE NOT VERIFIED

ABOVE DATA ENTERED BY: Jami Coughlin *DATE:* 9/22/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

H. MAINTENANCE FERTILIZERS AND PESTICIDES (INCLUDE ADJUVANTS) (continued)

INSTRUCTIONS: Enter all maintenance pesticide and fertilizer applications during the trial. Include all chemicals necessary to produce the crop. (Row crops begin at first fertilizer, plowing and bed formation. Perennial crops include all maintenance materials necessary to produce that crop of fruit.) Note the date the chemical was applied, the ***active ingredient*** *applied, along with the trade name (**e.g. carbaryl/SEVIN 80 S**), the application rate of chemical and the units measured (i.e. lbs active ingredient per acre or pints product per acre), the purpose of the chemical (e.g., fertilizer, weeds, insects) and initials of the person responsible for direct supervision of the application with date of data entry. If two or more chemicals were tank mixed, list them together and bracket the tank mix on the form. If the crop was established from transplants, include all maintenance chemicals applied to the plants prior to transplanting. If treated seed was used, list treatment chemical (Date Applied would be "NA").*

If a facility or grower's list of all maintenance chemical applications is inserted here, the applications to the plots in this trial must be notated in some way to distinguish them from applications made to other areas of the farm or research facility.

DATE APPLIED	Active Ingredient	TRADE NAME	RATE *(units)*	PURPOSE	INITIALS/DATE
6/2/15	Esfenvalerate	Asana XL	8 oz./A	Insect control	JC 9/22/15
6/2/15	Azoxystrobin	Quadris	9 oz./A	Disease control	JC 9/22/15
6/2/15	Spinetoram	Radiant SC	6 oz/A	Insect control	JC 9/22/15
6/5/15	Tembotrione	Laudis	3 oz/A	Weed control	JC 9/22/15
6/9/15	Chlorpyrifos	Lorsban Advanced.	1 qt/A	Insect control	JC 9/22/15
6/10/15	NPK+micro.	NK-25	30 gal/A	fertigation	JC 9/22/15
6/12/15	Tembotrione	Laudis	3 oz./A	Weed control	JC 9/22/15
6/12/15	methylated seed oil	MSO	2 pt./A	Insect control	JC 9/22/15
6/12/15	Nitrogen	21-0-0	3 lb./A	fertigation	JC 9/22/15
6/19/15	Esfenvalerate	Asana XL	8 oz/A	Insect control	JC 9/22/15
6/19/15	Picoxystrobin	Aproach	6 oz/A	Disease control	JC 9/22/15
6/26/15	Esfenvalerate	Asana XL	8 oz/A	Insect control	JC 9/22/15
6/26/15	Spinetoram	Radiant SC	6 oz/A	Insect control	JC 9/22/15
6/26/15	Picoxystrobin	Aproach	6 oz/A	Disease control	JC 9/22/15

MAINTENANCE FERTILIZERS AND PESTICIDES DATA ARE (*Check all that apply*):

ORIGINAL DATA_____ TRUE COPY_____ TRANSCRIBED ✓

IF MAINTENANCE FERTILIZERS AND PESTICIDE DATA ARE TRANSCRIBED, check appropriate line below

_____DATA WERE VERIFIED BY_____
(Print name above of someone other than transcriber and Quality Assurance)

_____DATA WERE OBTAINED VERBALLY FROM GROWER (THEREFORE, DATA WERE NOT VERIFIED)
Please document this communication in Part 3 of this Field Data Book.

✓ DATA WERE TRANSCRIBED FROM WRITTEN RECORDS, BUT WERE NOT VERIFIED

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/22/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

H. MAINTENANCE FERTILIZERS AND PESTICIDES (INCLUDE ADJUVANTS) (continued)

INSTRUCTIONS: Enter all maintenance pesticide and fertilizer applications during the trial. Include all chemicals necessary to produce the crop. (Row crops begin at first fertilizer, plowing and bed formation. Perennial crops include all maintenance materials necessary to produce that crop of fruit.) Note the date the chemical was applied, the ***active ingredient*** *applied, along with the trade name (**e.g. carbaryl/SEVIN 80 S**), the application rate of chemical and the units measured (i.e. lbs active ingredient per acre or pints product per acre), the purpose of the chemical (e.g., fertilizer, weeds, insects) and initials of the person responsible for direct supervision of the application with date of data entry. If two or more chemicals were tank mixed, list them together and bracket the tank mix on the form. If the crop was established from transplants, include all maintenance chemicals applied to the plants prior to transplanting. If treated seed was used, list treatment chemical (Date Applied would be "NA").*

If a facility or grower's list of all maintenance chemical applications is inserted here, the applications to the plots in this trial must be notated in some way to distinguish them from applications made to other areas of the farm or research facility.

DATE APPLIED	Active Ingredient	TRADE NAME	RATE *(units)*	PURPOSE	INITIALS/DATE
6/26/15	NPK+ micro.	NK-25	30 gal/A	fertigation	JC 9/22/15
6/26/15	NPK	20-20-20	10 lbs/A	fertigation	JC 9/22/15
				JC	10/7/15

MAINTENANCE FERTILIZERS AND PESTICIDES DATA ARE (*Check all that apply*):

ORIGINAL DATA_____ TRUE COPY_____ TRANSCRIBED ✓

IF MAINTENANCE FERTILIZERS AND PESTICIDE DATA ARE TRANSCRIBED, check appropriate line below

_____DATA WERE VERIFIED BY_____
(Print name above of someone other than transcriber and Quality Assurance)

_____DATA WERE OBTAINED VERBALLY FROM GROWER (THEREFORE, DATA WERE NOT VERIFIED)
Please document this communication in Part 3 of this Field Data Book.

✓ DATA WERE TRANSCRIBED FROM WRITTEN RECORDS, BUT WERE NOT VERIFIED

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/22/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 5. TRIAL SITE INFORMATION:

I. CROP DESTRUCTION

INSTRUCTIONS: Describe how the remaining crop (after the completion of this field trial) has been destroyed or handled in such a way that it is not consumed as a human food or animal feed. Include the date(s) of destruction or handling activities. If the (leftover) treated crop was not destroyed because the pesticide use in this trial is registered in your state or territory or province, then that should be indicated here:

On 9/10/15, the entire corn field was plowed under using a Kello bilt 325 disk. The plowing depth was 30 inches.

JC 9/10/15

SOURCE OF DATA: Kelcie Rico, Pioneer Waialua, Email communication.
(Facility records, grower's records, etc.) (see following page for email)

DATA WERE OBTAINED VERBALLY FROM GROWER: YES_____ NO ✓
Please document this communication in Part 3 of this Field Data Book.

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 9/10/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Julie Coughlin

From: Rico, Kelcie <KELCIE.RICO@PIONEER.COM>
Sent: Thursday, September 10, 2015 2:49 PM
To: Julie Coughlin
Subject: IR-4

Julie,
Today (9/10/15) we plowed the field under with the 325 disk. Dimensions should be the same as the ones I gave earlier for field prep. Let me know if you need anything else. Thanks

Kelcie

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Tuesday, September 01, 2015 11:49 AM
To: Rico, Kelcie
Subject: RE: NK25

Thanks Kelcie,

I think I have everything I need for the field data. Thank you for gathering it so promptly. We are finished with the field. We collected all the samples and I took the water meters, signs and plot markers yesterday.

Can you please record the crop destruction operations to include dates and a description of what was done. That can be emailed to me.

Let me know if you have any questions. Thank you very much for all your assistance with this trial.

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

From: Rico, Kelcie [mailto:KELCIE.RICO@PIONEER.COM]
Sent: Monday, August 31, 2015 10:50 AM
To: jcoughli@hawaii.edu
Subject: FW: NK25

Julie,
Here is the breakdown of NK25

From: Iris Iwami [mailto:iiwami@beihawaii.com]
Sent: Monday, August 31, 2015 8:33 AM
To: Rico, Kelcie
Subject: Re: NK25

jc 9/10/15

Application
Part 6

Soil Applications

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

A. EQUIPMENT

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial.*

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** TRT 02 and TRT 03 Soil Applications

EQUIPMENT IDENTIFIER[1] Master Flex Pump #1

[1]*Each test substance application equipment must have a unique identifying name or code*

APPLICATION EQUIPMENT TYPE *(Check one)* TRACTOR____ BACKPACK____ GRANULAR____

OTHER ✓ *(Describe)* Soil Chemigation

PROPELLANT *(Check one)* CO_2_____ COMPRESSED AIR_____ PUMP ✓

OTHER____ *(Describe)* _____

TYPE OF APPLICATION *(Check all that apply)*

1) FOLIAR_____ TO THE GROUND ✓

2) BROADCAST_____ BANDED_____ DIRECTED_____ IN-FURROW_____

3) OTHER ✓ *(Describe)* Chemigation (injection into the drip irrigation)

NUMBER OF PASSES THAT ARE NEEDED TO TREAT THE PLOT N/A

NUMBER OF NOZZLES OR HOPPER OUTLETS USED		N/A	
MESH SIZE USED IN THE STRAINERS	N/A	SPACING BETWEEN NOZZLES OR HOPPER OUTLETS	N/A
NOZZLE BRAND/TYPE/SIZE *(e.g. T-JET 8004, even flat fan)*:		N/A	

TREATED AREA[2] TRT 02 - 20 ft x 100 ft = 2000 ft². TRT 03 - 20 ft. x 100 ft. = 2000 ft²

[2]*Calculated width of nozzle discharge pattern (CWNDP) at proper boom height X length of plot sprayed or treated. For a broadcast application, CWNDP = (# of nozzles X nozzle spacing). For a banded application, CWNDP = # of nozzles X swath per nozzle. If application is foliar or soil directed enter row width X # of rows X length of plot sprayed or treated; treated row width may differ from actual row width when the actual row width is wider or narrower than local commercial practices. In this circumstance, the application rate should be calculated using a local commercial row width, and an explanation should be included on this page or inserted behind this page. Contact the Study Director if guidance is needed.*

DOES TREATED AREA (for application rate calculations) = PLOT AREA (from Parts 5C and 5F)? YES ✓ NO____

(For foliar directed and soil directed applications, check "YES" above unless local commercial row widths are used instead of the actual row width on the research plot. This prompt is intended to help data reviewers calculate the application rates correctly.)

~~IF NO, PLEASE EXPLAIN:~~ _____

JC 7/21/15

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/21/15

Total number of pages in this section at initial pagination: 83

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

B. DIAGRAM OF APPLICATION EQUIPMENT

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** TRT 02 and TRT 03 Soil Applications #1.

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial. Sketch a diagram and/or provide clear photograph of application equipment. Include the relative location and size of the target crop and the nozzle/hopper outlet placement and application pattern in relation to crop, in the sketch or photograph. In addition, on the sketch or photograph assign each nozzle or hopper outlet a unique number.*

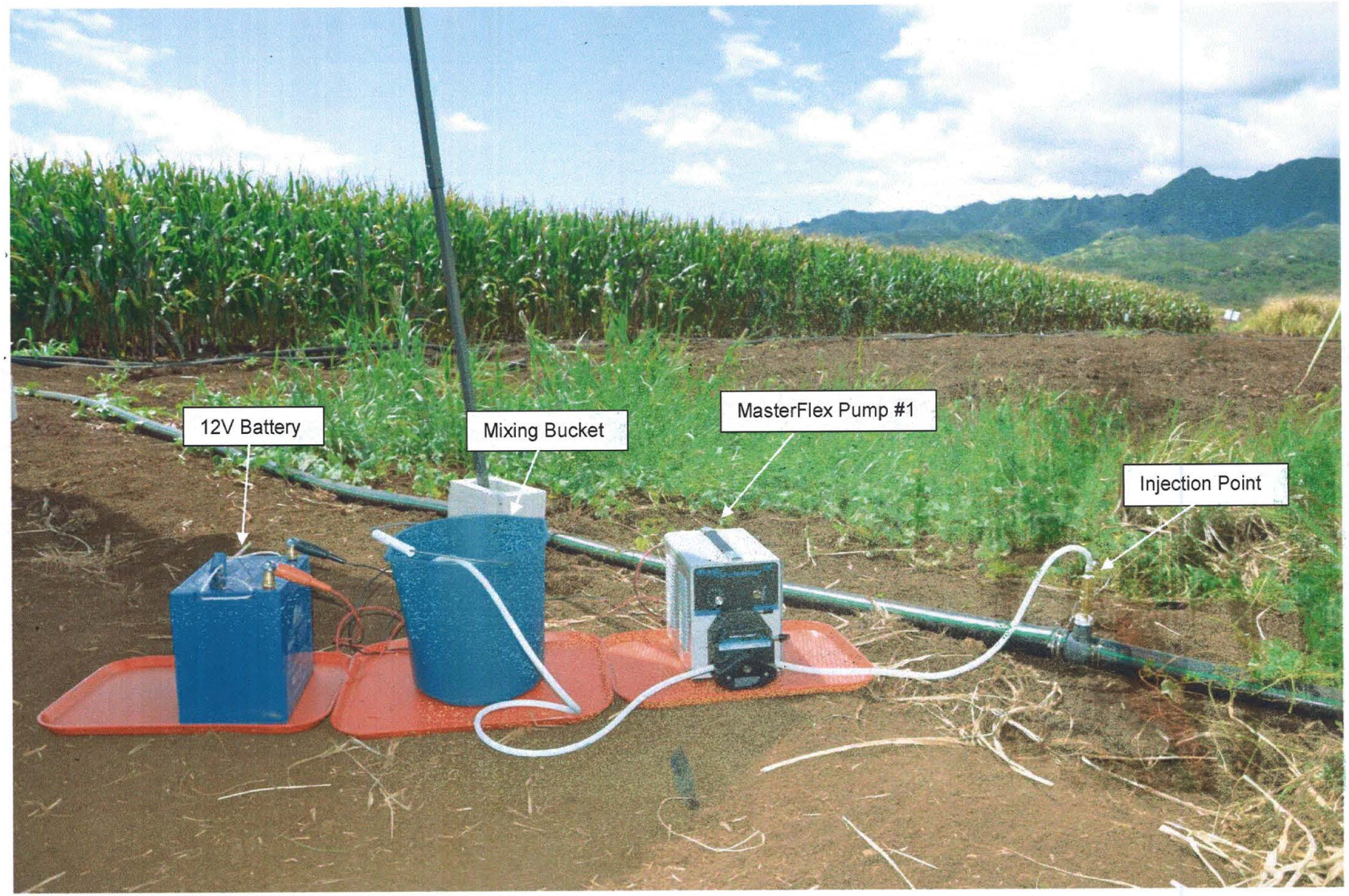
See following pages for photos of application equipment.

JC 7/22/15

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/22/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Equipment Identifier: Chemigation Injection Unit, Ser. No.: MasterFlex Pump #1



Equipment Identifier: Chemigation Injection Unit, Ser. No.: MasterFlex Pump #1



NOTE: Irrigation riser and flow meter are covered up by grass to deter theft of flow meter. A backflow preventer device was not necessary because the water source is non-potable and is not connected to any municipal water source.

JC 7/22/15

Equipment Identifier: Chemigation Injection Unit, Ser. No.: MasterFlex Pump #1



Imidacloprid/Corn (seed crop)
112270.15-HI196
Coughlin

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

(EE) JC 7/21/15

PART 6. APPLICATION RECORDS-~~AIRBLAST SPRAYER~~ CHEMIGATION

C. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** TRT 02 - Soil Application #1

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration-recheck of application equipment is required.

EQUIPMENT IDENTIFIER Masterflex Pump #1

DISCHARGE CALIBRATION DATE 7/21/15 PERFORMED BY JC *(Initials)*

PRESSURE OR OTHER STANDARD SETTING UTILIZED IN CALIBRATION tubing pressure = 5; pump speed = 6

APPROXIMATE TIME OF DAY THAT THE CALIBRATION WAS PERFORMED 9:55 am

STANDARD DISTANCE USED IN DISCHARGE CALIBRATION N/A

DISCHARGE UNITS MEASURED *(e.g. ml, oz., gallons)* mL

METHOD USED TO DETERMINE AMOUNT DISCHARGED *(Check one)* REFILLED WITH FLOWMETER ____

MEASURED AMOUNT NEEDED TO BACKFILL TANK ____ OTHER *(Describe below)* ✓

BRIEFLY DESCRIBE PROCEDURE USED TO CHECK DISCHARGE CALIBRATION Measure 250 mL water in a 250 mL graduated cylinder. Connect pump to irrigation line. Place free end of pump tubing into grad. cylinder and pump for 60 secs. Measure overage and calculate average output.

The table for entering output results is now on 6.C.2 (next page).

CALIBRATION CALCULATIONS:

Formula: Starting Volume − Ending Volume = Amount discharged

Run 1 - 250 mL - 62 mL = 188 mL

Run 2 - 250 mL - 72 mL = 178 mL

Run 3 - 250 mL - 68 mL = 182 mL

188 mL + 178 mL + 182 mL = 548 mL

548 mL ÷ 3 = ~~426~~ (WE) JC 7/21/15 182.66 mL/min

182.66 mL ÷ 60 secs = 3.04 mL/sec

ABOVE DATA ENTERED BY: Jami Coughlin DATE: 7/21/15

Trial Year

2015

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. ____ INITIALS ____ DATE ____

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

C.2. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** TRT 02 - Soil Application #1

INSTRUCTIONS: Complete a copy of this form (PHOTOCOPY IF NECESSARY) for additional times when a complete calibration or calibration-recheck of application equipment is required.

DISCHARGE CALIBRATION ***Record time applicator is allowed to discharge. Record this value in "RUN"*** *Row 1 next to the appropriate side. Calculate the total and average discharge AND whether the recheck is within 5% (if applicable). Entry prompts have been provided for 3 discharge calibration runs. Enter all calculations on 6.C.1.*

Output Run Number		1	2	3	Total (Required)	Average (Optional)
Pressure (psi)		N/A	N/A	N/A		
Time (seconds)		60	60	60	180	60
Left side* only	Initial volume	250	250	250	750	250
	Final volume	62	72	68	202	67.33
	Volume discharged	188	178	182	548	182.66
Right side* only	Initial volume					
	Final volume					
	Volume discharged					
Both sides at the same time	Initial volume					
	Final volume					
	Volume discharged					
Total		188	178	182	548	182.66
Output/Second		3.13	2.96	3.03	~~3.04~~ 9.12 (EE) JC 7/21/15	3.04

JC 7/21/15

*As seen from the rear of the sprayer

Was this a recheck of discharge calibration or a target output? *(Check one)* YES_____ NO ✓

If yes, were results within 5% of original calibration or target output? *(Check one)* YES N/A NO N/A

If this is a 3-discharge calibration run, are the averages (bottom row in Columns 1, 2, and 3) all within 5% of the mean? *(Check one)* YES ✓ NO_____

An output consisting of an average of three runs or a target output may be used when calculating the sprayer output and amount of test substance to use. If this is a recheck (one run) then the results of the original calibration must be used. If the output result of the recheck is more than 5% different than the original calibration result, then two more runs are needed to produce a new, full calibration. The original calibration data, or a true copy, must be in this field data book.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 7/21/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

(EE) JC 7/21/15

PART 6. APPLICATION RECORDS-~~AIRBLAST SPRAYER~~ CHEMIGATION

C. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** TRT 03- Soil Application #1

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration-recheck of application equipment is required.

EQUIPMENT IDENTIFIER Master Flex Pump #1

DISCHARGE CALIBRATION DATE 7/21/15 PERFORMED BY JC *(Initials)*

PRESSURE OR OTHER STANDARD SETTING UTILIZED IN CALIBRATION tubing pressure = 5; pump speed = 6

APPROXIMATE TIME OF DAY THAT THE CALIBRATION WAS PERFORMED 12:10 pm

STANDARD DISTANCE USED IN DISCHARGE CALIBRATION N/A

DISCHARGE UNITS MEASURED *(e.g. ml, oz., gallons)* mL

METHOD USED TO DETERMINE AMOUNT DISCHARGED *(Check one)* REFILLED WITH FLOWMETER ____

MEASURED AMOUNT NEEDED TO BACKFILL TANK ____ OTHER *(Describe below)* ✓

BRIEFLY DESCRIBE PROCEDURE USED TO CHECK DISCHARGE CALIBRATION Measure 250 mL water in a 250 mL grad. cylinder. Connect pump to irrigation line. Place free end of pump tubing into grad. cylinder and pump for 60 secs. Measure overage and calculate average output.

The table for entering output results is now on 6.C.2 (next page).

CALIBRATION CALCULATIONS:

Formula: Initial Volume − Final Volume = Volume discharged

Run 1 - 250 mL − 48 mL = 202 mL

Run 2 - 250 mL − 50 mL = 200 mL

Run 3 - 250 mL − 52 mL = 198 mL

202 mL + 200 mL + 198 mL = 600 mL

600 mL ÷ 3 = 200 mL/min.

200 mL ÷ 60 secs = 3.33 mL/sec

ABOVE DATA ENTERED BY: Jamie Coughlin DATE: 7/21/15

Trial Year

2015

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

C.2. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** TRT 03- Soil Application #1

INSTRUCTIONS: Complete a copy of this form (PHOTOCOPY IF NECESSARY) for additional times when a complete calibration or calibration-recheck of application equipment is required.

DISCHARGE CALIBRATION *Record time applicator is allowed to discharge. Record this value in "RUN" Row 1 next to the appropriate side. Calculate the total and average discharge AND whether the recheck is within 5% (if applicable). Entry prompts have been provided for 3 discharge calibration runs. Enter all calculations on 6.C.1.*

Output Run Number		1	2	3	Total (Required)	Average (Optional)
Pressure (psi)		N/A	N/A	N/A		
Time (seconds)		60	60	60	180	60
Left side* only	Initial volume	250	250	250	750	250
	Final volume	48	50	52	150	50
	Volume discharged	202	200	198	600	200
Right side* only	Initial volume					
	Final volume					
	Volume discharged					
Both sides at the same time	Initial volume					
	Final volume					
	Volume discharged					
Total		202	200	198	600	200
Output/Second		3.36	3.33	3.30	9.99	3.33

JC 7/21/15

*As seen from the rear of the sprayer

Was this a recheck of discharge calibration or a target output? *(Check one)* YES_____ NO ✓

If yes, were results within 5% of original calibration or target output? *(Check one)* YES N/A NO N/A

If this is a 3-discharge calibration run, are the averages (bottom row in Columns 1, 2, and 3) all within 5% of the mean? *(Check one)* YES ✓ NO_____

An output consisting of an average of three runs or a target output may be used when calculating the sprayer output and amount of test substance to use. If this is a recheck (one run) then the results of the original calibration must be used. If the output result of the recheck is more than 5% different than the original calibration result, then two more runs are needed to produce a new, full calibration. The original calibration data, or a true copy, must be in this field data book.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 7/21/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

D. SPEED CALIBRATION FOR **APPLICATION NUMBER(S)** ____

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration- recheck of application equipment is required.

EQUIPMENT IDENTIFIER _____

SPEED CALIBRATION DATE _____ _____ PERFORMED BY _____ *(INITIALS)*

TERRAIN OF CALIBRATION TRACK *(e.g. tilled field)* _____

BRIEFLY DESCRIBE PROCEDURE USED FOR SPEED CALIBRATION _____

_____

_____

_____

N/A - No speed calibration for chemigation.

SPEED CALIBRATION: *Calculate the speed of the application equipment. If appropriate, note the gear setting and /or RPM setting used in the speed calibration. Indicate the distance (in feet) of the track on which the application equipment was tested to determine speed (e.g. speed of application equipment tested for 100 ft.). The speed is calculated by dividing the length of test track (in feet or meters) by the time needed to cover that length (in seconds). Entry prompts have been provided for 2 additional runs. If this is a recheck, calculate the result is within 5% of the original calibration. Show all calculations.* ***For studies beginning in 2011 or later, a speed recheck (one run) is required whenever an output recheck is performed.***

RUN	GEAR	RPM	Length of test track	TIME (sec)	CALCULATED SPEED (include units)
1					
2					
3					
Total of test run times (sec)			Average time (sec)		Average speed

CALCULATIONS:

WAS THIS A RECHECK OF SPEED CALIBRATION? *(Check one)* YES_____ NO_____
IF YES, WERE RESULTS WITHIN 5% OF ORIGINAL CALIBRATION? *(Check one)* YES_____ NO_____
The original calibration data, or a true copy, must be in this field data book.

NOTE: A target speed may be used for application calculations, rather than the mean of three runs, as long as the mean of the three runs in the speed calibration is within 5% of the target speed.
WAS THIS A CHECK OF A TARGET SPEED? *(Check one)* YES_____ NO_____
IF YES, WERE RESULTS WITHIN 5% OF TARGET SPEED? *(Check one)* YES_____ NO_____

ABOVE DATA ENTERED BY: _____ *DATE:* _____ JC 7/24/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 6. APPLICATION RECORDS

E. DELIVERY RATE CALIBRATION FOR **APPLICATION NUMBER(S)** ____

INSTRUCTIONS: Complete a separate form for each application, unless the same parameters are used-- you are using the same equipment, and have performed a recheck to confirm the result of the full calibration. Determine the rate of delivery from the application equipment. Briefly describe the procedure, including formulas used to determine delivery rate calibration. Show all calculations and units. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

PROCEDURE/FORMULA: N/A - Delivery rate calibration is not applicable to chemigation application. JC 7/21/15

CALCULATIONS:

ABOVE DATA ENTERED BY: _____ *DATE:* _____

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBER(S)** TRT02 and TRT03, Soil Applications #1

INSTRUCTIONS: Complete a separate form for each application, unless there are no changes in multiple applications. Show all calculations, formulas, and results below, define units of measure, and cite the initials of the person performing the calculations. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

See pages that follow for calculations.

JC 7/21/15

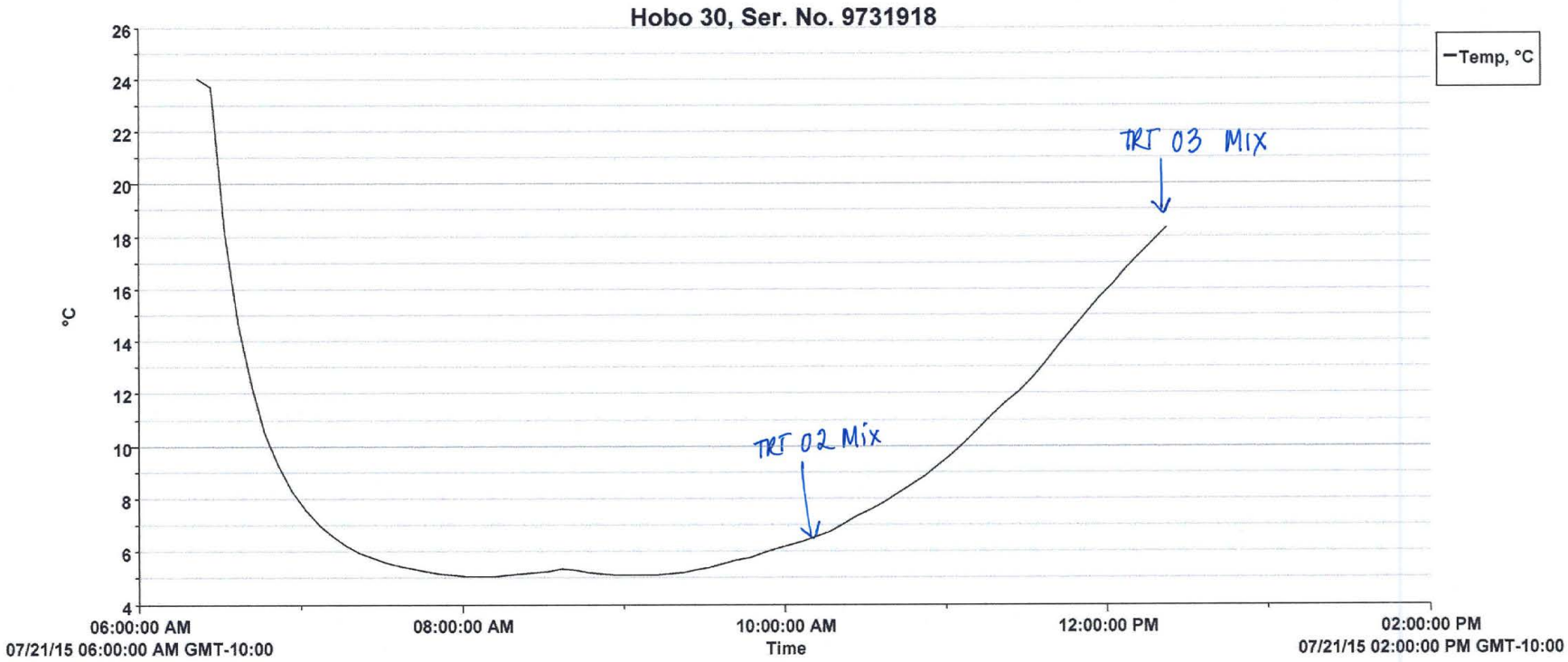
DESCRIBE HOLDING AND TRANSPORT OF TEST SUBSTANCE FROM STORAGE AREA TO LOCATION OF TANK MIXING *(E.g.: "Test substance held securely in an insulated cooler during transport to field site in the bed of a pickup truck" or "Tank mix prepared within walking distance of the chemical storage building")*

Test substance secondary containers were held in an insulated cooler bag placed into a larger cooler held in the bed of the pick-up truck during transit to the field. A small ice pad and a Hobo temperature recorder (Hobo #30) were placed into cooler bag. See following page for Hobo output.

ABOVE DATA ENTERED BY: Jillie Coughlin DATE: 7/21/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin



Deployment Info

- Full Series Name: Temperature, °C
- Launch Time: 07/21/15 06:21:57 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 73
- Max: 24.050
- Min: 5.076
- Avg: 8.856
- Std Dev (σ): 4.700
- First Sample Time: 07/21/15 06:21:58 AM GMT-10:00
- Last Sample Time: 07/21/15 12:21:58 PM GMT-10:00

Test substance transit temperature to field site for TRT 02 and TRT 03 soil applications. JC 7/21/15

JC 7/21/15

PART 6. APPLICATION RECORDS

CHEMIGATION APPLICATION --- TRT 02 --- Soil Application #1

F. VOLUME, MIXING AND DILUTION CALCULATIONS

Plot Area to be treated: 20 ft. x 100 ft. = 2000 ft^2

REQUIRED TANK VOLUME

Application volume (gal) needed for plot = $\frac{\text{gal/A x plots area (ft}^2\text{) x no. of plots}}{43560\ ft^2/A}$

Convert from gal to mL, multiply by 3785.41 mL/gal

Appl. volume (gal) needed for plot = $\frac{(40\ gal/A)(2000\ ft^2/plot)(1\ plot)}{43560\ ft^2/A} = 1.836547\ gal = 1.84\ gal/plot$

$1.84\ gal/plot \times 3785.41\ mL/gal = 6965.1544\ mL = 6965\ mL$

REQUIRED TEST SUBSTANCE

Amount (gal) of test substance for plots = $\frac{\text{lb ai/A x gal/plot x no. of plots}}{\text{gal/A x lb ai/gal in formulation}}$

Convert from gal to mL, multiply by 3785.41 mL/gal

Amt. (gal) of test substance for plots = $\frac{(0.5\ lbs\ ai/A)(1.84\ gal/plot)(1\ plot)}{(40\ gal/A)(4.6\ lbs\ ai/gal)} = \frac{0.92}{184} = 0.005\ gal/plot$

$0.005\ gal \times 3785.41\ mL/gal = 18.92705\ mL = 18.93\ mL$

TANK MIX AMOUNTS

18.93 mL	6965 mL	1500 mL
TEST SUBSTANCE ADMIRE PRO	CARRIER WATER	TANK RINSE WATER

Tank Rinse: Triple rinse mixing bucket with 500 mL/rinse.

ABOVE DATA ENTERED BY: Julie Coughlin DATE 7/17/15

PART 6. APPLICATION RECORDS

CHEMIGATION APPLICATION --- TRT 03 --- Soil Application #1

F. VOLUME, MIXING AND DILUTION CALCULATIONS

Plot Area to be treated: 20 ft. x 100 ft. = 2000 ft.^{2}

REQUIRED TANK VOLUME

Application volume (gal) needed for plot = $\frac{\text{gal/A x plots area (ft}^2\text{) x no. of plots}}{43560\ \text{ft}^2/\text{A}}$

Convert from gal to mL, multiply by 3785.41 mL/gal

Appl. volume (gal) needed for plot = $\frac{(40\ \text{gal/A})(2000\ \text{ft}^2)(1\ \text{plot})}{43560\ \text{ft}^2/\text{A}}$ = 1.836547 gal/plot = 1.84 gal/plot

1.84 gal/plot x 3785.41 mL/gal = 6965.1544 mL = 6965 mL

REQUIRED TEST SUBSTANCE

Amount (gal) of test substance for plots = $\frac{\text{lb ai/A x gal/plot x no. of plots}}{\text{gal/A x lb ai/gal in formulation}}$

Convert from gal to mL, multiply by 3785.41 mL/gal

Amt. (gal) of test substance for plot = $\frac{(0.27\ \text{lb ai/A})(1.84\ \text{gal/plot})(1\ \text{plot})}{(40\ \text{gal/A})(4.6\ \text{lbs ai/gal})}$ = $\frac{0.4968}{184}$ = 0.0027 gal

0.0027 gal x 3785.41 mL/gal = 10.22 mL

TANK MIX AMOUNTS

TEST SUBSTANCE ADMIRE PRO	CARRIER WATER	TANK RINSE WATER
10.22 mL	6965 mL	1500 mL

Tank Rinse: Triple rinse mixing bucket with 500 mL per rinse.

ABOVE DATA ENTERED BY: Julie Coughlin DATE 7/17/15

Leak Test Procedure for Chemigation to Seed Corn Plots

1. Place MasterFlex pump, 12 V battery, and mixing bucket on a level surface.
2. Fill mixing bucket with 6000 mL water.
3. Turn on irrigation to the plot. Set flow rate to approximately 3 gal/min by adjusting the control valve on the riser. Wait for approximately 5 minutes to allow the irrigation system to fill completely.
4. Chemigation Unit Set Up:
   a. Place tubing into pump head
   b. Place free end of tubing into mixing bucket of water
   c. Set tubing pressure to 5
   d. Set pump speed to 6
   e. Attach brass quick connect coupling to the injection point fitting in the irrigation line
5. Turn on MasterFlex pump. Make sure that switch is on the proper pumping direction.
6. Check the tubing on the chemigation unit for leaks. Check the injection point fittings for leaks.
7. Check all drip tube connections to the main line in the field, for leaks. Walk the length of the plot and check for leaks in the drip tubing. Check the ends of the drip tubing lines for closure leaks.
8. After the leak test, turn off MasterFlex pump.
9. If any leaks are detected, repair the leaks. Note: Leaks in the riser before the flow meter do not need repair. Recheck for leaks after repair.
10. Document leak test procedures on the Leak Test Data form.

JC 7/21/15

Calibration Procedure for Chemigation Unit

1. Calibration can be performed immediately following the leak test procedure. Leave the injection fittings connected and turn on the MasterFlex pump. Prime the system by pumping from a bucket of water.

2. Measure 250 mL of water in a 250 mL graduated cylinder.

3. Transfer the free end of the tubing from the bucket to the 250 mL graduated cylinder and time the pump output for 60 secs.

4. Measure the remaining water in the graduated cylinder and record.

5. Repeat 2 more times and calculate average discharge.

jc 7/21/15

jc 7/21/15

Chemigation Application Procedure for Seed Corn Plots

1. Turn on irrigation to the plot to be treated. Set flow rate to approximately 3 gal/min by adjusting the control valve on the riser.
2. Mix the test substance and carrier in the mixing bucket.
3. Attach brass quick connect coupling to injection point fitting in the irrigation line.
4. Turn on MasterFlex pump after connecting to the 12 V battery. The test substance mixture will be pumped from the mixing bucket and trickle into the irrigation line.
5. Agitate the test substance mixture during chemigation by gently stirring the mixture approximately every 5 minutes.
6. After the entire contents of the mixing bucket has been injected, triple rinse the bucket with 1500 mL water (500 mL per rinse), allowing bucket to empty between rinses.
7. Disconnect the brass quick connect coupling at the injection point fitting.
8. Turn off the MasterFlex pump.
9. Continue to irrigate the plot for 30 minutes to flush the system and remove any test substance in the lines.
10. After both plots have been treated, irrigate for approximately 1-2 hours to incorporate the test substance into the root zone.

gc 7/21/15

gc 7/21/15

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

LEAK TEST DATA

Leak Test for **Plot Number**: TRT 02

Leak Test Date: 7/21/15

Performed By: J. Coughlin, M. Kawate

Leak Test Start Time: 9:30 am Stop Time: 9:48 am

LEAK TEST PROCEDURES	YES	NO
WAS TUBING ON THE CHEMIGATION UNIT CHECKED FOR LEAKS?	✓	
WERE INJECTION POINT FITTINGS CHECKED FOR LEAKS?	✓	
WERE DRIP TUBE CONNECTIONS TO MAIN LINE CHECKED FOR LEAKS?	✓	
WERE END DRIP TUBING CLOSURES CHECKED FOR LEAKS?	✓	

WERE ANY LEAKS DETECTED? YES ✓ NO ____

IF YES, PROVIDE BRIEF DESCRIPTION AND REMEDIAL ACTION TAKEN: Injection point fitting leaking. Tightened the fitting. OK. 2 drip tubing ends were leaking. Re-tied those drip tubing ends. OK. Retested for leaks. No leaks detected.

ABOVE DATA ENTERED BY: Julie Coxfh *DATE:* 7/21/15

FIELD ID NO: Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

LEAK TEST DATA

Leak Test for **Plot Number**: TRT 03

Leak Test Date: 7/21/15

Performed By: J. Coughlin, M. Kawate

Leak Test Start Time: 11:48 am Stop Time: ~~11:55 am~~ 12:20 pm

EE JC 7/21/15

LEAK TEST PROCEDURES	YES	NO
WAS TUBING ON THE CHEMIGATION UNIT CHECKED FOR LEAKS?	✓	
WERE INJECTION POINT FITTINGS CHECKED FOR LEAKS?	✓	
WERE DRIP TUBE CONNECTIONS TO MAIN LINE CHECKED FOR LEAKS?	✓	
WERE END DRIP TUBING CLOSURES CHECKED FOR LEAKS?	✓	

WERE ANY LEAKS DETECTED? YES ✓ NO ____

IF YES, PROVIDE BRIEF DESCRIPTION AND REMEDIAL ACTION TAKEN: End drip tubing closures were leaking on 2 lines. I re-tied off the drip tubing closures and then checked for leaks again. All leaks repaired. OK.

ABOVE DATA ENTERED BY: Jmi Coughlin DATE: 7/21/15

Irrigation Flow Meter Readings
TRT 02 and TRT 03 Plots

TRT 02 Flow Meter Serial No.: 8421153		
DESCRIPTION	TIME	FLOW METER READING (gal)
TRT 02 Leak Test and Calibration	Start: 9:30 am	45769
	Stop: 9:48 am	45819 (50 gal)
TRT 02 Chemigation	Start: 10:20 am	45924
	Stop: 11:00 am	46059 (135 gal)
TRT 02 Triple Rinse Bucket	Start: 11:00 am	46059
	Stop: 11:11 am	46095 (36 gal)
TRT 02 Flush	Start: 11:11 am	46095
	Stop: 11:41 am	46185 (90 gal)
TRT 02 Irrigation Incorporation	Start: 1:48 pm	46185
Duration = 92 mins.	Stop: 3:20 pm	46480 (295 gal)

TRT 03 Flow Meter Serial No.: 8108574		
DESCRIPTION	TIME	FLOW METER READING (gal)
TRT 03 Leak Test and Calibration Recheck	Start: 11:48 am	876692
	Stop: 12:20 pm	876 789 (97 gal)
TRT 03 Chemigation	Start: 12:30 pm	876 814
	Stop: 1:09 pm	876 914 (100 gal)
TRT 03 Triple Rinse Bucket	Start: 1:10 pm	876 915
	Stop: 1:18 pm	876940 (25 gal)
TRT 03 Flush	Start: 1:18 pm.	876 940
	Stop: 1:48 pm	877014 (74 gal)
TRT 03 Irrigation Incorporation	Start: 1:48 pm	877014
Duration = 92 mins.	Stop: 3:20 pm	877270 (256 gal)

Recorded By: Jamie Coughlin Date: 7/21/15

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 02 - Soil Application #1

G. APPLICATION INFORMATION FOR **APPLICATION NUMBER** 1 APPLICATION DATE 7/21/15

HAS THE APPLICATION EQUIPMENT BEEN USED SINCE THE LAST CALIBRATION/RECHECK WAS PERFORMED? *(Check one)* YES_____ NO ✓ (If YES, then a recheck is needed.)

INSTRUCTIONS: **Complete a separate form for each application date.** *Complete one column for each treated plot* **(use the Treatment Number as indicated in the protocol).** *Provide the name of the test substance (common chemical name or chemical code number); the batch or lot number of the test substance; the approximate time the test substance was mixed with the carrier and the approximate time the mixture was applied to the plots, along with* ***the initials of the person(s) mixing and spraying the tank mix****; the time of additional agitation (if any); the unique name or code for the application equipment used to apply this treatment; the placement of the test substance (e.g. broadcast, in-furrow, directed, knifed-in, banded); the amount of carrier, formulated product and other additives in the mix; the measuring equipment with increments; the distance (include units) of the nozzles above the canopy or ground (indicate which); the pressure in pounds per square inch at the boom; if treatment(s) were incorporated, the method and/or equipment used to incorporate the test substance mix (e.g. disked, rotovator, irrigated, etc.), depth to which the test substance was incorporated* ***or*** *the amount of water used to move the test substance into the soil; the time after treatment the incorporation activity was performed; and the carrier (normally water), its source (e.g. farm pond, city water), pH of the carrier and its temperature, and the equipment used to measure the carrier pH.*

	TRT Number 02 - Soil Appl. #1	
NUMBER OF DAYS SINCE PREVIOUS APPLICATION	N/A	TIME OF ADDITIONAL AGITATION/INITIALS (if applicable) e.g. "10:00" or "continuous" or "just prior to application"
TEST SUBSTANCE	Imidacloprid	
BATCH/LOT NUMBER	NK41CX0578	
TIME MIXED/INITIALS	10:15 am JC	Mixture was stirred approximately every 5 mins. throughout entire application.
TIME APPLIED/INITIALS	10:20 am JC	
EQUIPMENT IDENTIFIER	Masterflex Pump #1	
PLACEMENT OF TEST SUBSTANCE	Soil - incorporate into root zone	
TANK MIX AMOUNTS		MEASURING EQUIPMENT with INCREMENTS*
CARRIER (starting volume of water)	6965 mL Water	2000 mL grad. cylinder / 20 mL incr.
VOLUME of WATER REMOVED from starting volume (if applicable)	0	1000 mL grad. cylinder / 10 mL incr. 100 mL grad. cylinder / 1 mL incr.
TEST SUBSTANCE (formulated product)	18.93 mL Admire Pro	1-10 mL automatic pipettor / 0.01 mL incr.
ADJUVANT OR SURFACTANT	0	
TOTAL VOLUME OF TANK MIX	6983.93 mL	*e.g. 1000 mL grad. cylinder/10 ml incr.
NOZZLE DISTANCE from TARGET	N/A	ORDER IN WHICH ITEMS WERE ADDED TO SPRAY MIXTURE* W=Water, TS=Test Substance, A=Adjuvant *e.g. 1-W, 2-TS, 3-A, 4-W
PSI AT BOOM	N/A - pressure not measured.	
INCORPORATION - Methodology and/or Equipment - DEPTH - TIME	drip irrigation 295 gals. 92 mins.	1-W, 2-TS, 3-W.
CARRIER SOURCE/TYPE	County Water	
CARRIER pH/TEMPERATURE	7.0 / 82.8 °F	
EQUIPMENT used to MEASURE pH	paper strips	

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/21/15

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 03- Soil Application 1

G. APPLICATION INFORMATION FOR **APPLICATION NUMBER** 1 APPLICATION DATE 7/21/15

HAS THE APPLICATION EQUIPMENT BEEN USED SINCE THE LAST CALIBRATION/RECHECK WAS PERFORMED? *(Check one)* YES_____ NO ✓ (If YES, then a recheck is needed.)

INSTRUCTIONS: **Complete a separate form for each application date.** *Complete one column for each treated plot* **(use the Treatment Number as indicated in the protocol).** *Provide the name of the test substance (common chemical name or chemical code number); the batch or lot number of the test substance; the approximate time the test substance was mixed with the carrier and the approximate time the mixture was applied to the plots, along with* ***the initials of the person(s) mixing and spraying the tank mix****; the time of additional agitation (if any); the unique name or code for the application equipment used to apply this treatment; the placement of the test substance (e.g. broadcast, in-furrow, directed, knifed-in, banded); the amount of carrier, formulated product and other additives in the mix; the measuring equipment with increments; the distance (include units) of the nozzles above the canopy or ground (indicate which); the pressure in pounds per square inch at the boom; if treatment(s) were incorporated, the method and/or equipment used to incorporate the test substance mix (e.g. disked, rotovator, irrigated, etc.), depth to which the test substance was incorporated* ***or*** *the amount of water used to move the test substance into the soil; the time after treatment the incorporation activity was performed; and the carrier (normally water), its source (e.g. farm pond, city water), pH of the carrier and its temperature, and the equipment used to measure the carrier pH.*

	TRT Number 03 - Soil Application #1	
NUMBER OF DAYS SINCE PREVIOUS APPLICATION	N/A	TIME OF ADDITIONAL AGITATION/INITIALS (if applicable) e.g. "10:00" or "continuous" or "just prior to application"
TEST SUBSTANCE	Imidacloprid	
BATCH/LOT NUMBER	NK41CX0578	
TIME MIXED/INITIALS	12:25 pm JC	Mixture was stirred approximately every 5 mins. throughout the entire application.
TIME APPLIED/INITIALS	12:30 pm JC	
EQUIPMENT IDENTIFIER	MasterFlex Pump #1	
PLACEMENT OF TEST SUBSTANCE	Soil-incorporate into root zone.	
TANK MIX AMOUNTS		MEASURING EQUIPMENT with INCREMENTS*
CARRIER (starting volume of water)	6965 mL Water	2000 mL grad. cylinder/20 mL incr.
VOLUME of WATER REMOVED from starting volume (if applicable)	0	1000 mL grad. cylinder/10 mL incr. 100 mL grad. cylinder/1 mL incr.
TEST SUBSTANCE (formulated product)	10.22 mL AdmirePro	1-10 mL automatic pipettor/0.01 mL incr.
ADJUVANT OR SURFACTANT	0	
TOTAL VOLUME OF TANK MIX	6975.22 mL	*e.g. 1000 mL grad. cylinder/10 ml incr.
NOZZLE DISTANCE from TARGET	N/A	ORDER IN WHICH ITEMS WERE ADDED TO SPRAY MIXTURE* W=Water, TS=Test Substance, A=Adjuvant *e.g. 1-W, 2-TS, 3-A, 4-W
PSI AT BOOM	N/A - Pressure was not measured	
INCORPORATION - Methodology and/or Equipment - DEPTH - TIME	drip irrigation 256 gals. 92 mins.	1-W, 2-TS, 3-W.
CARRIER SOURCE/TYPE	County Water	
CARRIER pH/TEMPERATURE	7.0 / 91.9 °F	
EQUIPMENT used to MEASURE pH	paper strips	

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/21/15

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

H. ADDITIONAL INFORMATION FROM **APPLICATION NUMBER** TRT 02, Soil Application #1

APPLICATION DATE 7/21/15 *(Complete a separate form for each application date)*

PLANT GROWTH & ENVIRONMENTAL DATA AT THE TIME OF APPLICATION	Enter data in this column
CROP HEIGHT *(Measure or estimate crop height, include units of measurements)*	6.5 ft.
CROP GROWTH STAGE *(e.g. seed, vegetative, bud, bloom, fruiting, #true leaves)*	milk stage
CROP VIGOR *(e.g. poor, fair, good, variable)**	good
PLANT SURFACE MOISTURE *(Check one)*	**SATURATED**___ **DAMP**___ **DRY**✓ **NA**___
ESTIMATED % OF SOIL AREA COVERED BY CROP CANOPY	100%
MEASURED AIR TEMPERATURE *(Check F or C)*	91 **°F**✓ **°C**___
MEASURED WIND SPEED *(Check MPH or Km/Hr)*	0-2 **MPH**✓ **Km/Hr**___
WIND DIRECTION FROM *(Check one)*	**N**___ **NE**✓ **E**___ **SE**___ **S**___ **SW**___ **W**___ **NW**___ or **NO WIND**___
ESTIMATED % OF CLOUDS IN THE SKY	20%
MEASURED RELATIVE HUMIDITY%	59%
DEW *(heavy, light, none, etc.)*	none
DESCRIPTION OF SOIL TILTH *(smooth, firm, packed, cloddy, etc.)*	packed
ESTIMATE OF SOIL SURFACE MOISTURE *(wet, moist, dry, etc.)*	moist
SOIL TEMPERATURE *(Check F or C)*	81.2 **°F**✓ **°C**___
DEPTH OF MEASUREMENT OF SOIL TEMPERATURE *(Check INCHES or cm)*	2 **INCHES**✓ **cm**___

*IF CROP VIGOR IS POOR OR VARIABLE, EXPLAIN: N/A

JC 7/21/15

BRIEFLY DESCRIBE PROCEDURE USED TO CLEAN APPLICATION EQUIPMENT Mixing bucket and spoon was cleaned with soap and water and rinsed completely. Soapy water was pumped through pump tubing and then rinsed with clean water.

JC 7/21/15

CLEANED BY JC 7/21/15 *(Initials)*

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/21/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

H. ADDITIONAL INFORMATION FROM **APPLICATION NUMBER** TRT 03 - Soil Application #1

APPLICATION DATE 7/21/15 *(Complete a separate form for each application date)*

PLANT GROWTH & ENVIRONMENTAL DATA AT THE TIME OF APPLICATION	Enter data in this column
CROP HEIGHT *(Measure or estimate crop height, include units of measurements)*	6.5 ft.
CROP GROWTH STAGE *(e.g. seed, vegetative, bud, bloom, fruiting, #true leaves)*	milk stage
CROP VIGOR *(e.g. poor, fair, good, variable)**	good
PLANT SURFACE MOISTURE *(Check one)*	SATURATED___ DAMP___ DRY✓ NA___
ESTIMATED % OF SOIL AREA COVERED BY CROP CANOPY	100%
MEASURED AIR TEMPERATURE *(Check F or C)*	94.4 °F✓ °C___
MEASURED WIND SPEED *(Check MPH or Km/Hr)*	0 MPH✓ Km/Hr___
WIND DIRECTION FROM *(Check one)*	N___ NE✓ E___ SE___ S___ SW___ W___ NW___ or NO WIND___
ESTIMATED % OF CLOUDS IN THE SKY	30%
MEASURED RELATIVE HUMIDITY%	45%
DEW *(heavy, light, none, etc.)*	none
DESCRIPTION OF SOIL TILTH *(smooth, firm, packed, cloddy, etc.)*	packed
ESTIMATE OF SOIL SURFACE MOISTURE *(wet, moist, dry, etc.)*	moist
SOIL TEMPERATURE *(Check F or C)*	82.2 °F✓ °C___
DEPTH OF MEASUREMENT OF SOIL TEMPERATURE *(Check INCHES or cm)*	2 INCHES✓ cm___

*IF CROP VIGOR IS POOR OR VARIABLE, EXPLAIN: N/A

JC 7/21/15

BRIEFLY DESCRIBE PROCEDURE USED TO CLEAN APPLICATION EQUIPMENT Mixing bucket and spoon were cleaned with soap and water and rinsed thoroughly. Soapy water was pumped through pump tubing and then rinsed completely with water.

JC 7/21/15

CLEANED BY JC 7/21/15 *(Initials)*

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 7/21/15

PART 6. APPLICATION RECORDS

I. PASS TIMES FOR **APPLICATION NUMBER** TRT 02 and TRT 03, Soil Applications 1

APPLICATION DATE 7/21/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

RECORD PASS TIME AND PASS DIRECTION - *Complete the table by providing the time required to make each pass of the application equipment through the plot and direction of that pass (e.g. NE).*

	TREATMENT __		TREATMENT __		
PASS NUMBER	TIME	DIRECTION	PASS NUMBER	TIME	DIRECTION
1			1		
2			2		
3			3		
4			4		
5			5		
6			6		
7					
8			8		
9			9		
10			10		
11			11		
12			12		
TOTAL PASS TIME					

Pass times are not applicable.
JC 7/21/15

PROVIDE A BRIEF NARRATIVE SUMMARY OF THE APPLICATION

(E.g. *"Test substance was applied to the treated test plot in two passes; one pass down each side of the row. Each pass was applied to the soil, in a 3 ft. band out from the tree, with the spray boom 24 inches above the soil."*)

The test substance was mixed in a clean, rubbermaid bucket. The test substance mixture was stirred with a plastic spoon approximately every 5 mins. during the chemigation application. The test substance mixture was applied by injecting into the low pressure drip irrigation system while the irrigation was flowing onto the plot. After the entire test substance mixture was injected, the mixing bucket was rinsed three times with 500 mL water at each rinse. The rinsate was injected into the irrigation system. After the rinsing, the pump was turned off and then disconnected from the irrigation line by removing the brass quick coupling connector.

NARRATIVE ENTERED BY JC 7/21/15 *(Initials)*

ABOVE DATA ENTERED BY: Julio Coughlin *DATE:* 7/21/15

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** TRT 02 - Soil Appl. # 1

APPLICATION DATE 7/21/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. Even if a target rate was used for the pre-application calculations, the data from the calibration (average of 3 outputs) must be used for calculating the application rate. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of* 6J *may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

EXAMPLE FORMULAS: The formulas below may be used to calculate the amount of test substance (TS) applied per acre as required in Part 6I. Other formulas may be used instead; however, it is not sufficient to merely compare the actual pass times to the "practice" pass times.

1) Total Pass Time x Discharge Rate/Nozzle x #Nozzles = Volume of Tank Mix applied to Plot

2) Volume of Tank Mix applied to Plot x $\frac{\text{Amount of TS in Tank Mix}}{\text{Total Volume of Tank Mix}}$ = Amount of TS applied to Plot

3) Amount of TS applied to Plot x $\frac{\text{43,560 sq ft per acre}}{\text{Plot area treated in sq ft}}$ = Amount of TS applied per acre

****

DISCHARGE RATE (ml/sec or g/sec): 182.66 mL/min.

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): 2000 ft²

Note: *Use bed width for plots with multi-row beds.*

Injection Time

Start: 10:20 am

Stop: 11:00 am

Total Injection time = 40 min.

Calculation of Actual Flow Rate:

Total amt. of test substance mixture applied to plot = 6983.93 mL

Flow Rate = $\frac{6983.93 \text{ mL}}{40 \text{ min.}}$ = 174.6 mL/min.

Note: Rate confirmation is not applicable because the entire amount of the tank mix was applied to the plot.

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES ✓ NO ___ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/21/15

PART 6. APPLICATION RECORDS

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** TRT 03 - Soil Application #1

APPLICATION DATE 7/21/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. Even if a target rate was used for the pre-application calculations, the data from the calibration (average of 3 outputs) must be used for calculating the application rate. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of* 6J *may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

EXAMPLE FORMULAS: The formulas below may be used to calculate the amount of test substance (TS) applied per acre as required in Part 6I. Other formulas may be used instead; however, it is not sufficient to merely compare the actual pass times to the "practice" pass times.

1) Total Pass Time x Discharge Rate/Nozzle x #Nozzles = Volume of Tank Mix applied to Plot

2) Volume of Tank Mix applied to Plot x $\frac{\text{Amount of TS in Tank Mix}}{\text{Total Volume of Tank Mix}}$ = Amount of TS applied to Plot

3) Amount of TS applied to Plot x $\frac{\text{43,560 sq ft per acre}}{\text{Plot area treated in sq ft}}$ = Amount of TS applied per acre

****

DISCHARGE RATE (ml/sec or g/sec): 200 mL/min.

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): 2000 ft²

Note: *Use bed width for plots with multi-row beds.*

Injection Time

Start: 12:30 pm

Stop: 1:09 pm

Total Injection Time = 39 min.

Calculation of Actual Flow Rate

Total amount of test substance mixture applied to the plot = 6975.22 mL

Flow Rate = $\frac{6975.22\ mL}{39\ min.}$ = 178.85 mL/min.

Note: Rate confirmation not applicable because the entire amount of tank mixture was applied to the plot.

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES ✓ NO ___ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/21/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

K. POST TREATMENT RECORDS FOR **APPLICATION NUMBER** TRT02 - Soil Application #1

APPLICATION DATE 7/21/15 *(Complete a separate form for each application date)*

Was There Any Visible Phytotoxicity Damage? *(Check one)* YES___ NO ✓ JC 7/21/15 *(Initials/date)*

If YES, then contact the Study Director. If a digital camera is available, email digital photograph(s) to the Study Director along with a detailed explanation of the damage. A written description should also be entered below:

_____

_____

_____

_____

_____

_____ PHYTOTOXICITY DESCRIBED BY: JC 7/21/15 *(Initials/date)*

DATE STUDY DIRECTOR WAS CONTACTED: _____ CONTACTED BY: _____ *(Initials/date)*

Enter the requested information below for both the first rainfall and first irrigation after each application, regardless of whether subsequent applications were made prior to the first rainfall or irrigation. The rainfall/irrigation data entered below should be transcribed from the data included in Part 9 unless otherwise indicated on this page. **If irrigation is required by the protocol to incorporate the test substance, or if the test substance is applied by irrigation, then that event should be recorded below. "NONE BEFORE HARVEST" OR "NONE BEFORE SAMPLING" MAY BE ENTERED, IF APPLICABLE.**

DATE OF FIRST RAIN *(Note the date of first rainfall after this application.)*	7/22/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST RAINFALL *(Check DAYS or HOURS) (Enter #hours if first rainfall was on the date of application.)*	1 **DAYS** ✓ **HOURS** ___
AMOUNT OF WATER *(Check INCHES or mm)* See following page for hourly rainfall for 7/21/15 and 7/22/15.	0.02 **INCHES** ✓ **mm** ___
RAIN INFORMATION RECORDED BY *(Initials/date)*	JC 10/8/15
TYPE OF IRRIGATION *(e.g. overhead, trickle, flood)*	Drip
DATE OF FIRST IRRIGATION *(Note the date of first irrigation after this application.)*	7/21/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST IRRIGATION *(Check DAYS or HOURS) (Enter #hours if first irrigation was on the date of application.)*	2 hrs, 7 mins, **DAYS** ___ **HOURS** ✓
AMOUNT OF WATER *(Check INCHES, mm, or mL)* (295 gals)(43560 ft²/A) ÷ 2000 ft²/plot = 6425.1 gal/A; 6425.1 gal/A ÷ 27154.2857 gal/ac.in. = 0.24"	0.24 **INCHES** ✓ **mm** ___ **mL** ___
IRRIGATION INFORMATION RECORDED BY *(Initials/date)*	JC 7/21/15

If the data entered above differ from the rainfall/irrigation data included in Part 9, explain: Irrigation Data: test substance was incorporated with irrigation following the soil application. See Part 6 page 21 for irrigation flow meter readings for 7/21/15. *Initials/date:* JC 10/8/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)
HOURLY PRECIPITATION TABLE
WHEELER ARMY AIRFIELD (22508)
WAHIAWA, HI
(07/2015)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

	A.M. HOUR(L.S.T) ENDING AT													P.M. HOUR(L.S.T) ENDING AT											
DT	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--DT--	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--DT--
21													21													21

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)
HOURLY PRECIPITATION TABLE
WHEELER ARMY AIRFIELD (22508)
WAHIAWA, HI
(07/2015)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

	A.M. HOUR(L.S.T) ENDING AT													P.M. HOUR(L.S.T) ENDING AT											
DT	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--DT--	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--DT--
22								T	T				22													22

Hourly rainfall for 7/21/15 and 7/22/15. Wheeler Army Airfield is approximately 9 miles away from the field site.

gc 10/8/15

FIELD ID NO: Imidacloprid/Corn (seed crop) 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

K. POST TREATMENT RECORDS FOR **APPLICATION NUMBER** TRT 03 - Soil Application #1

APPLICATION DATE 7/21/15 *(Complete a separate form for each application date)*

Was There Any Visible Phytotoxicity Damage? *(Check one)* YES___ NO ✓ gc 7/21/15 *(Initials/date)*

If YES, then contact the Study Director. If a digital camera is available, email digital photograph(s) to the Study Director along with a detailed explanation of the damage. A written description should also be entered below:

_____

_____

_____

_____

_____

_____ PHYTOTOXICITY DESCRIBED BY: gc 7/21/15 *(Initials/date)*

DATE STUDY DIRECTOR WAS CONTACTED: _____ CONTACTED BY: _____ *(Initials/date)*

Enter the requested information below for both the first rainfall and first irrigation after each application, regardless of whether subsequent applications were made prior to the first rainfall or irrigation. The rainfall/irrigation data entered below should be transcribed from the data included in Part 9 unless otherwise indicated on this page. **If irrigation is required by the protocol to incorporate the test substance, or if the test substance is applied by irrigation, then that event should be recorded below. "NONE BEFORE HARVEST" OR "NONE BEFORE SAMPLING" MAY BE ENTERED, IF APPLICABLE.**

DATE OF FIRST RAIN *(Note the date of first rainfall after this application.)*		7/22/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST RAINFALL *(Check DAYS or HOURS) (Enter #hours if first rainfall was on the date of application.)*	1	**DAYS** ✓ **HOURS** ___
AMOUNT OF WATER *(Check INCHES or mm)* See previous page for hourly rainfall for 7/21/15 and 7/22/15.	0.02	**INCHES** ✓ **mm** ___
RAIN INFORMATION RECORDED BY *(Initials/date)*		gc 10/8/15
TYPE OF IRRIGATION *(e.g. overhead, trickle, flood)*		Drip
DATE OF FIRST IRRIGATION *(Note the date of first irrigation after this application.)*		7/21/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST IRRIGATION *(Check DAYS or HOURS) (Enter #hours if first irrigation was on the date of application.)*	0	**DAYS** ___ **HOURS** ✓
AMOUNT OF WATER *(Check INCHES, mm, or mL)* (256 gals)(43560 ft²/A) ÷ 2000 ft²/plot = 5575.68 gal/A; 5575.68 gal/A ÷ 27154.2857 gal/ac.in. = 0.21	0.21	**INCHES** ✓ **mm** ___ **mL** ___
IRRIGATION INFORMATION RECORDED BY *(Initials/date)*		gc 7/21/15

If the data entered above differ from the rainfall/irrigation data included in Part 9, explain: Irrigation Data: test substance was incorporated with irrigation following the soil application. See Part 6 page 21 for irrigation flow meter readings for 7/21/15. *Initials/date:* gc 10/8/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

L.1. DIFFERENTIATION OF MULTIPLE TRIALS CONDUCTED IN CLOSE PROXIMITY*

ARE YOU CONDUCTING MORE THAN ONE TRIAL IN THIS STUDY? YES ✓ NO ___

IS ANOTHER FIELD RESEARCH DIRECTOR IN THIS STUDY CONDUCTING A TRIAL WITHIN 20 MILES OF YOUR TRIAL(S)? YES ___ NO ✓

If "NO" is checked twice, then no other input is needed except for signing and dating at the bottom of each page.

If "YES" is checked at least once, then an independently prepared tank-mix must be used in each trial, except in studies in which this is not applicable such as studies with granular formulations.

In order to differentiate these trials, select one option from Set 1 OR two options from Set 2.

If 3 or more trials in this study cannot be differentiated by the same options, then you should check all options that have been used, and explain below which options are differentiating between which trials.

If different crop varieties are being used as a differentiation option, then enter below information that explains why these varieties were chosen. Examples: Variety A produces large fruit, whereas Variety B produces small fruit. Variety A produces fruit with a smooth skin, whereas Variety B produces fruit with a rough skin. Varieties A and B are the two most commonly grown cultivars in this state.

If options are used that are listed in the protocol but are not listed in the table in Part 6.L.2, then enter descriptions of those options below.

Enter below any additional information that will improve the understanding of the options that have been chosen.

*Trials conducted in different calendar years are exempt from these requirements. (If separate trials by the same person or within 20 miles are conducted in late fall/early winter, then the differentiation options should be used to reduce the possibility of data rejection by a regulatory agency.)

Trial IDs of other trials in this study to which these options are being applied:

11270.14-HI196 (This trial was conducted in 2015)

Additional information:

① Field sites are located 32.4 miles apart.

② First Application Dates: 11270.14-HI196 = 6/19/15. 11270.15-HI196 = 7/21/15.
First application dates are 32 days apart.

③ Foliar Spray Volumes: 11270.14-HI196 = 95 gal/A. 11270.15-HI196 = 75 gal/A.

④ Soil Series Type: 11270.14-HI196 = soil series ~~WkA~~ WnB, Waialua Clay. (EE) JC 10/14/15
11270.15-HI196 = soil series WkA, Waialua Silty Clay.

ABOVE DATA ENTERED BY: Jami Coughlin *DATE:* 10/14/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 6. APPLICATION RECORDS

L.2. DIFFERENTIATION OF MULTIPLE TRIALS (IF YOU CHECKED "YES" ON THE PREVIOUS PAGE)

Some options included in this table may not be acceptable for use in this study. Refer to Protocol Section 11.4 for the study-specific list of options.

Check the options (in the third column) used to differentiate the trials that you are conducting in this study:

Set	Option	√	Description
1	A	✓	Trial sites must be separated by at least 20 miles (32 km)
	B	✓	First application or planting date (for annual crops) in each trial is separated by at least 30 days
	C		Different crop variety (different size or shape at maturity, rough vs. smooth surface, different amount of foliage shielding the commodity, different rate of growth, or representative of the major varieties grown within the region)—confirm with Study Director if this option will be chosen
2	A	✓	Spray volume must vary by at least 25% of the lower volume (minimum 10 GPA difference) Example 1, Trial A has a volume of 20 GPA and Trial B has a volume ≥ 30 GPA Example 2, Trial A has a volume of 60 GPA and Trial B has a volume ≥ 75 GPA The trial with the lowest spray volume for the first application must remain the lowest for each application; the trial with the highest must remain the highest for each, and so on
	B		Use of an adjuvant (of any suitable type) in the tank mix for one trial vs. no adjuvant in the tank mix for another trial
	C		Different foliar application type: foliar directed or foliar broadcast (Do not use this option if the label instructions for this commodity will specify one type or the other)
	D		Different granular application type: broadcast or banded (only if label supports both types)
	E		Different types of application equipment be used in each trial (for example, tractor-pulled boom sprayer, tractor-pulled spreader, airblast sprayer, axial fan orchard sprayer, proptec sprayer, cannon mist sprayer, tower sprayer, over-row sprayer, tunnel sprayer, backpack sprayer, waist pack sprayer, hand gun, hand-held spreader, or shaker can)
	F		Different spray droplet size (fine, medium, coarse, very coarse, or extra coarse) This may be accomplished by changing nozzles and/or by changing spray pressure Document in the Field Data Book the droplet size that results from the pressure and nozzles used in the trial (nozzle catalog may be used as a reference) Coarse, very coarse, and extra coarse are appropriate for herbicides only
	G		Different incorporation method for soil-applied test substance: mechanical or irrigation
	H		Different band width for soil applications: band width must vary by at least 50% of the lower width
	I		Different irrigation type (drip or furrow or sprinkler/over-the-top) (Irrigation must be applied at least once after each application, but over-the-top irrigation must not be applied within one hour of an application, and irrigation is not needed following the last application if samples are to be collected on the same day)
	J		For test substances that must be applied through drip irrigation: surface drip line or buried drip line
	K		Different planting arrangement for annual crops: single row beds or multi-row beds (two or more rows on each bed)
	L		One trial shall have trellised plants and the other shall not
	M		Different training system for fruit trees (for example, central leader or open center)
	N		Different maturity of trees or bushes in fruit and nut studies—young trees or bushes in one trial and mature trees or bushes in the other (minimum 5 year age difference); all trees/bushes must be commercially productive
	O	✓	Different soil series, type, or texture (only in trials in which applications are made to the soil)
	P		Different formulations of the test substance (within the types generally considered equivalent)

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 10/14/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

M. APPLICATION EQUIPMENT MAINTENANCE AND REPAIR LOG

INSTRUCTIONS: Complete this form or provide equivalent information. Provide dates and a brief description of maintenance and repair work completed on the application equipment relevant to this trial. Be sure to date and initial all entries.

APPLICATION EQUIPMENT IDENTIFIER MasterFlex Pump #1

EQUIPMENT USED FOR **APPLICATION NUMBERS** TRT 02 and TRT 03, Soil Applications # 1.

INITIALS/DATE JC 7/21/15

RECORD DATES AND BRIEF DESCRIPTION OF ANY CALIBRATION, MAINTENANCE AND REPAIR WORK DONE ON THE APPLICATION EQUIPMENT, OR ATTACH TRUE COPIES OF THE LOGS.
ALSO RECORD SOP# FOLLOWED, IF APPLICABLE.

Initials and Date	Was Maintenance or Repair routine? (Check one) Yes	No	SOP#	Description

See following pages for equipment log.
JC 7/21/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 1

Equipment type: Chemigation Injection Unit Model no.: Easyload II, model 77201-60 Serial no.: Masterflex Pump #1

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
5/20/15 jc	U, C	11270.14-HI196	60 secs 60 secs 60 secs	184 mL 184 mL 184 mL	Y	Check operation and output of chemigation unit. Used C-FLEX L/S 17 tubing. Set Masterflex pump speed dial at 6. Set pump drive occlusion adjustment to 4.
↓	↓	↓				Measured output for 60 secs, 3 times. Output is consistent. Performed a dry run at the corn plot using water to check chemigation unit operation.
↓	↓	↓		jc 5/20/15		Everything works fine. No leaks.
6/19/15 jc	C, U, M	11270.14-HI196		jc 6/19/15	Y	Calibrate chemigation unit at Waimanalo corn field site. See Part 6C in field data book for calibration data. Make chemigation applications to TRT 02 and TRT 03
↓	↓	↓			↓	corn plots. A calibration re-check was done after the TRT 02 application was made. Chemigation unit was cleaned with soap + water + rinsed thoroughly.
↓	↓	↓		jc 6/19/15	↓	Cleaning was done between treatments and after TRT 03 application was made.
7/14/15 jc	U	11270.15-HI196		jc 7/14/15	Y	Check chemigation unit operation on drip system at Waialua Corn field site. Performed a dry run using water. Works good. Needed to fix leaks in irrigation lines.
7/21/15 jc	C, U	11270.15-HI196		jc 7/21/15	Y	Calibrate chemigation unit at Waialua field site for TRT 02 plot. See Part 6C for calibration data. Make chemigation application to TRT 02 plot.

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, St. John, Rm. 006 INITIALS jc DATE 10/7/15

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Equipment type: Chemigation Injection Unit Model no.: Easyload II, model 77201-60 Serial no.: Masterflex Pump #1

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
7/21/15 JC	M	11270.15-HI196		JC 7/21/15	Y	Clean chemigatim unit by pumping soapy water through tubing, then pumping clean water through tubing to rinse completely.
7/21/15 JC	C, U	11270.15-HI196		JC 7/21/15	Y	Calibrate chemigatim unit at Waialua field site for TRT 03 plot. See Part 6C for calibratim data. Make chemigatim applicatim to TRT 03 plot.
7/21/15 JC	M	11270.15-HI196		JC 7/21/15	Y	Clean chemigatim unit by pumping soapy water through tubing, then pumping clean water through tubing to rinse completely. Store chem. unit in Field Lab.
						JC 10/7/15

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, St. John, Rm. 006 INITIALS JC DATE 10/7/15

Foliar Appl #1

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

A. EQUIPMENT

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial.*

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** Foliar Applications, TRT 03, Appl. #1-3

EQUIPMENT IDENTIFIER[1] CORN-10-2015

[1]*Each test substance application equipment must have a unique identifying name or code*

APPLICATION EQUIPMENT TYPE *(Check one)* TRACTOR____ BACKPACK ✓ GRANULAR____

OTHER____ *(Describe)* _____

PROPELLANT *(Check one)* CO_2 ✓ COMPRESSED AIR_____ PUMP_____

OTHER____ *(Describe)* _____

TYPE OF APPLICATION *(Check all that apply)*

1) FOLIAR ✓ TO THE GROUND_____

2) BROADCAST ✓ BANDED_____ DIRECTED_____ IN-FURROW_____

3) OTHER_____ *(Describe)* _____

NUMBER OF PASSES THAT ARE NEEDED TO TREAT THE PLOT 1 pass

NUMBER OF NOZZLES OR HOPPER OUTLETS USED		6 nozzles	
MESH SIZE USED IN THE STRAINERS	100 mesh	SPACING BETWEEN NOZZLES OR HOPPER OUTLETS	20 inches
NOZZLE BRAND/TYPE/SIZE *(e.g. T-JET 8004, even flat fan)*:	Air Induction Turbo TwinJet, AITTJ60, 110025		

TREATED AREA[2] 10 ft. x 100 ft. = 1000 ft^2

[2]*Calculated width of nozzle discharge pattern (CWNDP) at proper boom height X length of plot sprayed or treated. For a broadcast application, CWNDP = (# of nozzles X nozzle spacing). For a banded application, CWNDP = # of nozzles X swath per nozzle. If application is foliar or soil directed enter row width X # of rows X length of plot sprayed or treated; treated row width may differ from actual row width when the actual row width is wider or narrower than local commercial practices. In this circumstance, the application rate should be calculated using a local commercial row width, and an explanation should be included on this page or inserted behind this page. Contact the Study Director if guidance is needed.*

DOES TREATED AREA (for application rate calculations) = PLOT AREA (from Parts 5C and 5F)? YES_____ NO ✓

(For foliar directed and soil directed applications, check "YES" above unless local commercial row widths are used instead of the actual row width on the research plot. This prompt is intended to help data reviewers calculate the application rates correctly.)

IF NO, PLEASE EXPLAIN: Plot area was reduced to the inner 4 corn rows (rows 3-6) to match the spray boom width (10 ft.). Plot rows 2 and 7 were cut out to provide a walkway for the spray applicators. Plot rows 1 and 8 were not sprayed and will not be used for sample collection.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 7/27/15

Total number of pages in this section at initial pagination: N/A

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

B. DIAGRAM OF APPLICATION EQUIPMENT

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** Foliar Applications, TRT 03, Appl. 1-3

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial. Sketch a diagram and/or provide clear photograph of application equipment. Include the relative location and size of the target crop and the nozzle/hopper outlet placement and application pattern in relation to crop, in the sketch or photograph. In addition, on the sketch or photograph assign each nozzle or hopper outlet a unique number.*

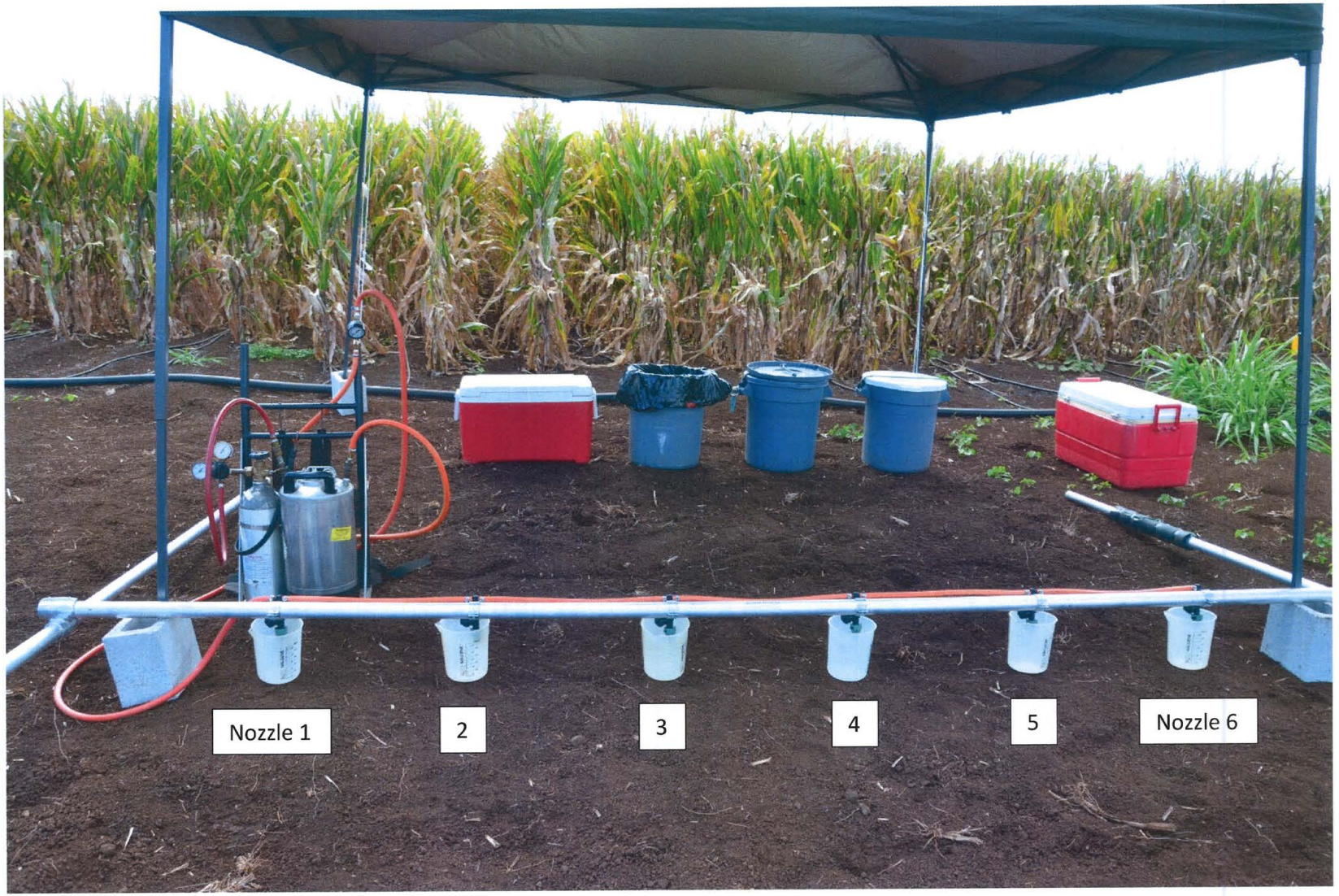
See following pages for sprayer photos.

JC 8/3/15

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

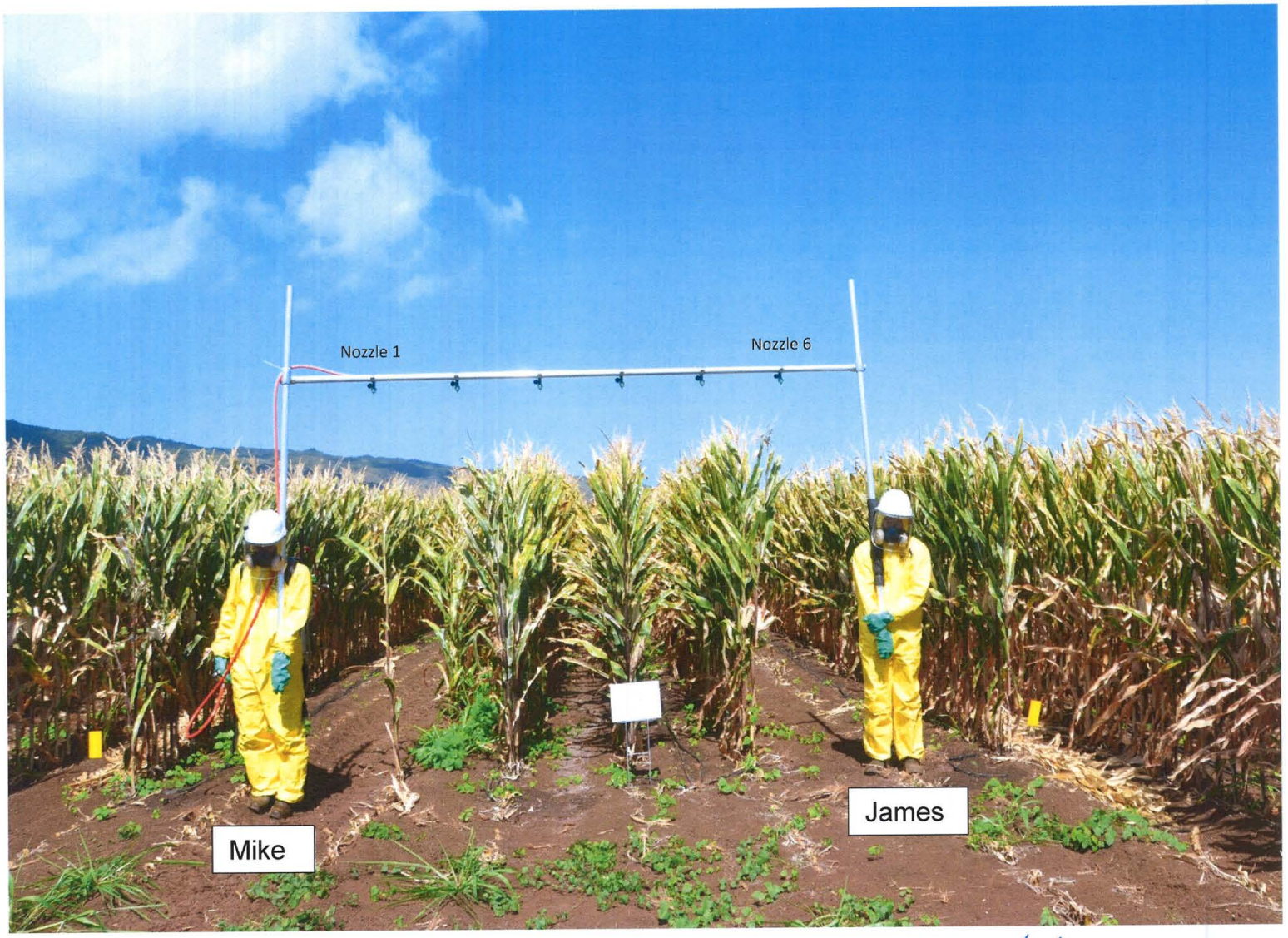
Equipment Identifier: CORN-10-2015



JC 8/3/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

Equipment Identifier: CORN-10-2015



gc 8/3/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS (may be used for field and greenhouse trials)

C.1. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** TRT 03, Foliar Appl. #1

INSTRUCTIONS: Complete a copy of this form (PHOTOCOPY IF NECESSARY) for additional times when a complete calibration or calibration-recheck of application equipment is required.

EQUIPMENT IDENTIFIER CORN-10-2015

DISCHARGE CALIBRATION DATE 7/27/15 PERFORMED BY JC *(INITIALS)*

APPROXIMATE TIME OF DAY THAT THE CALIBRATION WAS PERFORMED 8:35 am

DISCHARGE UNITS MEASURED *(e.g. ml, oz., grams)* mL

INSTRUMENT USED TO MEASURE WATER *(e.g. 100 ml graduated cylinder)* 500 mL grad. cylinder / 5 mL incr.

BRIEFLY DESCRIBE PROCEDURE USED TO CHECK DISCHARGE CALIBRATION Fill spray tank with water. Pressurize tank to 40 PSI. Spray into beakers for 30 secs. collecting the output of each nozzle. Measure the output and record in table on next page. Repeat two more times. Calculate average discharge.

The table for entering output results is now on 6.C.2 (next page).

CALIBRATION CALCULATIONS:

Run 1: 475 mL + 475 mL + 470 mL + 470 mL + 470 mL + 470 mL = 2830 mL ÷ 30 = 94.33 mL/sec

Run 2: 475 mL + 475 mL + 475 mL + 470 mL + 470 mL + 470 mL = 2835 mL ÷ 30 = 94.50 mL/sec

Run 3: 480 mL + 475 mL + 475 mL + 470 mL + 470 mL + 470 mL = 2840 mL ÷ 30 = 94.66 mL/sec

94.33 mL/sec + 94.50 mL/sec + 94.66 mL/sec = 283.49 ÷ 3 = 94.496 = 94.50 mL/sec

Average discharge = 94.50 mL/sec

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 7/27/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 6. APPLICATION RECORDS (may be used for field and greenhouse trials)

C2. DISCHARGE CALIBRATION *Record time applicator is allowed to discharge. Collect output from each nozzle or hopper. Record this value in "RUN" Row 1 under the appropriate outlet. Calculate the total and average discharge for all the nozzles/hoppers. Entry prompts have been provided for 3 discharge calibration runs. Calculate sums and averages of each nozzle/hopper outlet AND whether the results are within 5% (if applicable). Show all calculations.*

NOTE: It is acceptable for field personnel to use their own calibration table and insert it into the Field Data Book (FDB). If this is done, responses must be made to all of the data prompts on the IR-4 FDB pages, either on the original FDB pages or on the custom pages provided by the field personnel. Also, the data entered into the custom calibration tables must be clearly legible.

RUN	TIME (sec)	PSI*	Nozzle/hopper Outlet Number Along Boom (see equipment diagram for nozzle numbers)								
			1	2	3	4	5	6	Total	Output/Nozzle	Output/Second
1	30	40	475	475	470	470	470	470	2830	471.66	94.33
2	30	40	475	475	475	470	470	470	2835	472.5	94.50
3	30	40	480	475	475	470	470	470	2840	473.33	94.66
Total (required)	90	N/A	1430	1425	1420	1410	1410	1410	8505	1417.49	283.49
Average (optional)	30	40	476.66	475	473.33	470	470	470	2835	472.49	94.50

*PSI = Pressure in the boom during the calibration

Was this a recheck of discharge calibration or a target output? *(Check one)* YES_____ NO ✓

If yes, were results within 5% of original calibration or target output? *(Check one)* YES N/A NO N/A

If this is a 3-discharge calibration run, are the averages (last column on the right) all within 5% of the mean? *(Check one)* YES ✓ NO_____

An output consisting of an average of three runs or a target output may be used when calculating the sprayer output and amount of test substance to use. If this is a recheck (one run) then the results of the original calibration must be used. If the output result of the recheck is more than 5% different than the original calibration result, then two more runs are needed to produce a new, full calibration. The original calibration data, or a true copy, must be in this field data book.

ABOVE DATA ENTERED BY: Julia Coughlin DATE: 7/27/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

D. SPEED CALIBRATION FOR **APPLICATION NUMBER(S)** TRT 03- Foliar Appl. #1

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration- recheck of application equipment is required.

EQUIPMENT IDENTIFIER CORN-10-2015

SPEED CALIBRATION DATE 7/27/15 PERFORMED BY JC *(INITIALS)*

TERRAIN OF CALIBRATION TRACK *(e.g. tilled field)* TRT 03 Corn Plot

BRIEFLY DESCRIBE PROCEDURE USED FOR SPEED CALIBRATION Calculate target pass time (sec below). Mike and I held the boom over the corn rows and walked the length of the plot attempting to make the pass in the target pass time. We used metronomes to gauge speed and I used a stopwatch to time the pass. Repeat two more times. Record pass times in table below.

SPEED CALIBRATION: *Calculate the speed of the application equipment. If appropriate, note the gear setting and /or RPM setting used in the speed calibration. Indicate the distance (in feet) of the track on which the application equipment was tested to determine speed (e.g. speed of application equipment tested for 100 ft.). The speed is calculated by dividing the length of test track (in feet or meters) by the time needed to cover that length (in seconds). Entry prompts have been provided for 2 additional runs. If this is a recheck, calculate the result is within 5% of the original calibration. Show all calculations.* ***For studies beginning in 2011 or later, a speed recheck (one run) is required whenever an output recheck is performed.***

RUN	GEAR	RPM	Length of test track	TIME (sec)	CALCULATED SPEED (include units)	
1	N/A	N/A	100 ft.	68.35	1.46 ft/sec	
2	N/A	N/A	100 ft.	68.34	1.46 ft./sec	
3	N/A	N/A	100 ft.	68.97	1.45 ft/sec	
Total of test run times (sec)		205.66	Average time (sec)	68.55	Average speed	1.46 ft/sec

CALCULATIONS:

Target Pass Time = Spray Volume/Plot ÷ Sprayer output

Target Pass Time = 6518 mL/plot ÷ 94.50 mL/sec = 68.97 sec/pass = 69 sec/pass

WAS THIS A RECHECK OF SPEED CALIBRATION? *(Check one)* YES_____ NO ✓

IF YES, WERE RESULTS WITHIN 5% OF ORIGINAL CALIBRATION? *(Check one)* YES N/A NO N/A

The original calibration data, or a true copy, must be in this field data book.

NOTE: A target speed may be used for application calculations, rather than the mean of three runs, as long as the mean of the three runs in the speed calibration is within 5% of the target speed.

WAS THIS A CHECK OF A TARGET SPEED? *(Check one)* YES ✓ NO_____

IF YES, WERE RESULTS WITHIN 5% OF TARGET SPEED? *(Check one)* YES ✓ NO_____

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 7/27/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

PART 6. APPLICATION RECORDS

E. DELIVERY RATE CALIBRATION FOR **APPLICATION NUMBER(S)** TRT 03 - Foliar Appl. # 1

INSTRUCTIONS: Complete a separate form for each application, unless the same parameters are used-- you are using the same equipment, and have performed a recheck to confirm the result of the full calibration. Determine the rate of delivery from the application equipment. Briefly describe the procedure, including formulas used to determine delivery rate calibration. Show all calculations and units. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

PROCEDURE/FORMULA:

1. Sprayer Output from Discharge Calibration (mL/sec) X Pass Time from Speed Calibration (sec/pass) = mL/pass
2. mL/pass X no. of passes/plot = mL/plot
3. Convert to gallons/plot: mL/plot ÷ 3785.41 mL/gal
4. Convert to gallons/acre: gal/plot X 43560 ft^2/A ÷ total plot area (ft^2)

CALCULATIONS:

1. 94.50 mL/sec X 68.55 sec/pass = 6477.975 mL/pass
2. 6477.975 mL/pass X 1 pass/plot = 6477.975 mL/plot
3. 6477.975 mL/plot ÷ 3785.41 mL/gal = 1.71130076 gal/plot
4. $1.71130076 \text{ gal/plot} \left(\frac{43560 \text{ ft}^2/\text{A}}{1000 \text{ ft}^2/\text{plot}} \right) = 74.54 \text{ gal/A}$

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 7/27/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBER(S)** TRT 03 - Appl. # 1 - Foliar

INSTRUCTIONS: Complete a separate form for each application, unless there are no changes in multiple applications. Show all calculations, formulas, and results below, define units of measure, and cite the initials of the person performing the calculations. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

See following page for calculations.

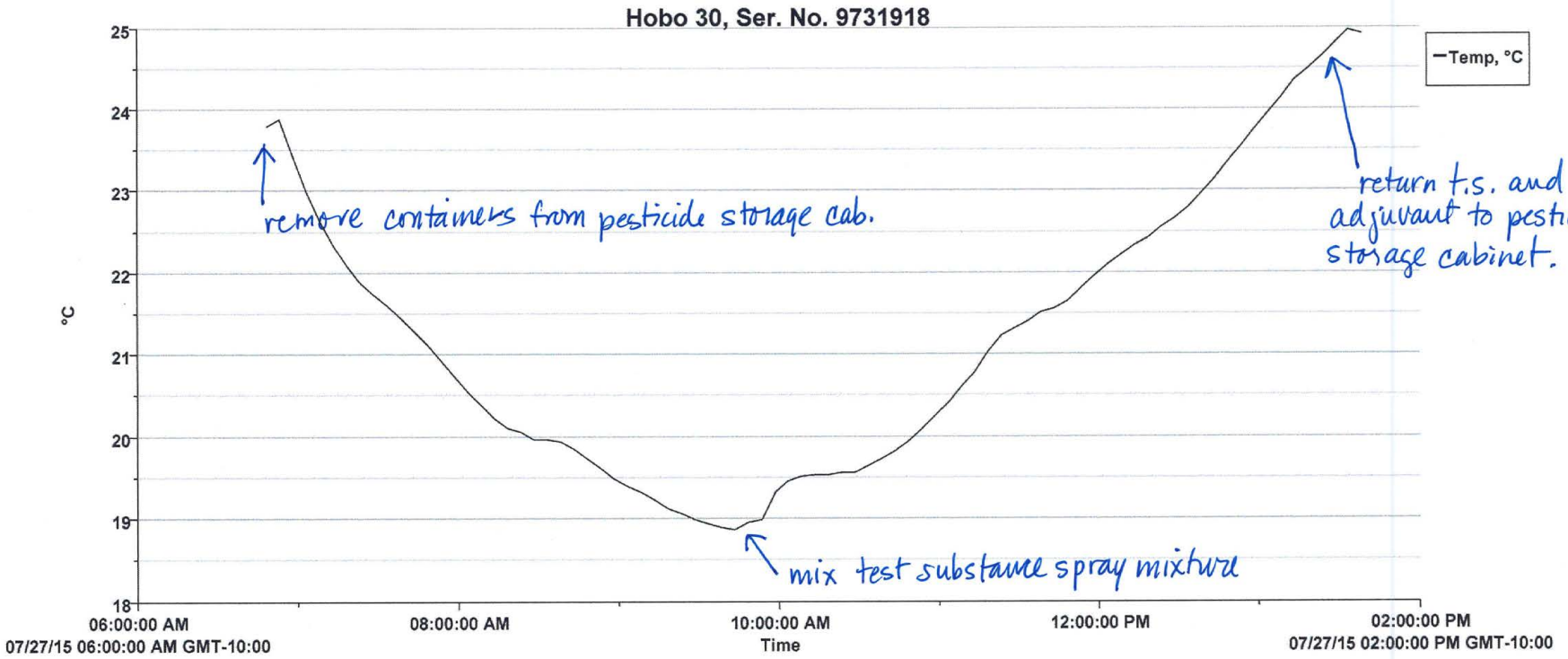
JC 7/27/15

DESCRIBE HOLDING AND TRANSPORT OF TEST SUBSTANCE FROM STORAGE AREA TO LOCATION OF TANK MIXING *(E.g.: "Test substance held securely in an insulated cooler during transport to field site in the bed of a pickup truck" or "Tank mix prepared within walking distance of the chemical storage building")*

Test substance original containes and amber bottle of surfactant were held in an insulated cooler bag placed into a larger cooler held in the bed of the pick-up truck during transit to the field site and back from the field site. A small ice pad and a Hobo recorder (Hobo#30) were placed into cooler bag. See next page for Hobo Output.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/27/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____



Deployment Info

- Launch Description: Hobo 30, Ser. No. 9731918
- Launch Time: 07/27/15 06:48:24 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 83
- Max: 24.968
- Min: 18.866
- Avg: 21.238
- Std Dev (σ): 1.760
- First Sample Time: 07/27/15 06:48:25 AM GMT-10:00
- Last Sample Time: 07/27/15 01:38:25 PM GMT-10:00

Test substance transit temperature to the field site and back to field lab for TRT 03, Foliar Appl. #1.
gc 7/27/15

gc 7/27/15

PART 6. APPLICATION RECORDS — TRT 03—Foliar Application

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBERS** 1

TRT 03 Plot: Spray only the 4 inner rows — spray 1/2 of the plot.

Area to be sprayed: 10 ft. x 100 ft. = 1000 ft^2 No. of Passes: 1

REQUIRED SPRAY VOLUME — *SOP 4-2.0, Method 1*

Gallons of spray needed for plots = $\frac{\text{gal/A x plots area (ft}^2\text{) x no. of plots}}{43560\ \text{ft}^2/\text{A}}$ x 1.2 (20% overage)

Convert from gal to mL, multiply by 3785.41 mL/gal

gals of spray needed for plot $= \frac{(75\ \text{gal/A})(1000\ \text{ft}^2/\text{plot})(1\ \text{plot})}{43560\ \text{ft}^2/\text{A}} = 1.72176309\ \text{gal}$

$1.72176309\ \text{gal} \times 1.2 = 2.0661157\ \text{gal}$

$2.0661157\ \text{gal} \times 3785.41\ \text{mL/gal} = 7821.09504\ \text{mL} = 7821\ \text{mL}$

Spray Volume before adding overage = 6518 mL

REQUIRED TEST SUBSTANCE — *SOP 4-3.1, Method 1*

Amount (gal) of test substance for plots = $\frac{\text{lb ai/A x gal/plot x no. of plots}}{\text{gal/A x lb ai/gal in formulation}}$ x 1.2 (20% overage)

Convert from gal to mL, multiply by 3785.41 mL/gal

Amt. (gal) of test substance for plot $= \frac{(0.047\ \text{lb ai/A})(1.72176309\ \text{gal/plot})(1\ \text{plot})}{(75\ \text{gal/A})(4.6\ \text{lbs ai/gal})} = \frac{0.08092287}{345}$

$= 0.00023456\ \text{gal} \times 1.2 = 0.00028147\ \text{gal}$

$0.00028147\ \text{gal} \times 3785.41\ \text{mL/gal} = 1.06547935\ \text{mL} = 1.07\ \text{mL}$

Surfactant Calculation: Rate = WetCit at 15 oz/100 gal

$\frac{15\ \text{oz}}{100\ \text{gal}} = \frac{443.6\ \text{mL}}{378541\ \text{mL}} = 0.00117187 \times 7821\ \text{mL} = 9.165\ \text{mL} = 9.17\ \text{mL}$

TANK MIX AMOUNTS

TEST SUBSTANCE ADMIRE PRO	SURFACTANT WETCIT	CARRIER WATER	EXPECTED OVERAGE
1.07 mL	9.17 mL	7821 mL	1303 mL

ABOVE DATA ENTERED BY: Julie Coughlin DATE 7/24/15

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 03, Foliar Appl. # 1

G. APPLICATION INFORMATION FOR **APPLICATION NUMBER** 1 APPLICATION DATE 7/27/15

HAS THE APPLICATION EQUIPMENT BEEN USED SINCE THE LAST CALIBRATION/RECHECK WAS PERFORMED? *(Check one)* YES_____ NO ✓ (If YES, then a recheck is needed.)

INSTRUCTIONS: **Complete a separate form for each application date.** *Complete one column for each treated plot* **(use the Treatment Number as indicated in the protocol).** *Provide the name of the test substance (common chemical name or chemical code number); the batch or lot number of the test substance; the approximate time the test substance was mixed with the carrier and the approximate time the mixture was applied to the plots, along with* ***the initials of the person(s) mixing and spraying the tank mix****; the time of additional agitation (if any); the unique name or code for the application equipment used to apply this treatment; the placement of the test substance (e.g. broadcast, in-furrow, directed, knifed-in, banded); the amount of carrier, formulated product and other additives in the mix; the measuring equipment with increments; the distance (include units) of the nozzles above the canopy or ground (indicate which); the pressure in pounds per square inch at the boom; if treatment(s) were incorporated, the method and/or equipment used to incorporate the test substance mix (e.g. disked, rotovator, irrigated, etc.), depth to which the test substance was incorporated* ***or*** *the amount of water used to move the test substance into the soil; the time after treatment the incorporation activity was performed; and the carrier (normally water), its source (e.g. farm pond, city water), pH of the carrier and its temperature, and the equipment used to measure the carrier pH.*

	TRT Number 03	
NUMBER OF DAYS SINCE PREVIOUS APPLICATION	N/A	TIME OF ADDITIONAL AGITATION/INITIALS (if applicable) e.g. "10:00" or "continuous" or "just prior to application"
TEST SUBSTANCE	Imidacloprid	
BATCH/LOT NUMBER	NK41CX0578	
TIME MIXED/INITIALS	9:50 am gc	Just prior to application.
TIME APPLIED/INITIALS	10:15 am gc	
EQUIPMENT IDENTIFIER	CORN-10-2015	
PLACEMENT OF TEST SUBSTANCE	Foliar-Broadcast	
TANK MIX AMOUNTS		MEASURING EQUIPMENT with INCREMENTS*
CARRIER (starting volume of water)	7821 mL Water	2000 mL grad. cylinder / 20 mL incr.
VOLUME of WATER REMOVED from starting volume (if applicable)	0	1000 mL grad. cylinder / 10 mL incr. 25 mL grad. cylinder / 0.5 mL incr.
TEST SUBSTANCE (formulated product)	1.07 mL Admire Pro	A 1-10 mL automatic pipettor with
ADJUVANT OR SURFACTANT	9.17 mL WetCit	0.01 mL incr. for test sub. and adjuvant
TOTAL VOLUME OF TANK MIX	7831.24 mL	*e.g. 1000 mL grad. cylinder/10 ml incr.
NOZZLE DISTANCE from TARGET	0"-8"	ORDER IN WHICH ITEMS WERE ADDED TO SPRAY MIXTURE* W=Water, TS=Test Substance, A=Adjuvant *e.g. 1-W, 2-TS, 3-A, 4-W
PSI AT BOOM	40 PSI	
INCORPORATION - Methodology and/or Equipment - DEPTH - TIME	N/A - Not Incorporated	1-W, 2-TS, 3-A, 4-W
CARRIER SOURCE/TYPE	County water	
CARRIER pH/TEMPERATURE	7.0 / 85.6 °F	
EQUIPMENT used to MEASURE pH	paper strips	

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/27/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

TRT 03 - Foliar Appl. # 1

H. ADDITIONAL INFORMATION FROM **APPLICATION NUMBER** 1

APPLICATION DATE 7/27/15 *(Complete a separate form for each application date)*

PLANT GROWTH & ENVIRONMENTAL DATA AT THE TIME OF APPLICATION	Enter data in this column
CROP HEIGHT *(Measure or estimate crop height, include units of measurements)*	6.5 ft.
CROP GROWTH STAGE *(e.g. seed, vegetative, bud, bloom, fruiting, #true leaves)*	Kernels formed/brown silk
CROP VIGOR *(e.g. poor, fair, good, variable)**	good
PLANT SURFACE MOISTURE *(Check one)*	SATURATED___ DAMP___ DRY ✓ NA___
ESTIMATED % OF SOIL AREA COVERED BY CROP CANOPY	100%
MEASURED AIR TEMPERATURE *(Check F or C)*	90 °F ✓ °C___
MEASURED WIND SPEED *(Check MPH or Km/Hr)*	0-8 MPH ✓ Km/Hr___
WIND DIRECTION FROM *(Check one)*	N___ NE ✓ E___ SE___ S___ SW___ W___ NW___ or NO WIND___
ESTIMATED % OF CLOUDS IN THE SKY	15%
MEASURED RELATIVE HUMIDITY%	56%
DEW *(heavy, light, none, etc.)*	none
DESCRIPTION OF SOIL TILTH *(smooth, firm, packed, cloddy, etc.)*	packed
ESTIMATE OF SOIL SURFACE MOISTURE *(wet, moist, dry, etc.)*	dry
SOIL TEMPERATURE *(Check F or C)*	82.6 °F ✓ °C___
DEPTH OF MEASUREMENT OF SOIL TEMPERATURE *(Check INCHES or cm)*	2 INCHES ✓ cm___

*IF CROP VIGOR IS POOR OR VARIABLE, EXPLAIN: Sp (EE) JC 7/27/15

JC 7/27/15

BRIEFLY DESCRIBE PROCEDURE USED TO CLEAN APPLICATION EQUIPMENT Spray tank, boom, and lines were rinsed with water. Nozzles and screens were removed and washed with soap + water and rinsed. Soapy water was sprayed through the boom, then water was sprayed through to rinse completely. Tank was washed with soap + water and rinsed. All mixing and measuring equipment was rinsed with water, then washed with soap and water, and rinsed thoroughly with water. Mike and I cleaned the boom together. CLEANED BY JC *(Initials)*

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 7/27/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

I. PASS TIMES FOR **APPLICATION NUMBER** TRT 03 - Foliar Appl. #1

APPLICATION DATE 7/27/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

RECORD PASS TIME AND PASS DIRECTION - *Complete the table by providing the time required to make each pass of the application equipment through the plot and direction of that pass (e.g. NE).*

	TREATMENT 03		TREATMENT __		
PASS NUMBER	TIME min:sec	DIRECTION	PASS NUMBER	TIME	DIRECTION
1	1:09.13	E	1		
2			2		
3			3		
4			4		
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
TOTAL PASS TIME	69.13 sec.				

JC 7/27/15

JC 7/27/15

PROVIDE A BRIEF NARRATIVE SUMMARY OF THE APPLICATION

(E.g. *"Test substance was applied to the treated test plot in two passes; one pass down each side of the row. Each pass was applied to the soil, in a 3 ft. band out from the tree, with the spray boom 24 inches above the soil."*)

Test substance was applied to the treated plot in one pass. Mike and I held the 10 ft. boom on either side of the 4 inner rows in the plot. We stood in the walkspace that we made when we cut rows #2 and 7 out of the plot. Mike carried the backpack and operated the sprayer handle. The boom was positioned over the tops of the corn plants. The pass was applied to the top of the corn rows. The spray booom was held 0-8" above the corn rows and varied because the corn height was variable (taller in the middle). In the center of the plot, the boom hit the corn tassel, at the very top. I used a stopwatch to time the pass.

NARRATIVE ENTERED BY JC *(Initials)*

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 7/27/15

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 03 - Foliar Appl. # 1

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** 1

APPLICATION DATE 7/27/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. Even if a target rate was used for the pre-application calculations, the data from the calibration (average of 3 outputs) must be used for calculating the application rate. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of 6J may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

EXAMPLE FORMULAS: The formulas below may be used to calculate the amount of test substance (TS) applied per acre as required in Part 6I. Other formulas may be used instead; however, it is not sufficient to merely compare the actual pass times to the "practice" pass times.

1) Total Pass Time x Discharge Rate/Nozzle x #Nozzles = Volume of Tank Mix applied to Plot

2) Volume of Tank Mix applied to Plot x $\frac{\text{Amount of TS in Tank Mix}}{\text{Total Volume of Tank Mix}}$ = Amount of TS applied to Plot

3) Amount of TS applied to Plot x $\frac{\text{43,560 sq ft per acre}}{\text{Plot area treated in sq ft}}$ = Amount of TS applied per acre

****

measured overage = 1680 mL

DISCHARGE RATE (ml/sec or g/sec): 94.50 mL/sec

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): 1000 ft²

Note: *Use bed width for plots with multi-row beds.*

1. 69.13 secs. x 94.50 mL/sec = 6532.785 mL/plot

2. $6532.785\ \text{mL/plot} \left(\frac{1.07\ \text{mL Admire Pro}}{7831.24\ \text{mL/tank}}\right) = 0.89258916\ \text{mL/plot}$

3. $0.89258916\ \text{mL/plot} \left(\frac{43560\ \text{ft}^2/\text{A}}{1000\ \text{ft}^2/\text{plot}}\right) = 38.88\ \text{mL/A}$

4. $\%\ \text{Error} = \frac{38.88\ \text{mL/A} - 38.7\ \text{mL/A}}{38.7\ \text{mL/A}} \times 100 = +0.46\% = 0\%$

See following page for overage calculations. JC 7/30/15

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES ✓ NO ___ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: JMic Coughlin *DATE:* 7/27/15

PART 6. APPLICATION RECORDS

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** TRT 03, Foliar Appl. # 1

Rate confirmation using overage amount:

Formula:

% Error = expected overage – actual overage ÷ exact plot volume X 100

expected overage = 1303 mL actual overage = 1680 mL

$$\% \text{ Error} = \frac{1303\,mL - 1680\,mL}{6518\,mL} \times 100 = -5.78\%$$

Round to nearest whole percent = -6%

JC 7/30/15

The above calculations were added as a late entry. JC 7/30/15

ABOVE DATA ENTERED BY: Julie Coughlin (LE) DATE: 7/30/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

K. POST TREATMENT RECORDS FOR **APPLICATION NUMBER** TRT 03- Foliar Appl. #1

APPLICATION DATE 7/27/15 *(Complete a separate form for each application date)*

Was There Any Visible Phytotoxicity Damage? *(Check one)* YES___ NO ✓ JC 7/27/15 *(Initials/date)*

If YES, then contact the Study Director. If a digital camera is available, email digital photograph(s) to the Study Director along with a detailed explanation of the damage. A written description should also be entered below:

PHYTOTOXICITY DESCRIBED BY: JC 7/27/15 *(Initials/date)*

DATE STUDY DIRECTOR WAS CONTACTED: N/A CONTACTED BY: N/A *(Initials/date)*

Enter the requested information below for both the first rainfall and first irrigation after each application, regardless of whether subsequent applications were made prior to the first rainfall or irrigation. The rainfall/irrigation data entered below should be transcribed from the data included in Part 9 unless otherwise indicated on this page. **If irrigation is required by the protocol to incorporate the test substance, or if the test substance is applied by irrigation, then that event should be recorded below. "NONE BEFORE HARVEST" OR "NONE BEFORE SAMPLING" MAY BE ENTERED, IF APPLICABLE.**

DATE OF FIRST RAIN *(Note the date of first rainfall after this application.)*	7/31/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST RAINFALL *(Check DAYS or HOURS) (Enter #hours if first rainfall was on the date of application.)*	4 **DAYS** ✓ **HOURS** ___
AMOUNT OF WATER *(Check INCHES or mm)*	0.01 **INCHES** ✓ **mm** ___
RAIN INFORMATION RECORDED BY *(Initials/date)*	JC 10/14/15
TYPE OF IRRIGATION *(e.g. overhead, trickle, flood)*	drip
DATE OF FIRST IRRIGATION *(Note the date of first irrigation after this application.)*	7/30/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST IRRIGATION *(Check DAYS or HOURS) (Enter #hours if first irrigation was on the date of application.)*	3 **DAYS** ✓ **HOURS** ___
AMOUNT OF WATER *(Check INCHES, mm, or mL)*	0.42 **INCHES** ✓ **mm** ___ **mL** ___
IRRIGATION INFORMATION RECORDED BY *(Initials/date)*	JC 10/14/15

If the data entered above differ from the rainfall/irrigation data included in Part 9, explain: _____

Initials/date: JC 10/14/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

M. APPLICATION EQUIPMENT MAINTENANCE AND REPAIR LOG

INSTRUCTIONS: Complete this form or provide equivalent information. Provide dates and a brief description of maintenance and repair work completed on the application equipment relevant to this trial. Be sure to date and initial all entries.

APPLICATION EQUIPMENT IDENTIFIER CORN-10-2015

EQUIPMENT USED FOR **APPLICATION NUMBERS** Foliar Appl.'s # 1, 2, 3. TRT 03 Plot.

INITIALS/DATE JL 7/27/15

RECORD DATES AND BRIEF DESCRIPTION OF ANY CALIBRATION, MAINTENANCE AND REPAIR WORK DONE ON THE APPLICATION EQUIPMENT, OR ATTACH TRUE COPIES OF THE LOGS.
ALSO RECORD SOP# FOLLOWED, IF APPLICABLE.

Initials and Date	Was Maintenance or Repair routine? (Check one) Yes	No	SOP#	Description

See following pages for equipment log.

JL 10/14/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

SPRAYER USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Spray Boom Characteristics:

Equipment Identifier: CORN-10-2015

Nozzle type: AITTJ60 110025 No. of nozzles: 6 Nozzle spacing (ft): 20 inches Spray swath (ft): 10 ft.

Tubing material (*e.g.*, aluminum): Bug hose (orange tubing)

Person responsible: Julie Coughlin

Date	Initials	Activity performed?[1]	If activity = R, how was it discovered?[2]	If activity = C or U, specify project no.	SOP followed? (Y or N)	Details of use, calibration[3], maintenance and repair
7/24/15	jc	A	N/A	11270.15 -HI196	Y	Pressure gauge ID no.: 2011-01 CO_2 tank ID no.: 8 Spray tank ID no: #2 Handle ID no.: 2014-01 Regulator ID no.: 3 Spray head ID no.: N/A Assemble spray boom on new aluminum pipe. Boom is tubing material mounted to a round aluminum pipe. Boom has aluminum handles to elevate boom.
7/27/15	jc	C, U	N/A	11270.15 -HI196	Y	Pressure gauge ID no.: 2011-01 CO_2 tank ID no.: 8 Spray tank ID no: #2 Handle ID no.: 2014-01 Regulator ID no.: 3 Spray head ID no.: N/A Calibrate sprayer at Waialua field site. Make Foliar application #1 to the TRT 03 corn plot.
7/27/15	jc M (EE) jc 7/27/15	M	N/A	11270.15 -HI196	Y	Pressure gauge ID no.: 2011-01 CO_2 tank ID no.: 8 Spray tank ID no: #2 Handle ID no.: 2014-01 Regulator ID no.: 3 Spray head ID no.: N/A Rinse sprayer with water, then clean with soap and water and rinse completely with water. Remove nozzles + screens + clean same way.
8/3/15	jc	C, U	N/A	11270.15 -HI196	Y	Pressure gauge ID no.: 2011-01 CO_2 tank ID no.: 8 Spray tank ID no: #2 Handle ID no.: 2014-01 Regulator ID no.: 3 Spray head ID no.: N/A Calibrate sprayer at Waialua Field Site. Make Foliar spray application #2 to the TRT 03 corn plot.

[1] **A** = assemble, **U** = use, **C** = calibration/standardization, **M** = routine maintenance, **R** = repair (*i.e.*, nonroutine maintenance because of malfunction of breakage), **D** = dismantle.
[2] **1** = during use, **2** = during calibration/standardization, **3** = during routine maintenance, **4** = other (describe).
[3] See sprayer calibration data in Field Data book.

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, St. John Rm. 006 INITIALS jc DATE 10/16/15

SPRAYER USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Spray Boom Characteristics:

Equipment Identifier: CORN-10-2015

Nozzle type: AITTJ60 110025 No. of nozzles: 6 Nozzle spacing (ft): 20 inches Spray swath (ft): 10 ft.

Tubing material (e.g., aluminum): Bug hose (orange)

Person responsible: Julie Coughlin

Date	Initials	Activity performed?[1]	If activity = R, how was it discovered?[2]	If activity = C or U, specify project no.	SOP followed? (Y or N)	Details of use, calibration[3], maintenance and repair
8/3/15	JC	M	N/A	11270.15 -HI196	Y	Pressure gauge ID no.: 2011-01 CO_2 tank ID no.: 8 Spray tank ID no: #2 Handle ID no.: 2014-01 Regulator ID no.: 3 Spray head ID no.: N/A Rinse sprayer with water, then clean with soap and water and rinse completely with water. Remove nozzles + screens and clean the same way.
8/10/15	JC	C, U	N/A	11270.15 -HI196	Y	Pressure gauge ID no.: 2011-01 CO_2 tank ID no.: 8 Spray tank ID no: #2 Handle ID no.: 2014-01 Regulator ID no.: 3 Spray head ID no.: N/A Calibrate sprayer at Waialua field site. Make foliar spray application #3 to the TRT 03 corn plot.
8/10/15	JC	M	N/A	11270.15 -HI196	Y	Pressure gauge ID no.: 2011-01 CO_2 tank ID no.: 8 Spray tank ID no: #2 Handle ID no.: 2014-01 Regulator ID no.: 3 Spray head ID no.: N/A Rinse sprayer with water, then wash with soap and water and rinse thoroughly. Remove nozzles and screens and clean the same way.
						Pressure gauge ID no.: ____ CO_2 tank ID no.: ____ Spray tank ID no: ____ Handle ID no.: ____ Regulator ID no.: ____ Spray head ID no.: ____ JC 10/16/15

[1] **A** = assemble, **U** = use, **C** = calibration/standardization, **M** = routine maintenance, **R** = repair (*i.e.*, nonroutine maintenance because of malfunction of breakage), **D** = dismantle.
[2] **1** = during use, **2** = during calibration/standardization, **3** = during routine maintenance, **4** = other (describe).
[3] See sprayer calibration data in Field Data book.

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, field lab, St. John, Rm. 006 INITIALS JC DATE 10/16/15

Foliar Appl #2

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS (may be used for field and greenhouse trials)

C.1. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** 2 TRT03- Foliar Appl. #2

INSTRUCTIONS: Complete a copy of this form (PHOTOCOPY IF NECESSARY) for additional times when a complete calibration or calibration-recheck of application equipment is required.

EQUIPMENT IDENTIFIER CORN-10-2015

DISCHARGE CALIBRATION DATE 8/3/15 PERFORMED BY JC *(INITIALS)*

APPROXIMATE TIME OF DAY THAT THE CALIBRATION WAS PERFORMED 9:00 am

DISCHARGE UNITS MEASURED *(e.g. ml, oz., grams)* mL

INSTRUMENT USED TO MEASURE WATER *(e.g. 100 ml graduated cylinder)* 500 mL grad. cylinder / 5 mL incr.

BRIEFLY DESCRIBE PROCEDURE USED TO CHECK DISCHARGE CALIBRATION Fill spray tank with water. Pressurize tank to 40 PSI. Spray into beakers for 30 secs. collecting the output of each nozzle. Measure the output and record in table on following page. Repeat two more times. Calculate average discharge.

The table for entering output results is now on 6.C.2 (next page).

CALIBRATION CALCULATIONS:

Run 1 - 485 + 480 + 480 + 475 + 475 + 475 = 2870 ÷ 30 = 95.67 mL/sec

Run 2 - 480 + 475 + 470 + 470 + 470 + 470 = 2835 ÷ 30 = 94.50 mL/sec

Run 3 - 480 + 475 + 475 + 470 + 470 + 475 = 2845 ÷ 30 = 94.83 mL/sec

95.67 mL/sec + 94.50 mL/sec + 94.83 mL/sec = 285 ÷ 3 = 95.0 mL/sec

Average discharge = 95.0 mL/sec

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 8/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 6. APPLICATION RECORDS (may be used for field and greenhouse trials)

C2. DISCHARGE CALIBRATION *Record time applicator is allowed to discharge. Collect output from each nozzle or hopper. Record this value in "RUN" Row 1 under the appropriate outlet. Calculate the total and average discharge for all the nozzles/hoppers. Entry prompts have been provided for 3 discharge calibration runs. Calculate sums and averages of each nozzle/hopper outlet AND whether the results are within 5% (if applicable). Show all calculations.*

NOTE: It is acceptable for field personnel to use their own calibration table and insert it into the Field Data Book (FDB). If this is done, responses must be made to all of the data prompts on the IR-4 FDB pages, either on the original FDB pages or on the custom pages provided by the field personnel. Also, the data entered into the custom calibration tables must be clearly legible.

RUN	TIME (sec)	PSI*	Nozzle/hopper Outlet Number Along Boom (see equipment diagram for nozzle numbers)								
			1	2	3	4	5	6	Total	Output/Nozzle	Output/Second
1	30	40	485	480	480	475	475	475	2870	478.33	95.67
2	30	40	480	475	470	470	470	470	2835	472.50	94.50
3	30	40	480	475	475	470	470	475	2845	474.17	94.83
Total (required)	90	N/A	1445	1430	1425	1415	1415	1420	8550	1425	285
Average (optional)	30	40	481.67	476.67	475.00	471.67	471.67	473.33	2850	475.00	95.00

*PSI = Pressure in the boom during the calibration

Was this a recheck of discharge calibration or a target output? *(Check one)* YES_____ NO ✓

If yes, were results within 5% of original calibration or target output? *(Check one)* YES N/A NO N/A

If this is a 3-discharge calibration run, are the averages (last column on the right) all within 5% of the mean? *(Check one)* YES ✓ NO_____

An output consisting of an average of three runs or a target output may be used when calculating the sprayer output and amount of test substance to use. If this is a recheck (one run) then the results of the original calibration must be used. If the output result of the recheck is more than 5% different than the original calibration result, then two more runs are needed to produce a new, full calibration. The original calibration data, or a true copy, must be in this field data book.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 8/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

D. SPEED CALIBRATION FOR **APPLICATION NUMBER(S)** TRT 03 - Foliar Appl. #2

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration- recheck of application equipment is required.

EQUIPMENT IDENTIFIER CORN-10-2015

SPEED CALIBRATION DATE 8/3/15 PERFORMED BY JC *(INITIALS)*

TERRAIN OF CALIBRATION TRACK *(e.g. tilled field)* TRT 03 Corn Plot

BRIEFLY DESCRIBE PROCEDURE USED FOR SPEED CALIBRATION Calculate target pass time (see below). James and Mike held the corn boom over the rows and walked the length of the plot attempting to make the pass in the target pass time. They used metronomes to gauge their walking speed, and I used a stopwatch to time the pass. Repeat 2 more times, Record pass times in table below.

SPEED CALIBRATION: *Calculate the speed of the application equipment. If appropriate, note the gear setting and/or RPM setting used in the speed calibration. Indicate the distance (in feet) of the track on which the application equipment was tested to determine speed (e.g. speed of application equipment tested for 100 ft.). The speed is calculated by dividing the length of test track (in feet or meters) by the time needed to cover that length (in seconds). Entry prompts have been provided for 2 additional runs. If this is a recheck, calculate the result is within 5% of the original calibration. Show all calculations.* ***For studies beginning in 2011 or later, a speed recheck (one run) is required whenever an output recheck is performed.***

RUN	GEAR	RPM	Length of test track	TIME (sec)	CALCULATED SPEED (include units)	
1	N/A	N/A	100 ft.	76.78	1.30 ft/sec	
2	N/A	N/A	100 ft.	79.44	1.26 ft/sec	
3	N/A	N/A	100 ft.	74.78	1.34 ft/sec	
Total of test run times (sec)		231	Average time (sec)	77.00	Average speed	1.30 ft./sec

CALCULATIONS:

Target Pass Time = Spray Volume/Plot ÷ Sprayer Output

Target Pass Time = 6518 mL/plot ÷ 95 mL/sec = 68.61 secs = 69 sec/plot

→ Target speed add 5 secs: 69 sec + 5 sec = 74 sec target speed - see following page for explanation (Target Speed Modification).

WAS THIS A RECHECK OF SPEED CALIBRATION? *(Check one)* YES_____ NO ✓

IF YES, WERE RESULTS WITHIN 5% OF ORIGINAL CALIBRATION? *(Check one)* YES N/A NO N/A

The original calibration data, or a true copy, must be in this field data book.

NOTE: A target speed may be used for application calculations, rather than the mean of three runs, as long as the mean of the three runs in the speed calibration is within 5% of the target speed.

WAS THIS A CHECK OF A TARGET SPEED? *(Check one)* YES ✓ NO_____

IF YES, WERE RESULTS WITHIN 5% OF TARGET SPEED? *(Check one)* YES ✓ NO_____

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

PART 6 APPLICATION RECORDS (CONT.)

D. SPEED CALIBRATION: TARGET SPEED MODIFICATION

In the first foliar application to the TRT 03 corn plot in this trial, the actual pass time was close to the target (+0.46%). However, when the spray overage was measured following the application, an under-application of -5.78% was discovered. This occurred because the spray boom was calibrated on the ground, and when the spray boom was raised overhead to position it above the corn plants during the spray application, the sprayer output decreased slightly, even though the spray boom pressure remained constant. This was also observed in the first foliar application in a previous corn trial (IR-4 PR #11270.14-HI196).

In order to compensate for this decrease in output, I decided to increase the target pass time for the remaining foliar spray applications (applications #2 and #3). I calculated the amount of seconds to add to the target pass time by taking the difference in the expected and actual overage amounts for each application, then calculate the time it would take to apply this difference in overage. I took the average of the two applications, and added the result to my target pass time. These calculations follow:

IR-4 PR #11270.14-HI196: Foliar Appl. #1 – See Part 6d for Spray Application #3 in this field data book for these overage calculations. (LE) JC 10/16/15

Measured Overage = 2150 mL
Expected Overage = 1651 mL
Sprayer Output = 92.38 mL/sec

Difference in expected vs. measured overage = 1651 mL – 2150 mL = -499 mL
Time to spray this overage amount = 499 mL ÷ 92.38 mL/sec = 5.401 secs.

IR-4 PR #11270.15-HI196: Foliar Appl. #1 – These calculations can be found in this field data book. (LE) JC 10/16/15

Measured Overage = 1680 mL
Expected Overage = 1303 mL
Sprayer Output = 94.50 mL/sec

Difference in expected vs. measured overage = 1303 mL – 1680 mL = -377 mL
Time to spray this overage amount = 377 mL ÷ 94.50 mL/sec = 3.989 secs.

Average the two times:

5.401 sec + 3.989 sec = 9.39 sec ÷ 2 = 4.695 sec
Round to the nearest second = 5 sec

ADD 5 SECONDS TO THE TARGET PASS TIME TO ACCOUNT FOR DECREASE IN SPRAYER OUTPUT WHEN SPRAY BOOM IS HELD OVERHEAD DURING THE SPRAY APPLICATION.

JC 8/3/15

PART 6. APPLICATION RECORDS

E. DELIVERY RATE CALIBRATION FOR **APPLICATION NUMBER(S)** TRT03 - Foliar Appl. #2

INSTRUCTIONS: Complete a separate form for each application, unless the same parameters are used-- you are using the same equipment, and have performed a recheck to confirm the result of the full calibration. Determine the rate of delivery from the application equipment. Briefly describe the procedure, including formulas used to determine delivery rate calibration. Show all calculations and units. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

PROCEDURE/FORMULA:

1. Sprayer Output from Discharge Calibration (mL/sec) X Pass Time from Speed Calibration (sec/pass) = mL/pass
2. mL/pass X no. of passes/plot = mL/plot
3. Convert to gallons/plot: mL/plot ÷ 3785.41 mL/gal
4. Convert to gallons/acre: gal/plot X 43560 ft^2/A ÷ total plot area (ft^2)

CALCULATIONS:

1. 95 mL/sec x 77 sec/pass = 7315 mL/pass
2. 7315 mL/pass x 1 pass/plot = 7315 mL/plot
3. 7315 mL/plot ÷ 3785.41 mL/gal = 1.93241947 gal/plot
4. $1.93241947 \text{ gal/plot} \left(\frac{43560 \text{ ft}^2/\text{A}}{1000 \text{ ft}^2/\text{plot}} \right) = 84.17 \text{ gal/A}$ ①

① Note: pass time was adjusted to account for output drop when spray boom is raised over corn rows.

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 8/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBER(S)** TRT03 - Foliar Appl. #2

INSTRUCTIONS: Complete a separate form for each application, unless there are no changes in multiple applications. Show all calculations, formulas, and results below, define units of measure, and cite the initials of the person performing the calculations. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

See following page for calculations.

JC 8/3/15

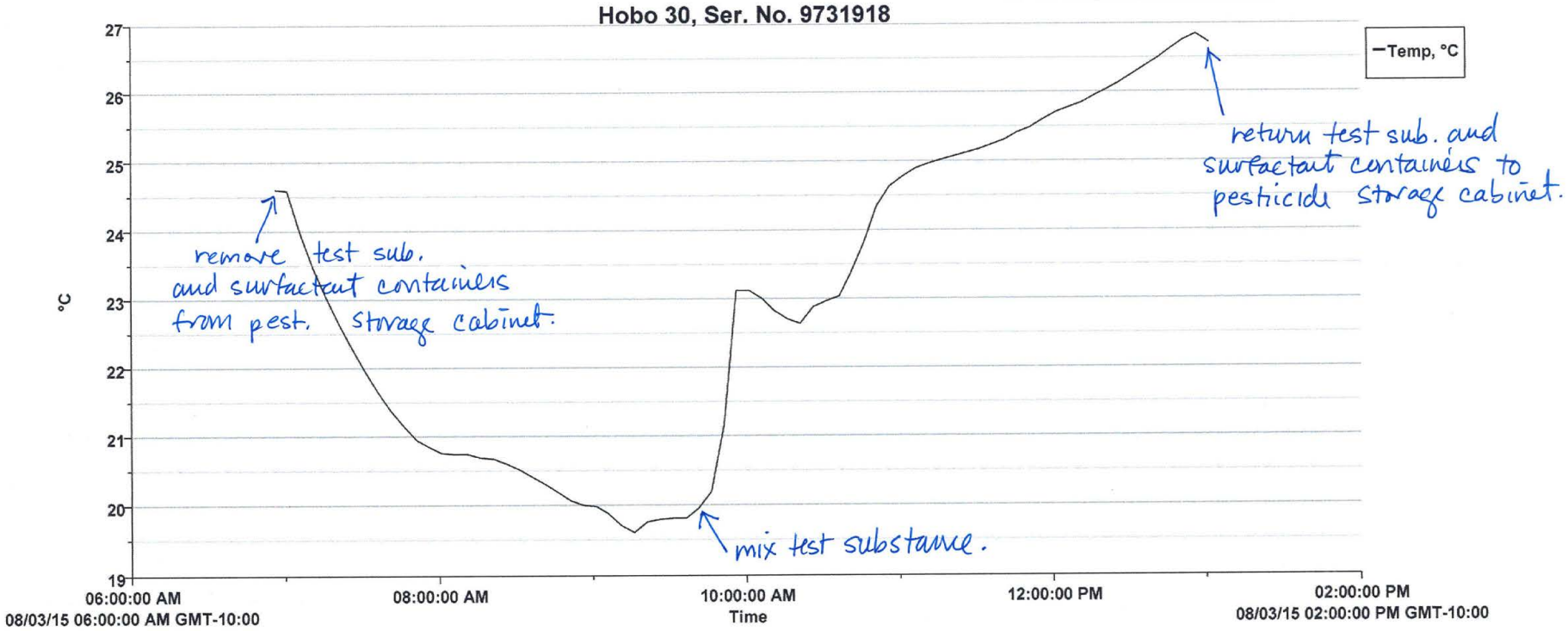
DESCRIBE HOLDING AND TRANSPORT OF TEST SUBSTANCE FROM STORAGE AREA TO LOCATION OF TANK MIXING *(E.g.: "Test substance held securely in an insulated cooler during transport to field site in the bed of a pickup truck" or "Tank mix prepared within walking distance of the chemical storage building")*

Test substance original container and amber bottle of surfactant were held in an insulated cooler bag placed in a larger cooler held in the bed of pickup truck during transit to the field site and back from the field site. A small ice pad and a Hobo recorder (Hobo #30) were placed in the cooler bag. See next page for Hobo output.

ABOVE DATA ENTERED BY: Jamie Coughlin DATE: 8/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin



Deployment Info

- Launch Description: Hobo 30, Ser. No. 9731918
- Launch Time: 08/03/15 06:56:15 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 74
- Max: 26.842
- Min: 19.603
- Avg: 23.026
- Std Dev (σ): 2.362
- First Sample Time: 08/03/15 06:56:16 AM GMT-10:00
- Last Sample Time: 08/03/15 01:01:16 PM GMT-10:00

Test substance transit temperature from the lab to the field site and return for TRT 03, Foliar Application #2. gc 8/3/15

gc 8/3/15

PART 6. APPLICATION RECORDS — TRT 03—Foliar Application

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBERS** 2 and 3

TRT 03 plot - Spray only 4 inner rows - spray 1/2 of the plot

Area to be sprayed: 10 ft. x 100 ft. = 1000 ft² No. of Passes: 1

REQUIRED SPRAY VOLUME — *SOP 4-2.0, Method 1*

Gallons of spray needed for plots = $\frac{\text{gal/A x plots area (ft}^2\text{) x no. of plots}}{43560\ \text{ft}^2/\text{A}}$ x 1.2 (20% overage)

Convert from gal to mL, multiply by 3785.41 mL/gal

gals of spray needed for plot = $\frac{(75\ \text{gal/A})(1000\ \text{ft}^2/\text{plot})(1\ \text{plot})}{43560\ \text{ft}^2/\text{A}} = 1.72176309\ \text{gal}$

1.72176309 mL x 1.2 = 2.0661157 gal

2.0661157 gal x 3785.41 mL/gal = 7821.09504 mL = 7821 mL

Spray Volume before adding overage = 6518 mL

REQUIRED TEST SUBSTANCE — *SOP 4-3.1, Method 1*

Amount (gal) of test substance for plots = $\frac{\text{lb ai/A x gal/plot x no. of plots}}{\text{gal/A x lb ai/gal in formulation}}$ x 1.2 (20% overage)

Convert from gal to mL, multiply by 3785.41 mL/gal

amt. (gal) of test substance for plot = $\frac{(0.0934\ \text{lb ai/A})(1.72176309\ \text{gal/plot})(1\ \text{plot})}{(75\ \text{gal/A})(4.6\ \text{lbs ai/gal})} = 0.00046612\ \text{gal.}$

0.00046612 gal x 1.2 = 0.00055935 gal

0.00055935 gal x 3785.41 mL/gal = 2.11736 mL = 2.12 mL

Surfactant Calculation: Rate = WetCit at 15 oz/100 gal

$\frac{15\ \text{oz}}{100\ \text{gal}} = \frac{443.6\ \text{mL}}{37854\ \text{mL}} = 0.0011787 \times 7821 = 9.165\ \text{mL} = 9.17\ \text{mL}$

TANK MIX AMOUNTS

TEST SUBSTANCE ADMIRE PRO	SURFACTANT WETCIT	CARRIER WATER	EXPECTED OVERAGE
2.12 mL	9.17 mL	7821 mL	1303 mL

ABOVE DATA ENTERED BY: Julie Coughlin DATE 7/31/15

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 03- Foliar Appl. #2

G. APPLICATION INFORMATION FOR **APPLICATION NUMBER** 2 APPLICATION DATE 8/3/15

HAS THE APPLICATION EQUIPMENT BEEN USED SINCE THE LAST CALIBRATION/RECHECK WAS PERFORMED? *(Check one)* YES_____ NO ✓ (If YES, then a recheck is needed.)

INSTRUCTIONS: **Complete a separate form for each application date.** *Complete one column for each treated plot* **(use the Treatment Number as indicated in the protocol).** *Provide the name of the test substance (common chemical name or chemical code number); the batch or lot number of the test substance; the approximate time the test substance was mixed with the carrier and the approximate time the mixture was applied to the plots, along with* ***the initials of the person(s) mixing and spraying the tank mix****; the time of additional agitation (if any); the unique name or code for the application equipment used to apply this treatment; the placement of the test substance (e.g. broadcast, in-furrow, directed, knifed-in, banded); the amount of carrier, formulated product and other additives in the mix; the measuring equipment with increments; the distance (include units) of the nozzles above the canopy or ground (indicate which); the pressure in pounds per square inch at the boom; if treatment(s) were incorporated, the method and/or equipment used to incorporate the test substance mix (e.g. disked, rotovator, irrigated, etc.), depth to which the test substance was incorporated* ***or*** *the amount of water used to move the test substance into the soil; the time after treatment the incorporation activity was performed; and the carrier (normally water), its source (e.g. farm pond, city water), pH of the carrier and its temperature, and the equipment used to measure the carrier pH.*

	TRT Number 03	
NUMBER OF DAYS SINCE PREVIOUS APPLICATION	7 days	TIME OF ADDITIONAL AGITATION/INITIALS (if applicable) e.g. "10:00" or "continuous" or "just prior to application"
TEST SUBSTANCE	Imidacloprid	
BATCH/LOT NUMBER	NK41CX0578	
TIME MIXED/INITIALS	9:45 am JC	Just prior to application
TIME APPLIED/INITIALS	10:05 am JC	
EQUIPMENT IDENTIFIER	CORN-10-2015	
PLACEMENT OF TEST SUBSTANCE	Foliar - Broadcast	
TANK MIX AMOUNTS		MEASURING EQUIPMENT with INCREMENTS*
CARRIER (starting volume of water)	7821 mL Water	2000 mL grad. cylinder / 20 mL incr.
VOLUME of WATER REMOVED from starting volume (if applicable)	0	1000 mL grad. cylinder / 10 mL incr. 25 mL grad. cylinder / 0.5 mL incr.
TEST SUBSTANCE (formulated product)	2.12 mL Admire Pro	A 1-10 mL automatic pipettor with
ADJUVANT OR SURFACTANT	9.17 mL Wetcit	0.01 mL incr. for test sub. and adjuvant
TOTAL VOLUME OF TANK MIX	7832.29 mL	*e.g. 1000 mL grad. cylinder/10 ml incr.
NOZZLE DISTANCE from TARGET	0"-8"	ORDER IN WHICH ITEMS WERE ADDED TO SPRAY MIXTURE* W=Water, TS=Test Substance, A=Adjuvant *e.g. 1-W, 2-TS, 3-A, 4-W
PSI AT BOOM	40 PSI	
INCORPORATION - Methodology and/or Equipment - DEPTH - TIME	N/A- Not Incorporated	1-W, 2-TS, 3-A, 4-W.
CARRIER SOURCE/TYPE	County Water	
CARRIER pH/TEMPERATURE	7.0 / 85.4 °F	
EQUIPMENT used to MEASURE pH	Paper Strips	

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/3/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

H. ADDITIONAL INFORMATION FROM **APPLICATION NUMBER** TRT 03 - Foliar Appl. # 2

APPLICATION DATE 8/3/15 *(Complete a separate form for each application date)*

PLANT GROWTH & ENVIRONMENTAL DATA AT THE TIME OF APPLICATION	Enter data in this column
CROP HEIGHT *(Measure or estimate crop height, include units of measurements)*	6.5 ft.
CROP GROWTH STAGE *(e.g. seed, vegetative, bud, bloom, fruiting, #true leaves)*	kernels mature / silk brown
CROP VIGOR *(e.g. poor, fair, good, variable)**	good
PLANT SURFACE MOISTURE *(Check one)*	SATURATED___ DAMP___ DRY ✓ NA___
ESTIMATED % OF SOIL AREA COVERED BY CROP CANOPY	100%
MEASURED AIR TEMPERATURE *(Check F or C)*	90 °F ✓ °C___
MEASURED WIND SPEED *(Check MPH or Km/Hr)*	0-4 MPH ✓ Km/Hr___
WIND DIRECTION FROM *(Check one)*	N___ NE ✓ E___ SE___ S___ SW___ W___ NW___ or NO WIND___
ESTIMATED % OF CLOUDS IN THE SKY	10%
MEASURED RELATIVE HUMIDITY%	51%
DEW *(heavy, light, none, etc.)*	none
DESCRIPTION OF SOIL TILTH *(smooth, firm, packed, cloddy, etc.)*	packed
ESTIMATE OF SOIL SURFACE MOISTURE *(wet, moist, dry, etc.)*	moist
SOIL TEMPERATURE *(Check F or C)*	82.5 °F ✓ °C___
DEPTH OF MEASUREMENT OF SOIL TEMPERATURE *(Check INCHES or cm)*	2 INCHES ✓ cm___

*IF CROP VIGOR IS POOR OR VARIABLE, EXPLAIN: N/A

JC 8/3/15

BRIEFLY DESCRIBE PROCEDURE USED TO CLEAN APPLICATION EQUIPMENT Spray tank, boom and lines were rinsed with water. Nozzles and screens were removed from boom and washed with soap and water and rinsed. Soapy water was sprayed through the boom, then water was sprayed through to rinse completely. Spray tank was washed with soap, water, and rinsed. All mixing and measuring equipment was rinsed with water, then washed with soap and water and rinsed thoroughly. James, Mike and I cleaned the equipment. CLEANED BY JC *(Initials)*

ABOVE DATA ENTERED BY: Jami Coughlin *DATE:* 8/3/15

PART 6. APPLICATION RECORDS

I. PASS TIMES FOR **APPLICATION NUMBER** TRT 03 - Foliar Appl. #2

APPLICATION DATE 8/3/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

RECORD PASS TIME AND PASS DIRECTION - *Complete the table by providing the time required to make each pass of the application equipment through the plot and direction of that pass (e.g. NE).*

	TREATMENT 03		TREATMENT __		
PASS NUMBER	TIME min:sec	DIRECTION	PASS NUMBER	TIME	DIRECTION
1	1:12.84	E	1		
2			2		
3			3		
4			4		
5			5		
6			6		
7			7		
8			8		
9			9		
10		JC 8/3/15	10		JC 8/3/15
11			11		
12			12		
TOTAL PASS TIME	72.84 secs.				

PROVIDE A BRIEF NARRATIVE SUMMARY OF THE APPLICATION

(E.g. *"Test substance was applied to the treated test plot in two passes; one pass down each side of the row. Each pass was applied to the soil, in a 3 ft. band out from the tree, with the spray boom 24 inches above the soil."*)

Test substance was applied to the treated plot in one pass. James and Mike held the 10 ft. boom on either side of the 4 inner corn rows in the plot. They stood in the walkspace made by cutting out rows #2 and #7 in the plot. Mike carried the backpack and operated the sprayer handle. The boom was positioned over the tops of the corn rows. The pass was applied to the tops of the corn plants. The spray boom was held 0-8" above the corn rows, and varied because corn height was taller in the middle of the plot. In the center of the plot, the boom hit the corn tassel, at the very top. I used a stopwatch to time the pass. James and Mike used metronomes to gauge the walking speed.

NARRATIVE ENTERED BY JC *(Initials)*

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/3/15

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** TRT 03 - Foliar Appl. # 2

APPLICATION DATE 8/3/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. Even if a target rate was used for the pre-application calculations, the data from the calibration (average of 3 outputs) must be used for calculating the application rate. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of 6J may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

EXAMPLE FORMULAS: The formulas below may be used to calculate the amount of test substance (TS) applied per acre as required in Part 6I. Other formulas may be used instead; however, it is not sufficient to merely compare the actual pass times to the "practice" pass times.

1) Total Pass Time x Discharge Rate/Nozzle x #Nozzles = Volume of Tank Mix applied to Plot

2) Volume of Tank Mix applied to Plot x $\frac{\text{Amount of TS in Tank Mix}}{\text{Total Volume of Tank Mix}}$ = Amount of TS applied to Plot

3) Amount of TS applied to Plot x $\frac{\text{43,560 sq ft per acre}}{\text{Plot area treated in sq ft}}$ = Amount of TS applied per acre

****

measured overage = 1320 mL

DISCHARGE RATE (ml/sec or g/sec): 95.0 mL/sec

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): 1000 ft2

Note: *Use bed width for plots with multi-row beds.*

(Used Example Formulas listed above)

1. 72.84 secs x 95.0 mL/sec = 6919.8 mL/plot
2. 6919.8 mL/plot $\left(\frac{2.12 \text{ mL T.S.}}{7832.29 \text{ mL}}\right)$ = 1.87301236 mL/plot
3. 1.87301236 mL/plot $\left(\frac{43560 \text{ ft}^2/\text{A}}{1000 \text{ ft}^2/\text{plot}}\right)$ = 81.5884184 mL/A
4. % Error = $\frac{81.5884184 \text{ mL/A} - 76.9 \text{ mL/A}}{76.9 \text{ mL/A}} \times 100 = +6.09\% = +6\%$

Calculations based on overage amount:

Formula:

% Error = Expected overage – Actual overage ÷ exact plot volume x 100

% Error = $\frac{1303 \text{ mL} - 1320 \text{ mL}}{6518 \text{ mL}} \times 100 = -0.26\% = 0\%$

EE qc 8/10/15

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES ✓ NO ___ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/3/15

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

K. POST TREATMENT RECORDS FOR **APPLICATION NUMBER** TRT 03- Foliar Appl. #2

APPLICATION DATE 8/3/15 *(Complete a separate form for each application date)*

Was There Any Visible Phytotoxicity Damage? *(Check one)* YES___ NO ✓ JC 8/3/15 *(Initials/date)*

If YES, then contact the Study Director. If a digital camera is available, email digital photograph(s) to the Study Director along with a detailed explanation of the damage. A written description should also be entered below:

_____

_____

_____

_____

_____

_____ PHYTOTOXICITY DESCRIBED BY: JC 10/16/15 *(Initials/date)*

DATE STUDY DIRECTOR WAS CONTACTED: _____ CONTACTED BY: _____ *(Initials/date)*

Enter the requested information below for both the first rainfall and first irrigation after each application, regardless of whether subsequent applications were made prior to the first rainfall or irrigation. The rainfall/irrigation data entered below should be transcribed from the data included in Part 9 unless otherwise indicated on this page. **If irrigation is required by the protocol to incorporate the test substance, or if the test substance is applied by irrigation, then that event should be recorded below. "NONE BEFORE HARVEST" OR "NONE BEFORE SAMPLING" MAY BE ENTERED, IF APPLICABLE.**

DATE OF FIRST RAIN *(Note the date of first rainfall after this application.)*	8/5/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST RAINFALL *(Check DAYS or HOURS) (Enter #hours if first rainfall was on the date of application.)*	2 **DAYS** ✓ **HOURS** ___
AMOUNT OF WATER *(Check INCHES or mm)*	0.05 **INCHES** ✓ **mm** ___
RAIN INFORMATION RECORDED BY *(Initials/date)*	JC 10/16/15
TYPE OF IRRIGATION *(e.g. overhead, trickle, flood)*	drip
DATE OF FIRST IRRIGATION *(Note the date of first irrigation after this application.)*	8/4/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST IRRIGATION *(Check DAYS or HOURS) (Enter #hours if first irrigation was on the date of application.)*	1 **DAYS** ✓ **HOURS** ___
AMOUNT OF WATER *(Check INCHES, mm, or mL)*	0.38 **INCHES** ✓ ~~0.49~~ **mm** ___ (EE) JC 10/16/15 **mL** ___
IRRIGATION INFORMATION RECORDED BY *(Initials/date)*	JC 10/16/15

If the data ~~entered above~~ differ from the rainfall/irrigation data included in Part 9, explain: _____

_____

_____ *Initials/date:* JC 10/16/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Foliar Appl #3

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

C.1. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** TRT 03- Foliar Appl. #3

INSTRUCTIONS: Complete a copy of this form (PHOTOCOPY IF NECESSARY) for additional times when a complete calibration or calibration-recheck of application equipment is required.

EQUIPMENT IDENTIFIER CORN-10-2015

DISCHARGE CALIBRATION DATE 8/10/15 PERFORMED BY JC *(INITIALS)*

APPROXIMATE TIME OF DAY THAT THE CALIBRATION WAS PERFORMED 9:10 am

DISCHARGE UNITS MEASURED *(e.g. ml, oz., grams)* mL

INSTRUMENT USED TO MEASURE WATER *(e.g. 100 ml graduated cylinder)* 500 mL grad. cylinder / 5 mL incr.

BRIEFLY DESCRIBE PROCEDURE USED TO CHECK DISCHARGE CALIBRATION Fill spray tank with water. Pressurize tank to 40 PSI. Spray into beakers for 30 secs. collecting the output of each nozzle. Measure the output and record in the table on the following page. Repeat two more times. Calculate average discharge.

The table for entering output results is now on 6.C.2 (next page).

CALIBRATION CALCULATIONS:

Run 1 – 475 mL + 475 mL + 480 mL + 475 mL + 470 mL + 475 mL = 2850 mL ÷ 30 = 95.00 mL/sec

Run 2 – 475 mL + 475 mL + 475 mL + 470 mL + 470 mL + 470 mL = 2835 mL ÷ 30 = 94.5 mL/sec

Run 3 – 475 mL + 470 mL + 475 mL + 470 mL + 470 mL + 470 mL = 2830 mL ÷ 30 = 94.33 mL/sec

(EE) JC 8/10/15

95.00 mL/sec + 94.50 mL/sec + 94.33 mL/sec = 283.83 ÷ 3 = 94.61 mL/sec

Average discharge = 94.61 mL/sec

ABOVE DATA ENTERED BY: Julia Coughlin DATE: 8/10/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

PART 6. APPLICATION RECORDS (may be used for field and greenhouse trials)

C2. DISCHARGE CALIBRATION *Record time applicator is allowed to discharge. Collect output from each nozzle or hopper. Record this value in "RUN" Row 1 under the appropriate outlet. Calculate the total and average discharge for all the nozzles/hoppers. Entry prompts have been provided for 3 discharge calibration runs. Calculate sums and averages of each nozzle/hopper outlet AND whether the results are within 5% (if applicable). Show all calculations.*

NOTE: It is acceptable for field personnel to use their own calibration table and insert it into the Field Data Book (FDB). If this is done, responses must be made to all of the data prompts on the IR-4 FDB pages, either on the original FDB pages or on the custom pages provided by the field personnel. Also, the data entered into the custom calibration tables must be clearly legible.

RUN	TIME (sec)	PSI*	Nozzle/hopper Outlet Number Along Boom (see equipment diagram for nozzle numbers)								
			1	2	3	4	5	6	Total	Output/Nozzle	Output/Second
1	30	40	475	475	480	475	470	475	2850	475	95.00
2	30	40	475	475	475	470	470	470	2835	472.5	94.50
3	30	40	475	470	475	470	470	470	2830	471.66	94.33
Total (required)	90	N/A	1425	1420	1430	1415	1410	1415	8515	1419.16	283.83
Average (optional)	30	40	475	473.33	476.66	471.66	470	471.66	2838.33	473.05	94.61

*PSI = Pressure in the boom during the calibration

Was this a recheck of discharge calibration or a target output? *(Check one)* YES_____ NO ✓

If yes, were results within 5% of original calibration or target output? *(Check one)* YES N/A NO N/A

If this is a 3-discharge calibration run, are the averages (last column on the right) all within 5% of the mean? *(Check one)* YES ✓ NO_____

An output consisting of an average of three runs or a target output may be used when calculating the sprayer output and amount of test substance to use. If this is a recheck (one run) then the results of the original calibration must be used. If the output result of the recheck is more than 5% different than the original calibration result, then two more runs are needed to produce a new, full calibration. The original calibration data, or a true copy, must be in this field data book.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 8/10/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

D. SPEED CALIBRATION FOR **APPLICATION NUMBER(S)** TRT 03 - Foliar Appl. # 3

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration- recheck of application equipment is required.

EQUIPMENT IDENTIFIER CORN-10-2015

SPEED CALIBRATION DATE 8/10/15 PERFORMED BY JC *(INITIALS)*

TERRAIN OF CALIBRATION TRACK *(e.g. tilled field)* TRT 03 Corn Plot

BRIEFLY DESCRIBE PROCEDURE USED FOR SPEED CALIBRATION Calculate target pass time (see below). James and Mike held the boom over the corn rows and attempted to make the pass in the target pass time while walking the length of the plot. They used metronomes to gauge their speed and I used a stopwatch to time the pass. Repeat two more times. Record in table below.

SPEED CALIBRATION: *Calculate the speed of the application equipment. If appropriate, note the gear setting and /or RPM setting used in the speed calibration. Indicate the distance (in feet) of the track on which the application equipment was tested to determine speed (e.g. speed of application equipment tested for 100 ft.). The speed is calculated by dividing the length of test track (in feet or meters) by the time needed to cover that length (in seconds). Entry prompts have been provided for 2 additional runs. If this is a recheck, calculate the result is within 5% of the original calibration. Show all calculations.* ***For studies beginning in 2011 or later, a speed recheck (one run) is required whenever an output recheck is performed.***

① Gear and RPM are not applicable because this is a backpack sprayer.

RUN	① GEAR	RPM	Length of test track	TIME (sec)	CALCULATED SPEED (include units)	
1	N/A	N/A	100 ft.	71.00	1.41 ft./sec	
2	N/A	N/A	100 ft.	74.12	1.35 ft./sec	
3	N/A	N/A	100 ft.	73.00	1.37 ft/sec	
Total of test run times (sec)		218.12	Average time (sec)	72.71	Average speed	1.38 ft/sec

CALCULATIONS:

Target Pass time = Spray Volume/plot ÷ Sprayer output

Target Pass Time = 6518 mL/plot ÷ 94.61 mL/sec = 68.89 sec = 69 sec/plot (WE) JC 2/16/17

Target Speed Add 5 ~~mins~~ secs: 69 sec + 5 secs = 74 sec target speed. (see following page

WAS THIS A RECHECK OF SPEED CALIBRATION? *(Check one)* YES_____ NO ✓ for explanation

IF YES, WERE RESULTS WITHIN 5% OF ORIGINAL CALIBRATION? *(Check one)* YES_____ NO_____

The original calibration data, or a true copy, must be in this field data book.

NOTE: A target speed may be used for application calculations, rather than the mean of three runs, as long as the mean of the three runs in the speed calibration is within 5% of the target speed.

WAS THIS A CHECK OF A TARGET SPEED? *(Check one)* YES ✓ NO_____

IF YES, WERE RESULTS WITHIN 5% OF TARGET SPEED? *(Check one)* YES ✓ NO_____

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 8/10/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE_____

PART 6 APPLICATION RECORDS (CONT.)

D. SPEED CALIBRATION: TARGET SPEED MODIFICATION

In the first foliar application to the TRT 03 corn plot in this trial, the actual pass time was close to the target (+0.46%). However, when the spray overage was measured following the application, an under-application of -5.78% was discovered. This occurred because the spray boom was calibrated on the ground, and when the spray boom was raised overhead to position it above the corn plants during the spray application, the sprayer output decreased slightly, even though the spray boom pressure remained constant. This was also observed in the first foliar application in a previous corn trial (IR-4 PR #11270.14-HI196).

In order to compensate for this decrease in output, I decided to increase the target pass time for the remaining foliar spray applications (applications #2 and #3). I calculated the amount of seconds to add to the target pass time by taking the difference in the expected and actual overage amounts for each application, then calculate the time it would take to apply this difference in overage. I took the average of the two applications, and added the result to my target pass time. These calculations follow:

IR-4 PR #11270.14-HI196: Foliar Appl. #1 – See following pages for overage calculations for this application. (LE) gc 8/12/15

Measured Overage = 2150 mL
Expected Overage = 1651 mL
Sprayer Output = 92.38 mL/sec

Difference in expected vs. measured overage = 1651 mL – 2150 mL = -499 mL
Time to spray this overage amount = 499 mL ÷ 92.38 mL/sec = 5.401 secs.

IR-4 PR #11270.15-HI196: Foliar Appl. #1 – These calculations can be found in this field data book. (LE) gc 8/12/15

Measured Overage = 1680 mL
Expected Overage = 1303 mL
Sprayer Output = 94.50 mL/sec

Difference in expected vs. measured overage = 1303 mL – 1680 mL = -377 mL
Time to spray this overage amount = 377 mL ÷ 94.50 mL/sec = 3.989 secs.

Average the two times:

5.401 sec + 3.989 sec = 9.39 sec ÷ 2 = 4.695 sec
Round to the nearest second = 5 sec

ADD 5 SECONDS TO THE TARGET PASS TIME TO ACCOUNT FOR DECREASE IN SPRAYER OUTPUT WHEN SPRAY BOOM IS HELD OVERHEAD DURING THE SPRAY APPLICATION.

gc 8/10/15

VERIFIED EXACT COPY
FDB 11270.14-HI196
location of original
JC 8/12/15
verified by/date

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.14-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 03- FOLIAR Application

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** 1

APPLICATION DATE 6/26/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. Even if a target rate was used for the pre-application calculations, the data from the calibration (average of 3 outputs) must be used for calculating the application rate. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of* 6J *may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

EXAMPLE FORMULAS: The formulas below may be used to calculate the amount of test substance (TS) applied per acre as required in Part 6I. Other formulas may be used instead; however, it is not sufficient to merely compare the actual pass times to the "practice" pass times.

1) Total Pass Time x Discharge Rate/Nozzle x #Nozzles = Volume of Tank Mix applied to Plot

2) Volume of Tank Mix applied to Plot x $\frac{\text{Amount of TS in Tank Mix}}{\text{Total Volume of Tank Mix}}$ = Amount of TS applied to Plot

3) Amount of TS applied to Plot x $\frac{\text{43,560 sq ft per acre}}{\text{Plot area treated in sq ft}}$ = Amount of TS applied per acre

****

measured overage = 2150 mL

DISCHARGE RATE (ml/sec or g/sec): 92.38 mL/sec

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): 1000 ft2

Note: *Use bed width for plots with multi-row beds.*

1. 89.56 secs x 92.38 mL/sec = 8273.5528 mL/plot

2. $8273.5528\ \text{mL/plot} \left(\frac{1.07\ \text{mL Admire Pro}}{9911.94\ \text{mL/tank}}\right) = 0.8931351\ \text{mL/plot}$

3. $0.8931351\ \text{mL/plot} \left(\frac{43560\ \text{ft}^2/\text{A}}{1000\ \text{ft}^2/\text{plot}}\right) = 38.90\ \text{mL/A}$

4. $\%\ \text{Error} = \frac{38.90\ \text{mL/A} - 38.7\ \text{mL/A}}{38.7\ \text{mL/A}} \times 100 = +0.52\%$

Round to the nearest whole percent = ~~+0%~~ +1% CE, AT 12/2/16

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES ✓ NO ___ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: Julia Coughlin *DATE:* 6/26/15

Imidacloprid/Corn (seed crop)
ID No. 11270.14-HI196
Coughlin

PART 6. APPLICATION RECORDS

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** TRT 03 - Foliar Appl. #1

Rate confirmation using overage amount:

Formula:

% Error = expected overage – actual overage ÷ exact plot volume X 100

$$\% \text{ Error} = \frac{1651\ mL - 2150\ mL}{8256\ mL} \times 100 = -6.04\ \%$$

Round to nearest whole percent = -6 %

JC 7/30/15

The above calculations were added as a late entry.
JC 7/30/15

VERIFIED EXACT COPY
FDB 11270.14-HI196
location of original
JC 8/12/15
verified by/date

ABOVE DATA ENTERED BY: Julie Coughlin (LE) DATE: 7/30/15

PART 6. APPLICATION RECORDS

E. DELIVERY RATE CALIBRATION FOR **APPLICATION NUMBER(S)** TRT 03 - Foliar Appl. # 3

INSTRUCTIONS: Complete a separate form for each application, unless the same parameters are used-- you are using the same equipment, and have performed a recheck to confirm the result of the full calibration. Determine the rate of delivery from the application equipment. Briefly describe the procedure, including formulas used to determine delivery rate calibration. Show all calculations and units. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

PROCEDURE/FORMULA:

1. Sprayer Output from Discharge Calibration (mL/sec) X Pass Time from Speed Calibration (sec/pass) = mL/pass
2. mL/pass X no. of passes/plot = mL/plot
3. Convert to gallons/plot: mL/plot ÷ 3785.41 mL/gal
4. Convert to gallons/acre: gal/plot X 43560 ft^2/A ÷ total plot area (ft^2)

CALCULATIONS:

1. 94.61 mL/sec x 72.71 sec/pass = 6879.0931 mL/pass
2. 6879.0931 mL/pass x 1 pass/plot = 6879.0931 mL/plot
3. 6879.0931 mL/plot ÷ 3785.41 mL/gal = ~~2.6040t~~ 1.817265 gal/plot
   ME gc 8/10/15
4. 1.817265 gal/plot $\left(\frac{43560\ ft^2/A}{1000\ ft^2/plot}\right)$ = 79.16 gal/A ①

① Note: Pass time was adjusted to account for output drop when spray boom is raised over corn rows.

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 8/10/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 03 - Foliar Appl. #3

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBER(S)** 3

INSTRUCTIONS: Complete a separate form for each application, unless there are no changes in multiple applications. Show all calculations, formulas, and results below, define units of measure, and cite the initials of the person performing the calculations. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

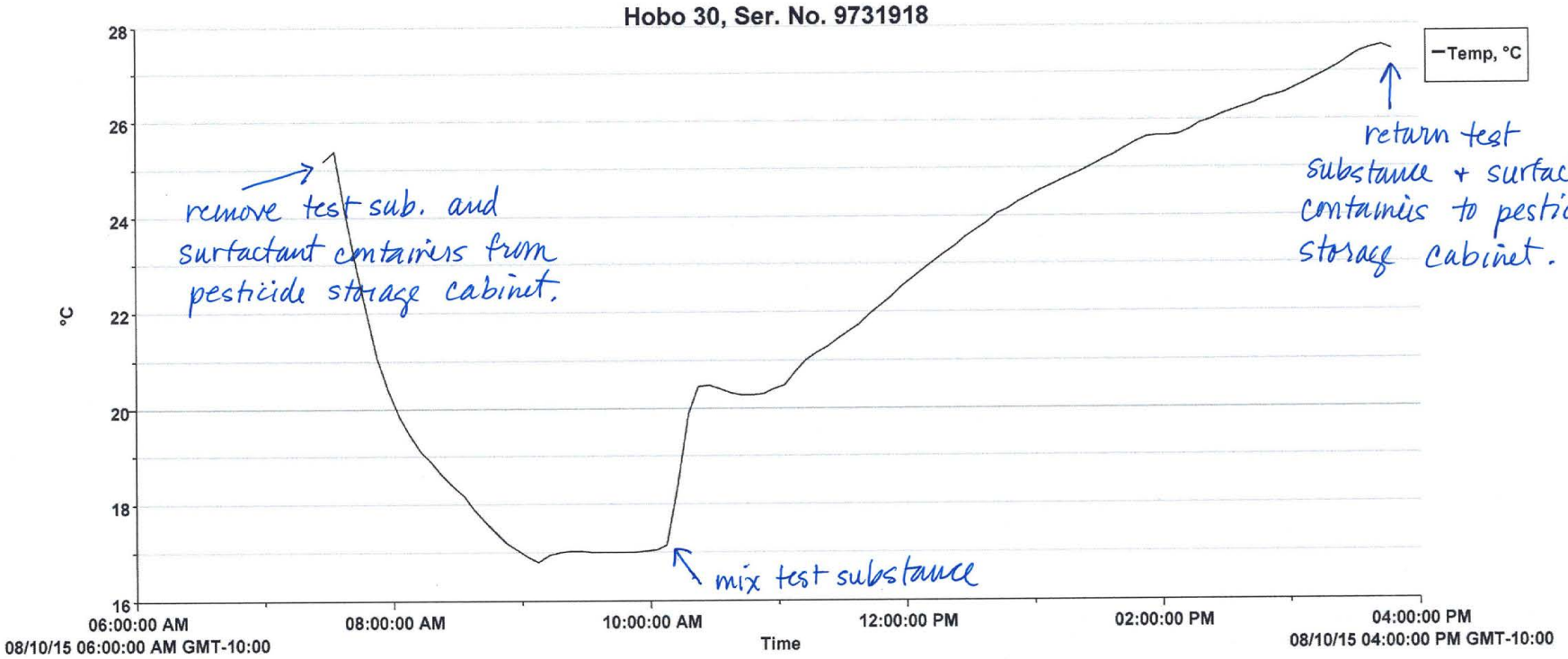
See Foliar Appl. #2, Part 6, for calculations. JC 8/10/15

DESCRIBE HOLDING AND TRANSPORT OF TEST SUBSTANCE FROM STORAGE AREA TO LOCATION OF TANK MIXING *(E.g.: "Test substance held securely in an insulated cooler during transport to field site in the bed of a pickup truck" or "Tank mix prepared within walking distance of the chemical storage building")*

Test substance original containers and amber bottle of surfactant were held in an insulated cooler bag placed into a larger cooler held in the bed of the pick-up truck during transit to and from the field site. A small ice pad and Hobo #30 were placed into the cooler bag. See next page for Hobo output.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 8/10/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____



Deployment Info

- Launch Description: Hobo 30, Ser. No. 9731918
- Launch Time: 08/10/15 07:27:47 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 101
- Max: 27.554
- Min: 16.796
- Avg: 22.257
- Std Dev (σ): 3.495
- First Sample Time: 08/10/15 07:27:48 AM GMT-10:00
- Last Sample Time: 08/10/15 03:47:48 PM GMT-10:00

Test substance transit temperature from the field lab to the field site and return to field lab for TRT 03, Application #3. gc 8/10/15

gc 8/10/15

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS TRT 03 - Foliar Appl. #3

G. APPLICATION INFORMATION FOR **APPLICATION NUMBER** 3 APPLICATION DATE 8/10/15

HAS THE APPLICATION EQUIPMENT BEEN USED SINCE THE LAST CALIBRATION/RECHECK WAS PERFORMED? *(Check one)* YES_____ NO ✓ (If YES, then a recheck is needed.)

INSTRUCTIONS: **Complete a separate form for each application date.** *Complete one column for each treated plot* **(use the Treatment Number as indicated in the protocol).** *Provide the name of the test substance (common chemical name or chemical code number); the batch or lot number of the test substance; the approximate time the test substance was mixed with the carrier and the approximate time the mixture was applied to the plots, along with* ***the initials of the person(s) mixing and spraying the tank mix****; the time of additional agitation (if any); the unique name or code for the application equipment used to apply this treatment; the placement of the test substance (e.g. broadcast, in-furrow, directed, knifed-in, banded); the amount of carrier, formulated product and other additives in the mix; the measuring equipment with increments; the distance (include units) of the nozzles above the canopy or ground (indicate which); the pressure in pounds per square inch at the boom; if treatment(s) were incorporated, the method and/or equipment used to incorporate the test substance mix (e.g. disked, rotovator, irrigated, etc.), depth to which the test substance was incorporated* ***or*** *the amount of water used to move the test substance into the soil; the time after treatment the incorporation activity was performed; and the carrier (normally water), its source (e.g. farm pond, city water), pH of the carrier and its temperature, and the equipment used to measure the carrier pH.*

	TRT Number 03	
NUMBER OF DAYS SINCE PREVIOUS APPLICATION	7 days	TIME OF ADDITIONAL AGITATION/INITIALS (if applicable) e.g. "10:00" or "continuous" or "just prior to application"
TEST SUBSTANCE	Imidacloprid	
BATCH/LOT NUMBER	NK41CX0578	
TIME MIXED/INITIALS	10:10 am JC	Just prior to application.
TIME APPLIED/INITIALS	10:30 am JC	
EQUIPMENT IDENTIFIER	CORN-10-2015	
PLACEMENT OF TEST SUBSTANCE	Foliar - Broadcast	
TANK MIX AMOUNTS		MEASURING EQUIPMENT with INCREMENTS*
CARRIER (starting volume of water)	782.1 mL Water	2000 mL grad. cylinder / 20 mL incr.
VOLUME of WATER REMOVED from starting volume (if applicable)	0	1000 mL grad. cylinder / 10 mL incr. 25 mL grad. cylinder / 0.5 mL incr.
TEST SUBSTANCE (formulated product)	2.12 mL Admire Pro	A 1-10 mL automatic pipettor with
ADJUVANT OR SURFACTANT	9.17 mL Wet Cit	0.01 mL incr. for test sub. and adjuvant.
TOTAL VOLUME OF TANK MIX	7832.29 mL	*e.g. 1000 mL grad. cylinder/10 ml incr.
NOZZLE DISTANCE from TARGET	0" - 8"	ORDER IN WHICH ITEMS WERE ADDED TO SPRAY MIXTURE* W=Water, TS=Test Substance, A=Adjuvant *e.g. 1-W, 2-TS, 3-A, 4-W
PSI AT BOOM	40 PSI	
INCORPORATION - Methodology and/or Equipment - DEPTH - TIME	N/A - Not Incorporated	1-W, 2-TS, 3-A, 4-W.
CARRIER SOURCE/TYPE	County Water	
CARRIER pH/TEMPERATURE	7.0 / 82.1 °F	
EQUIPMENT used to MEASURE pH	Paper Strips	

ABOVE DATA ENTERED BY: JMic Coughlin *DATE:* 8/10/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

H. ADDITIONAL INFORMATION FROM **APPLICATION NUMBER** TKI 03 - Appl. # 3 - Foliar

APPLICATION DATE 8/10/15 *(Complete a separate form for each application date)*

PLANT GROWTH & ENVIRONMENTAL DATA AT THE TIME OF APPLICATION	Enter data in this column
CROP HEIGHT *(Measure or estimate crop height, include units of measurements)*	6.5 ft
CROP GROWTH STAGE *(e.g. seed, vegetative, bud, bloom, fruiting, #true leaves)*	late dough/early dent
CROP VIGOR *(e.g. poor, fair, good, variable)**	good
PLANT SURFACE MOISTURE *(Check one)*	SATURATED___ DAMP___ DRY✓ NA___
ESTIMATED % OF SOIL AREA COVERED BY CROP CANOPY	100%
MEASURED AIR TEMPERATURE *(Check F or C)*	90 °F✓ °C___
Gusty trade winds MEASURED WIND SPEED *(Check MPH or Km/Hr)*	8-10 MPH✓ Km/Hr___
WIND DIRECTION FROM *(Check one)*	N___ NE✓ E___ SE___ S___ SW___ W___ NW___ or NO WIND___
ESTIMATED % OF CLOUDS IN THE SKY	65%
MEASURED RELATIVE HUMIDITY%	51%
DEW *(heavy, light, none, etc.)*	none
DESCRIPTION OF SOIL TILTH *(smooth, firm, packed, cloddy, etc.)*	packed
ESTIMATE OF SOIL SURFACE MOISTURE *(wet, moist, dry, etc.)*	dry
SOIL TEMPERATURE *(Check F or C)*	83.1 °F✓ °C___
DEPTH OF MEASUREMENT OF SOIL TEMPERATURE *(Check INCHES or cm)*	2 INCHES✓ cm___

*IF CROP VIGOR IS POOR OR VARIABLE, EXPLAIN: N/A

JC 8/10/15

BRIEFLY DESCRIBE PROCEDURE USED TO CLEAN APPLICATION EQUIPMENT Spray tank, boom and lines were rinsed with water. Nozzles and screens were removed and washed with soap + water and rinsed. Soapy water was sprayed through boom, then water was sprayed through to rinse boom completely. Spray tank was washed with soap and water and rinsed. All mixing and measuring equipment was rinsed with water, then washed with soap and water and rinsed. Spray boom exterior and handles were washed the same way. James, Mike + I cleared.

CLEANED BY JC *(Initials)*

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 8/10/15

PART 6. APPLICATION RECORDS

I. PASS TIMES FOR **APPLICATION NUMBER** TRT 03 - Foliar Appl. # 3

APPLICATION DATE 8/10/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

RECORD PASS TIME AND PASS DIRECTION - *Complete the table by providing the time required to make each pass of the application equipment through the plot and direction of that pass (e.g. NE).*

	TREATMENT 03		TREATMENT __		
PASS NUMBER	TIME	DIRECTION	PASS NUMBER	TIME	DIRECTION
1	74.41 sec	E	1		
2			2		
3			3		
4			4		
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
TOTAL PASS TIME	74.41 sec				

JC 8/10/15

JC 8/10/15

PROVIDE A BRIEF NARRATIVE SUMMARY OF THE APPLICATION

(E.g. *"Test substance was applied to the treated test plot in two passes; one pass down each side of the row. Each pass was applied to the soil, in a 3 ft. band out from the tree, with the spray boom 24 inches above the soil."*)

Test substance was applied to treated plot in one pass. James and Mike held the 10 ft. boom on either side of the 4 inner corn rows in the plot. They stood in the walkspace made by cutting out rows #2 and #7 in the plot. Mike carried the backpack and operated the spray handle. The boom was positioned over the tops of the corn rows. The pass was applied to the tops of the corn plants. The spray boom was held approximately 0-8" above the rows, and varied because corn height was taller in the middle of the plot. In the center of the plot, the boom hit some of the corn tassel, at the very top. I used a stopwatch to time the pass. James and Mike used metronomes to gauge their walking speed.

NARRATIVE ENTERED BY JC *(Initials)*

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 8/10/15

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

J. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** TRT 03 - Foliar Appl. #3

APPLICATION DATE 8/10/15 *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. Even if a target rate was used for the pre-application calculations, the data from the calibration (average of 3 outputs) must be used for calculating the application rate. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of* 6J *may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

EXAMPLE FORMULAS: The formulas below may be used to calculate the amount of test substance (TS) applied per acre as required in Part 6I. Other formulas may be used instead; however, it is not sufficient to merely compare the actual pass times to the "practice" pass times.

1) Total Pass Time x Discharge Rate/Nozzle x #Nozzles = Volume of Tank Mix applied to Plot

2) Volume of Tank Mix applied to Plot x $\frac{\text{Amount of TS in Tank Mix}}{\text{Total Volume of Tank Mix}}$ = Amount of TS applied to Plot

3) Amount of TS applied to Plot x $\frac{43{,}560 \text{ sq ft per acre}}{\text{Plot area treated in sq ft}}$ = Amount of TS applied per acre

****

measured overage = 1000 mL

DISCHARGE RATE (ml/sec or g/sec): 94.61 mL/sec

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): 1000 ft²

Note: *Use bed width for plots with multi-row beds.*

(used example formulas listed above)

1. 74.41 sec x 94.61 mL/sec = 7039.9301 mL/plot
2. 7039.9301 mL/plot $\left(\frac{2.12 \text{ mL t.s.}}{7032.29 \text{ mL/tank}}\right)$ = 1.9055285 mL t.s./plot
3. 1.9055285 mL/plot $\left(\frac{43560 \text{ ft}^2/\text{A}}{1000 \text{ ft}^2/\text{plot}}\right)$ = 83.00 mL/A
4. % Error = $\frac{83.00 \text{ mL/A} - 76.9 \text{ mL/A}}{76.9 \text{ mL/A}} \times 100 = +7.9\% = +8\%$

Calculations based on overage amount:

Formula: % Error = expected overage − actual overage ÷ exact plot volume × 100

% Error = $\frac{1303 \text{ mL} - 1000 \text{ mL}}{6518 \text{ mL}} \times 100 = +4.6\% = +5\%$

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES ✓ NO ___ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 8/10/15

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

K. POST TREATMENT RECORDS FOR **APPLICATION NUMBER** TRT 03 - Foliar Appl. #3

APPLICATION DATE 8/10/15 *(Complete a separate form for each application date)*

Was There Any Visible Phytotoxicity Damage? *(Check one)* YES___ NO✓ JC 8/10/15 *(Initials/date)*

If YES, then contact the Study Director. If a digital camera is available, email digital photograph(s) to the Study Director along with a detailed explanation of the damage. A written description should also be entered below:

PHYTOTOXICITY DESCRIBED BY: JC 10/16/15 *(Initials/date)*

DATE STUDY DIRECTOR WAS CONTACTED: _____ CONTACTED BY: _____ *(Initials/date)*

Enter the requested information below for both the first rainfall and first irrigation after each application, regardless of whether subsequent applications were made prior to the first rainfall or irrigation. The rainfall/irrigation data entered below should be transcribed from the data included in Part 9 unless otherwise indicated on this page. **If irrigation is required by the protocol to incorporate the test substance, or if the test substance is applied by irrigation, then that event should be recorded below. "NONE BEFORE HARVEST" OR "NONE BEFORE SAMPLING" MAY BE ENTERED, IF APPLICABLE.**

DATE OF FIRST RAIN *(Note the date of first rainfall after this application.)*	8/11/15
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST RAINFALL *(Check DAYS or HOURS) (Enter #hours if first rainfall was on the date of application.)*	1 **DAYS** ✓ **HOURS** ___
AMOUNT OF WATER *(Check INCHES or mm)*	0.38 **INCHES** ✓ **mm** ___
RAIN INFORMATION RECORDED BY *(Initials/date)*	JC 10/16/15
TYPE OF IRRIGATION *(e.g. overhead, trickle, flood)*	drip
DATE OF FIRST IRRIGATION *(Note the date of first irrigation after this application.)*	NONE BEFORE SAMPLING
TIME AFTER APPLICATION THAT PLOTS WERE EXPOSED TO FIRST IRRIGATION *(Check DAYS or HOURS) (Enter #hours if first irrigation was on the date of application.)*	**DAYS** ___ **HOURS** ___
AMOUNT OF WATER *(Check INCHES, mm, or mL)*	JC 10/16/15 **INCHES** ___ **mm** ___ **mL** ___
IRRIGATION INFORMATION RECORDED BY *(Initials/date)*	JC 10/16/15

If the data entered above differ from the rainfall/irrigation data included in Part 9, explain: _____

Initials/date: JC 10/16/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Sample Collection
Part 7

Forage Sampling

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE — FORAGE SAMPLE COLLECTION

A.1. GENERAL HARVESTING INFORMATION *INSTRUCTIONS: Complete a separate form for each sampling date.*

HARVEST DATE[1] 8/10/15 **SAMPLING DATE**[2] 8/10/15 **PHI**[3] TRT 02 - 20 days TRT 03 - 0 days

[1]*Record the date of crop harvest (harvest defined as crop digging, crop cutting, picking, etc.)*
[2]*Enter the date the sampled crop items were placed in sample bags (i.e. sample collection)*
[3]*Record the number of days from last application to harvest (PHI)*

IF THE PHI IS 0 DAYS, WAS THE SPRAY DRY BEFORE THE CROP WAS HARVESTED? YES ✓ NO___ NA___
(Check NA if PHI>0 days or if the test substance was not sprayed, e.g. a granular application.)

DESCRIPTION OF HARVESTED CROP STAGE
(E.g. commercially mature lettuce heads, blueberries mature in size (mostly blue in color), mature plums for drying)
corn forage at early dent stage

Number of (check one) **Plants** ✓ **Trees**___ **Bushes**___ **Areas**___ **of the Plot from Which Each Sample was Collected**	12
Number and Location of Rows from Which Each Sample Was Collected *Examples: "6 middle rows" "All 3 rows" "1" (for single-row plot)*	TRT 01 & TRT 02 - 6 middle rows TRT 03 - 2 middle rows
Minimum Number of (check one) **Fruit**___ **Heads**___ **Roots**___ **Plants** ✓ **Other**___ (describe) **Actually Collected per Sample**	12 *(If a minimum is required by the protocol)*
Number of (check one) **Plants**___ **Trees**___ **Bushes**___ **at Each End,** or (check) **Length of Row Ends** ✓, **That Were Not Sampled**	5 ft. on each row end
Was Less Than 50% of the Harvestable Crop Sampled? (May be determined by visual estimation)	YES ✓ NO___ *If* **no** *is checked, contact the Study Director*
Was Each Sample Collected in a Separate Run Through the Entire Plot?	YES ✓ NO___ *If* **no** *is checked, contact the Study Director*

HARVESTING EQUIPMENT *(Provide a brief description of harvesting equipment, including make and model numbers, if appropriate.* ***Do not include gloves, sample bags, coolers, or scales.****)*

Lopers

ORDER OF SAMPLE COLLECTION TRT 01, Sample A, B; TRT 02, Sample C, D; TRT 03, Sample E, F

BRIEFLY DESCRIBE PROCEDURES UTILIZED TO HARVEST CROP. Provide enough details in addition to data entered above to ensure that protocol requirements have been met and to inform a data reviewer exactly how this crop was harvested. *Examples: "Hand-picked berries from one side of the row, then the other. Collected fruit from high and low, exposed and shielded areas." "Barley was cut 3-4 inches above the ground with a scythe and left on the ground to dry for hay samples. Each entire plot was cut."* ATTACH A SEPARATE SHEET IF NECESSARY.

TRT 01 & TRT 02 - Cut 2 corn stalks per row from the middle 6 rows in each plot. TRT 03 - Cut 6 corn stalks per row from the middle 2 rows in the plot. Corn stalks were selected throughout the length of the rows leaving at least 5 ft. on either end unsampled. Corn stalks were cut just above the first node using clean lopers. 12 stalks collected per sample.

Were harvested crop items collected directly into residue sample bags? YES___ NO ✓

IF NO, PLEASE EXPLAIN Cut stalks were handed to James and Mike and they carried the stalks out of the field and placed them on a tarp-lined table.

ABOVE DATA ENTERED BY: Jmc Coughlin *DATE:* 8/10/15

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE

A.2. GENERAL SAMPLING INFORMATION--*Complete a separate form for each sampling date.*

DESCRIPTION OF SAMPLED CROP STAGE *(if different from harvested crop, such as dried plums, mint oil)*

Corn Forage- the entire aerial portion of the corn stalk including ears.

IF THE SAMPLING OCCURRED AFTER THE HARVEST DATE, DESCRIBE SAMPLE COLLECTION. ALSO, DESCRIBE ANY MODIFICATIONS TO THE HARVESTED CROP SUCH AS TRIMMING, CLEANING, CUTTING, DRYING AND/OR COMPOSITING SAMPLES. IF THE MODIFICATIONS ARE TOO COMPLEX TO BE DESCRIBED BELOW, ATTACH A SEPARATE SHEET THAT CLEARLY DESCRIBES THE MODIFICATION PROCEDURES

Include a description of equipment, duration of procedure(s), temperatures, estimated moisture content, etc., as appropriate.

See following page for description of modification. JC 8/10/15

CHECK ALL PROCEDURES USED TO PREVENT CONTAMINATION OF RESIDUE SAMPLES

- ✓ UNCONTAMINATED GLOVES WORN AND CHANGED BETWEEN SAMPLES
- ___ TREATMENTS WERE SAMPLED BY DIFFERENT PEOPLE
- ✓ PHYSICALLY SEPARATED TREATED AND UNTREATED SAMPLES
- ✓ CLEANED SAMPLING EQUIPMENT BETWEEN COLLECTIONS OF EACH TREATMENT
- ✓ OTHER, EXPLAIN: Cleaned lopers, small lopers, pruning sheers and tarp on table between each sample.

DESCRIBE HOLDING AND TRANSPORT OF SAMPLES FROM FIELD TO FREEZER

(E.g. Sample bags placed in cooler with blue ice, then transported by pickup truck to research center for pitting. Following pit removal, sample bags were hand-carried to freezer.)

Sample bags were placed into coolers with blue ice, then transported by car to the Field lab at Univ. of Hawaii. Samples were placed into the lab freezer upon arrival. Separate coolers were used for each treatment. Hobos were placed into coolers.

ABOVE DATA ENTERED BY: Jamie Coughlin *DATE:* 8/10/15

PART 7. A.2

MODIFICATIONS TO THE HARVESTED CROP

FORAGE SAMPLES

For each sample, 12 corn plants were placed on a clean tarp-lined table. The plants were separated into 3 groups of 4 plants each. Each plant was divided into 3 approximately equal lengths with leaves and ears attached using clean lopers. Bottom portions were selected from one group, middle portions were selected from the next group and top portions were selected from the last group. The remaining plant portions were discarded. I cut the plants and Mike and James helped determine portion lengths.

All plant portions were cut into smaller pieces using clean pruning shears to fit better in the IR-4 sample bag. I cut the portions and placed the sample in the sample bag. Mike and James helped hold the plants so that they didn't blow away (the trade winds were strong during sampling). The IR-4 sample bag was weighed after all the sample was placed into the bag. The sample bag was tared on the scale prior to weighing.

This procedure took approximately 20 minutes per sample.

JC 8/10/15

JC 8/10/15

FORAGE SAMPLING



Corn plants separated into 3 groups of 4 plants each.



Plants cut into 3 equal lengths. Bottom portions were selected from one group, middle portions were selected from the next group, and top portions were selected from last group.

JC 8/10/15

FORAGE SAMPLING



Cutting corn stalks into pieces and placing in sample bag



James held the plants to prevent leaves from blowing away.

gc 8/10/15

PART 7. SAMPLE COLLECTION AND STORAGE

B. SPECIFIC SAMPLE INFORMATION AND INVENTORY

INSTRUCTIONS: Complete this form ***or*** *provide equivalent information.* **USE A SEPARATE PAGE FOR EACH SAMPLE DATE.** *Enter the date the individual samples were collected (***do not enter the harvest date when this date is different from sample date***), the sample ID (see protocol Section 18 for Sample ID code), a brief description of the crop part sampled (e.g. turnip roots, turnip tops, tomato fruit, corn forage etc.,), the weight of the sample, the approximate time of day of* **completion of each sample collection–i.e., sample placed in sample bag following any modifications** *(e.g., 10:15 a.m.), the approximate time of day that each sample was placed in a freezer, the approximate time interval between completion of collection of each sample (***placement of the sample in sample bag***) and the placement of the sample in freezer (e.g., 45 minutes), the identification code of the freezer where the samples are stored, and the initials of the person providing the above information and the date it is entered on this form.*

SAMPLE COLLECTION DATE: 8/10/15

SAMPLE ID*	CROP FRACTION	WEIGHT (INCLUDE UNITS)	APPROXIMATE TIME OF DAY OF COMPLETION OF SAMPLE COLLECTION	APPROXIMATE TIME OF DAY THAT SAMPLE WAS PLACED IN FREEZER	APPROXIMATE ELAPSED TIME TO FREEZER FROM SAMPLE COLLECTION	FREEZER ID	INITIALS & DATE
A	Forage	3.20 lbs	12:00 pm	3:20 pm	3 hrs. 20 min.	RF-17	JC 8/10/15
B	Forage	3.30 lbs	12:20 pm	3:20 pm	3 hrs.	RF-17	JC 8/10/15
C	Forage	4.30 lbs	12:45 pm	3:20 pm	2 hrs. 35 min	RF-17	JC 8/10/15
D	Forage	4.40 lbs	1:00 pm	3:20 pm	2 hrs. 20 min	RF-17	JC 8/10/15
E	Forage	4.45 lbs	1:20 pm	3:20 pm	2 hrs.	RF-17	JC 8/10/15
F	Forage	4.35 lbs	1:40 pm	3:20 pm	1 hr. 40 min.	RF-17	JC 8/10/15
							JC 8/10/15

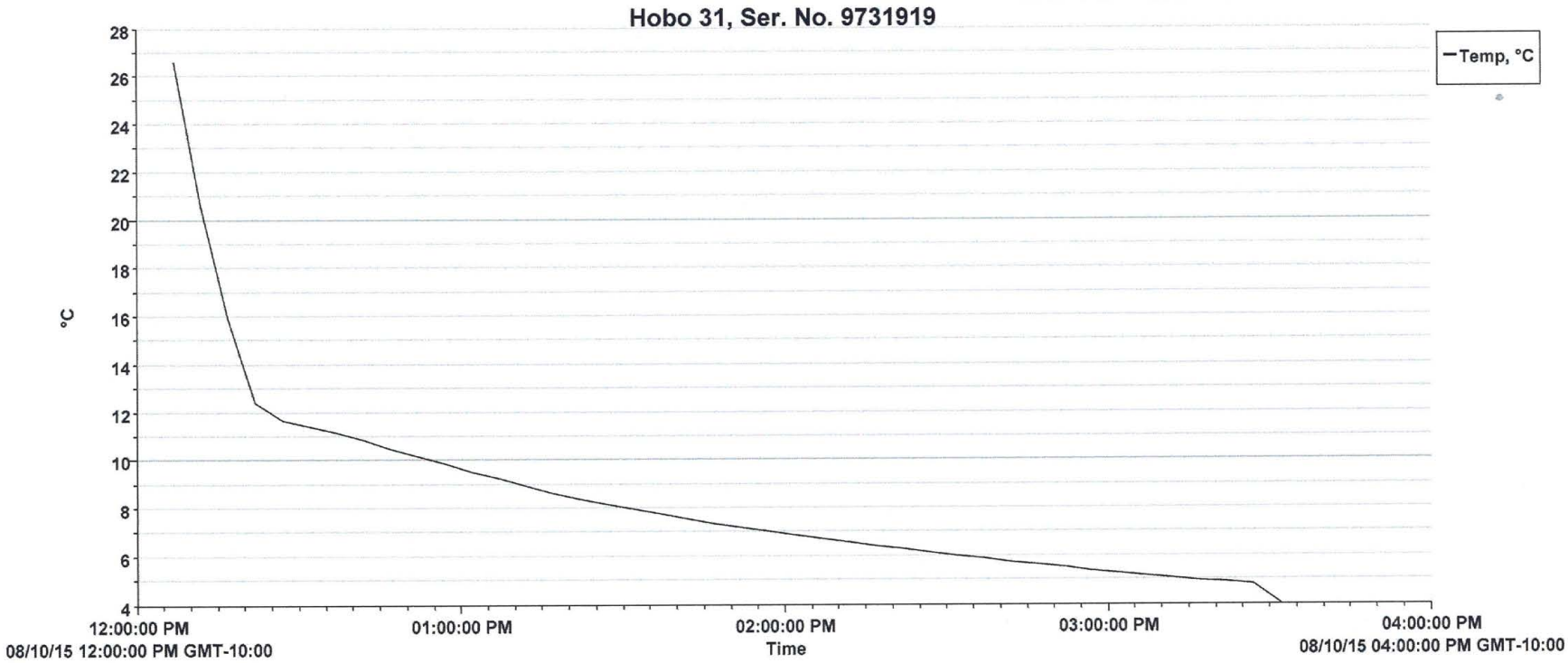
* See Protocol Section 18 for assigned Sample ID code

Was a GLP-maintained scale used to determine weight of residue samples? YES____ NO ✓

CROP DESTRUCT: Please describe in Part 5I of this Field Data Book how the (leftover) treated crop has been destroyed or handled in such a way that it cannot be consumed as a human food or animal feed.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/10/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin



Deployment Info

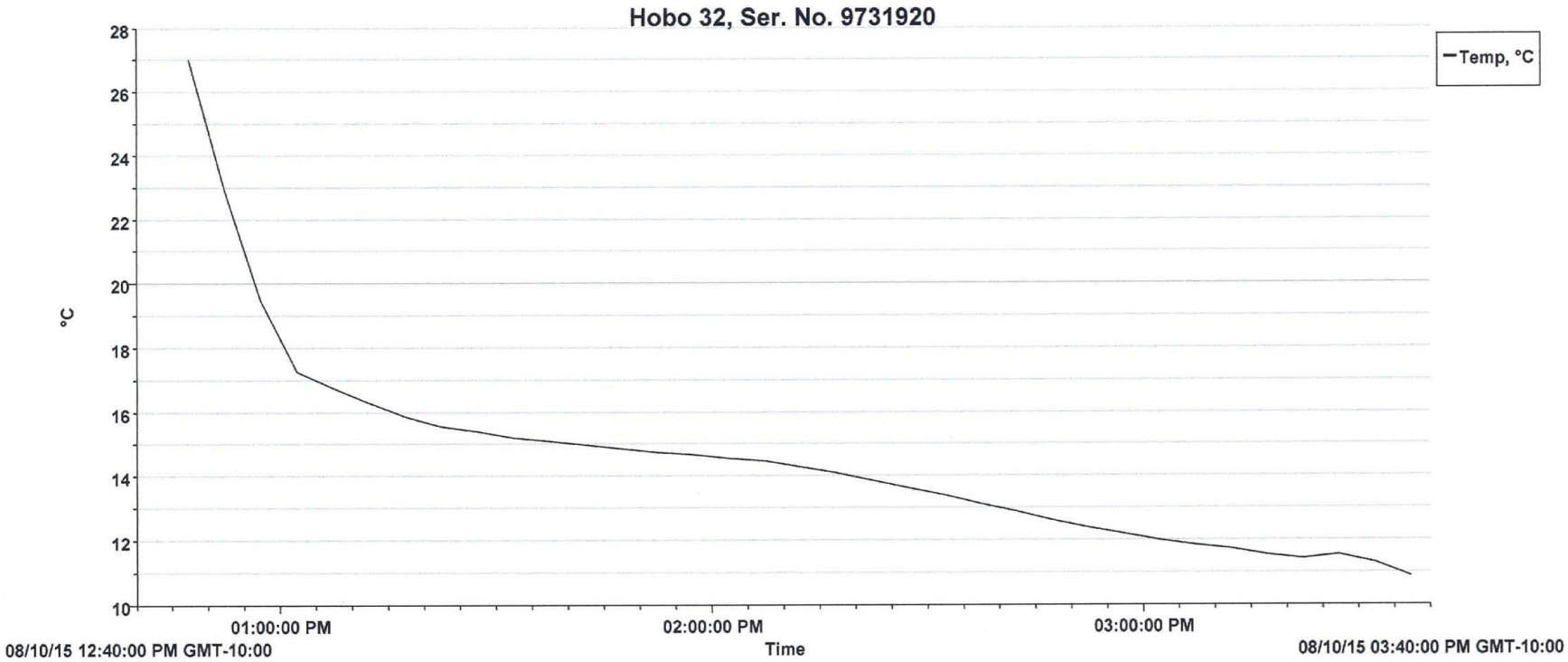
- Launch Description: Hobo 31, Ser. No. 9731919
- Launch Time: 08/10/15 12:02:59 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 42
- Max: 26.573
- Min: 4.011
- Avg: 8.476
- Std Dev (σ): 4.299
- First Sample Time: 08/10/15 12:06:56 PM GMT-10:00
- Last Sample Time: 08/10/15 03:31:56 PM GMT-10:00

Sample cooler temperature from field site to freezer for TRT 01, Samples A+B. Forage Samples- JC 8/10/15

JC 8/10/15



Deployment Info

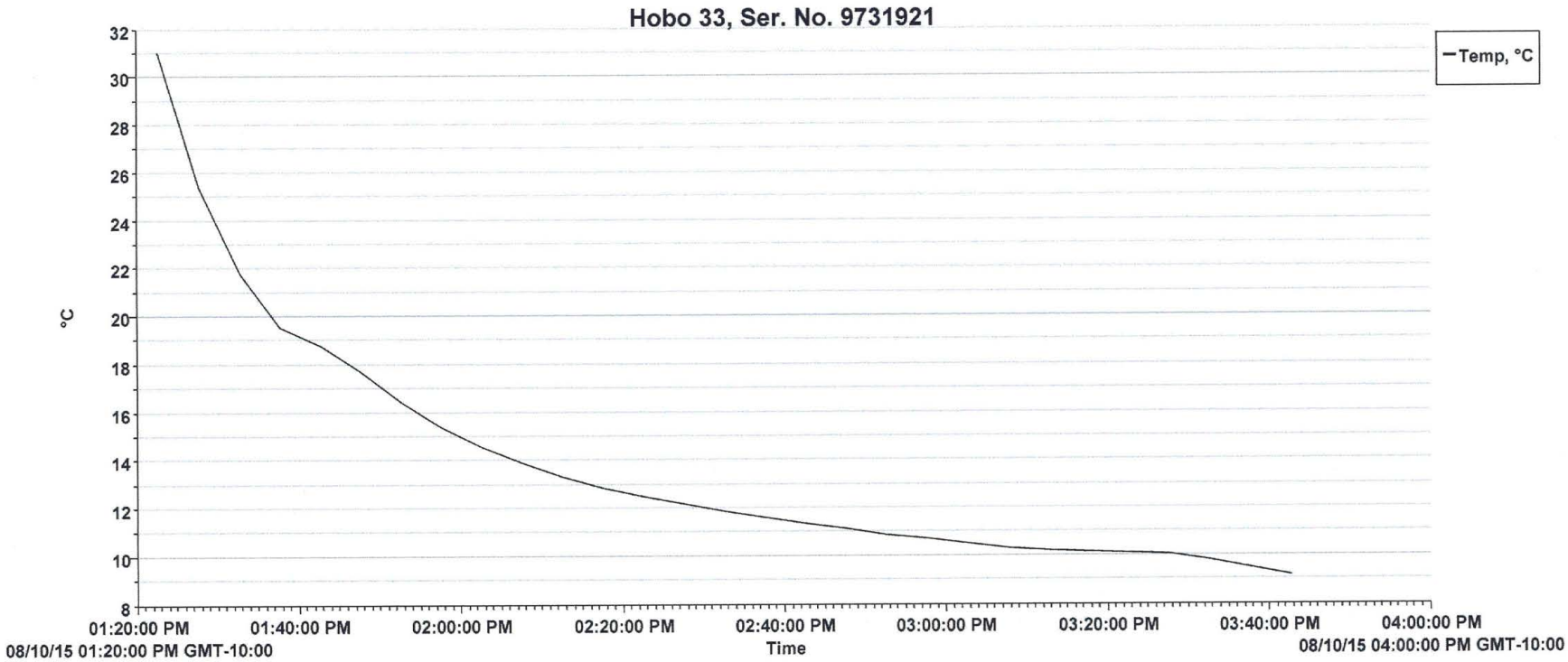
- Launch Description: Hobo 32, Ser. No. 9731920
- Launch Time: 08/10/15 12:43:19 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 35
- Max: 27.014
- Min: 10.883
- Avg: 14.559
- Std Dev (σ): 3.274
- First Sample Time: 08/10/15 12:47:22 PM GMT-10:00
- Last Sample Time: 08/10/15 03:37:22 PM GMT-10:00

Sample cooler temperature from field site to freezer for TRT 02, Samples C+D. Forage samples.
gc 8/10/15

gc 8/10/15



Deployment Info

- Launch Description: Hobo 33, Ser. No. 9731921
- Launch Time: 08/10/15 01:21:47 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 29
- Max: 31.001
- Min: 9.139
- Avg: 13.864
- Std Dev (σ): 5.192
- First Sample Time: 08/10/15 01:22:44 PM GMT-10:00
- Last Sample Time: 08/10/15 03:42:44 PM GMT-10:00

Sample cooler temperature from field site to freezer for TRT 03, Samples E+F. Forage samples.

jc 8/10/15

jc 8/10/15

Grain Sampling

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE — GRAIN SAMPLE COLLECTION

A.1. GENERAL HARVESTING INFORMATION *INSTRUCTIONS: Complete a separate form for each sampling date.*

HARVEST DATE[1] 8/31/15 **SAMPLING DATE**[2] 8/31/15 **PHI**[3] 41 days after soil application

[1]*Record the date of crop harvest (harvest defined as crop digging, crop cutting, picking, etc.)*
[2]*Enter the date the sampled crop items were placed in sample bags (i.e. sample collection)*
[3]*Record the number of days from last application to harvest (PHI)*

IF THE PHI IS 0 DAYS, WAS THE SPRAY DRY BEFORE THE CROP WAS HARVESTED? YES___ NO___ NA ✓
(Check NA if PHI>0 days or if the test substance was not sprayed, e.g. a granular application.)

DESCRIPTION OF HARVESTED CROP STAGE
(E.g. commercially mature lettuce heads, blueberries mature in size (mostly blue in color), mature plums for drying)
mature corn ears at the shelling stage.

Number of (check one) **Plants** ✓ **Trees**____ **Bushes**____ **Areas**____ **of the Plot from Which Each Sample was Collected**	12
Number and Location of Rows from Which Each Sample Was Collected *Examples: "6 middle rows" "All 3 rows" "1" (for single-row plot)*	TRT 01 and TRT 02 - 6 middle rows TRT 03 - 2 middle rows
Minimum Number of (check one) **Fruit**____ **Heads**____ **Roots**____ **Plants**____ **Other** ✓ (describe) **Actually Collected per Sample**	12 corn ears *(If a minimum is required by the protocol)*
Number of (check one) **Plants**____ **Trees**____ **Bushes**____ **at Each End,** or (check) **Length of Row Ends** ✓ **, That Were Not Sampled**	5 ft. on each end of rows
Was Less Than 50% of the Harvestable Crop Sampled? (May be determined by visual estimation)	**YES** ✓ **NO**____ *If* **no** *is checked, contact the Study Director*
Was Each Sample Collected in a Separate Run Through the Entire Plot?	**YES** ✓ **NO**____ *If* **no** *is checked, contact the Study Director*
HARVESTING EQUIPMENT *(Provide a brief description of harvesting equipment, including make and model numbers, if appropriate.* ***Do not include gloves, sample bags, coolers, or scales.)***	
Plastic bucket lined with new trash bag. Corn sheller (hand operated)	
ORDER OF SAMPLE COLLECTION	TRT 01, Sample G, H; TRT 02, Sample I, J; TRT 03, Sample K, L

← See following page for explanation.

BRIEFLY DESCRIBE PROCEDURES UTILIZED TO HARVEST CROP. Provide enough details in addition to data entered above to ensure that protocol requirements have been met and to inform a data reviewer exactly how this crop was harvested. *Examples: "Hand-picked berries from one side of the row, then the other. Collected fruit from high and low, exposed and shielded areas." "Barley was cut 3-4 inches above the ground with a scythe and left on the ground to dry for hay samples. Each entire plot was cut."* ATTACH A SEPARATE SHEET IF NECESSARY.

TRT 01 and TRT 02 - 12 corn ears were picked from the middle 6 rows in each plot, 2 ears/row. TRT 03 - 12 corn ears were picked from the middle 2 rows, 6 ears/row. Corn ears were selected throughout the length of the rows leaving 5 ft. on either end of rows. unsampled. Border rows in all plots were left unsampled.

Were harvested crop items collected directly into residue sample bags? YES___ NO ✓

IF NO, PLEASE EXPLAIN Corn ears were placed into a plastic bucket lined with a new trash bag, then carried to a table underneath a tarp next to the field.

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 8/31/15

NOTE ON ORDER OF SAMPLE COLLECTION:

Corn ears for the Grain samples and corn stalks for the Stover samples were harvested in the field on 08/31/15. The corn ears were shelled in the field and the Grain samples were collected the same day immediately following shelling. The corn stalks for the Stover samples required further drying and the Stover samples will be collected at a later date, after the drying process.

In order to prevent transfer of pesticide residue from one sample to the other, the order of sample collection follows:

TRT 01, Grain Samples G & H; TRT 01, corn stalks for Stover Samples M & N;

TRT 02, Grain Samples I & J; TRT 02, corn stalks for Stover Samples O & P;

TRT 03, Grain Samples K & L; TRT 03, corn stalks for Stover Samples Q & R.

All harvesting equipment and the tarp-lined table were cleaned thoroughly between each sample.

qc 8/31/15

qc 8/31/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE

A.2. GENERAL SAMPLING INFORMATION--*Complete a separate form for each sampling date.*

DESCRIPTION OF SAMPLED CROP STAGE *(if different from harvested crop, such as dried plums, mint oil)*

Corn grain

IF THE SAMPLING OCCURRED AFTER THE HARVEST DATE, DESCRIBE SAMPLE COLLECTION. ALSO, DESCRIBE ANY MODIFICATIONS TO THE HARVESTED CROP SUCH AS TRIMMING, CLEANING, CUTTING, DRYING AND/OR COMPOSITING SAMPLES. IF THE MODIFICATIONS ARE TOO COMPLEX TO BE DESCRIBED BELOW, ATTACH A SEPARATE SHEET THAT CLEARLY DESCRIBES THE MODIFICATION PROCEDURES

Include a description of equipment, duration of procedure(s), temperatures, estimated moisture content, etc., as appropriate.

The corn husks and silk were removed from the corn ears by hand, and discarded. James husked the corn ears. All of the corn grain was removed from the corn cobs using a hand-operated corn sheller. James shelled the corn. The remaining corn cob was discarded. The corn was shelled into clean plastic containers and then transferred to a labeled IR-4 sample bag. I held the sample bag, and James poured the grain into it. I tared the sample bag on the field balance before pouring the grain into it, then weighed the sample bag with the grain. The weight was recorded in Part 7B. It took James about 10 minutes to hull and shell 12 ears of corn. The corn grain was dry enough for shelling.

CHECK ALL PROCEDURES USED TO PREVENT CONTAMINATION OF RESIDUE SAMPLES

- ✓ UNCONTAMINATED GLOVES WORN AND CHANGED BETWEEN SAMPLES
- ___ TREATMENTS WERE SAMPLED BY DIFFERENT PEOPLE
- ✓ PHYSICALLY SEPARATED TREATED AND UNTREATED SAMPLES
- ✓ CLEANED SAMPLING EQUIPMENT BETWEEN COLLECTIONS OF EACH TREATMENT
- ✓ OTHER, EXPLAIN: Cleaned corn sheller and plastic containers between each sample. Separate plastic containers were used for each treatment.

DESCRIBE HOLDING AND TRANSPORT OF SAMPLES FROM FIELD TO FREEZER

(E.g. Sample bags placed in cooler with blue ice, then transported by pickup truck to research center for pitting. Following pit removal, sample bags were hand-carried to freezer.)

Sample bags were placed in coolers with blue ice and Hobo temperature recorders. The coolers were transported to the Univ. of Hawaii in the bed of a pickup truck. Sample bags were placed in freezer upon arrival. Separate coolers were used for each TRT.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/31/15

GRAIN SAMPLING



Corn ears in bucket, corn sheller, and tray, on tarp lined table.



Shelling corn by hand

qc 8/31/15

GRAIN SAMPLING



JL 8/31/15

JL 8/31/15

FIELD ID NO: Coughlin

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE

B. SPECIFIC SAMPLE INFORMATION AND INVENTORY

INSTRUCTIONS: Complete this form ***or*** *provide equivalent information.* **USE A SEPARATE PAGE FOR EACH SAMPLE DATE.** *Enter the date the individual samples were collected (***do not enter the harvest date when this date is different from sample date***), the sample ID (see protocol Section 18 for Sample ID code), a brief description of the crop part sampled (e.g. turnip roots, turnip tops, tomato fruit, corn forage etc.,), the weight of the sample, the approximate time of day of* **completion of each sample collection–i.e., sample placed in sample bag following any modifications** *(e.g., 10:15 a.m.), the approximate time of day that each sample was placed in a freezer, the approximate time interval between completion of collection of each sample (***placement of the sample in sample bag***) and the placement of the sample in freezer (e.g., 45 minutes), the identification code of the freezer where the samples are stored, and the initials of the person providing the above information and the date it is entered on this form.*

SAMPLE COLLECTION DATE: 8/31/15

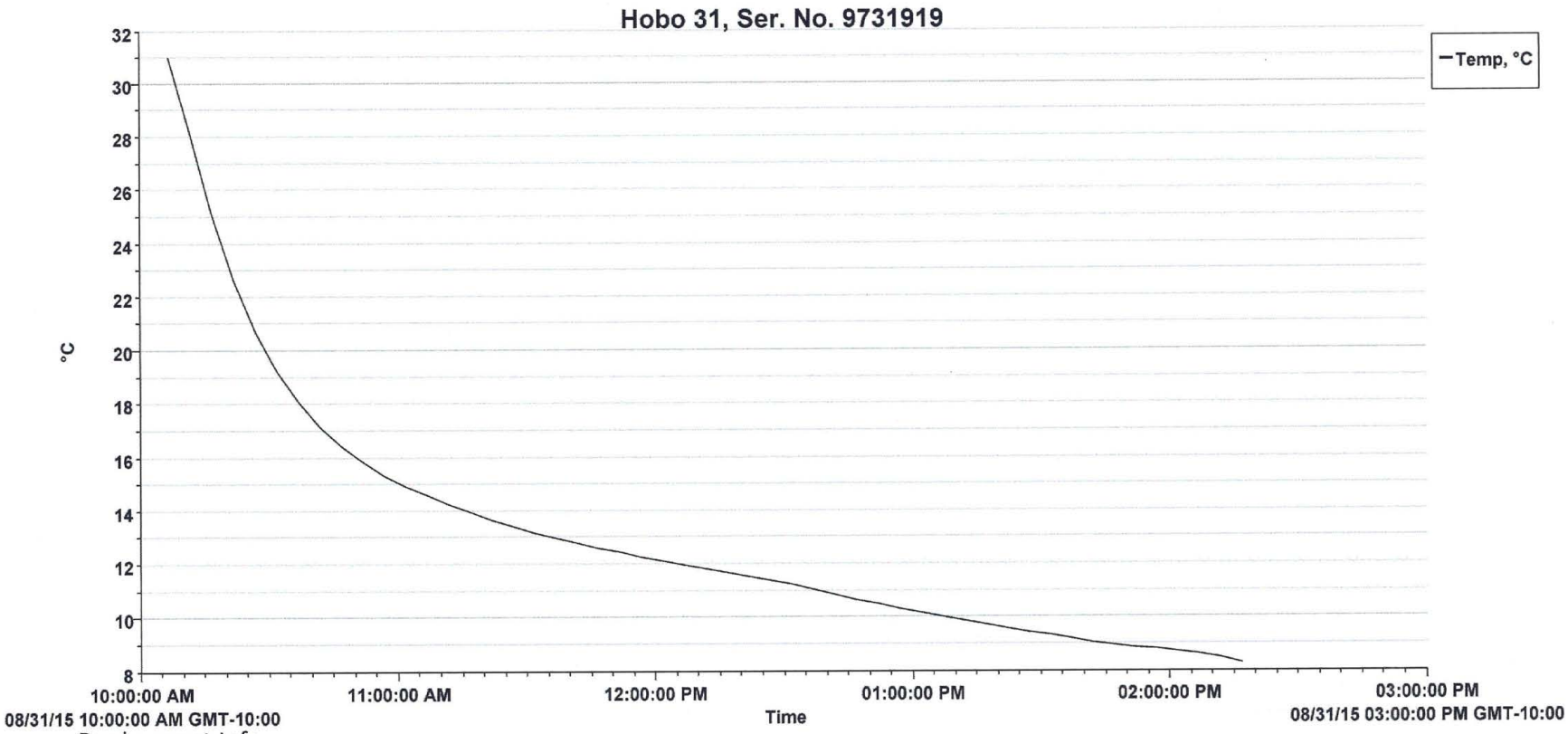
SAMPLE ID*	CROP FRACTION	WEIGHT (INCLUDE UNITS)	APPROXIMATE TIME OF DAY OF COMPLETION OF SAMPLE COLLECTION	APPROXIMATE TIME OF DAY THAT SAMPLE WAS PLACED IN FREEZER	APPROXIMATE ELAPSED TIME TO FREEZER FROM SAMPLE COLLECTION	FREEZER ID	INITIALS & DATE
G	Grain	2.75 lbs	10:00 am	2:15 pm	4 hrs, 15 min.	RF-17	JC 8/31/15
H	Grain	2.90 lbs	10:15 am	2:15 pm	4 hrs,	RF-17	JC 8/31/15
I	Grain	3.45 lbs	11:10 am	2:15 pm	3 hrs, 5 min.	RF-17	JC 8/31/15
J	Grain	3.30 lbs	11:20 am	2:15 pm	2 hrs. 55 min.	RF-17	JC 8/31/15
K	Grain	2.70 lbs	11:55 am	2:15 pm	2 hrs, 20 min.	RF-17	JC 8/31/15
L	Grain	2.85 lbs.	12:05 pm	2:15 pm	2 hrs. 10 min	RF-17	JC 8/31/15
						JC	8/31/15

* See Protocol Section 18 for assigned Sample ID code

Was a GLP-maintained scale used to determine weight of residue samples? YES____ NO ✓

CROP DESTRUCT: Please describe in Part 5I of this Field Data Book how the (leftover) treated crop has been destroyed or handled in such a way that it cannot be consumed as a human food or animal feed.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/31/15



Deployment Info

- Launch Description: Hobo 31, Ser. No. 9731919
- Launch Time: 08/31/15 10:03:33 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

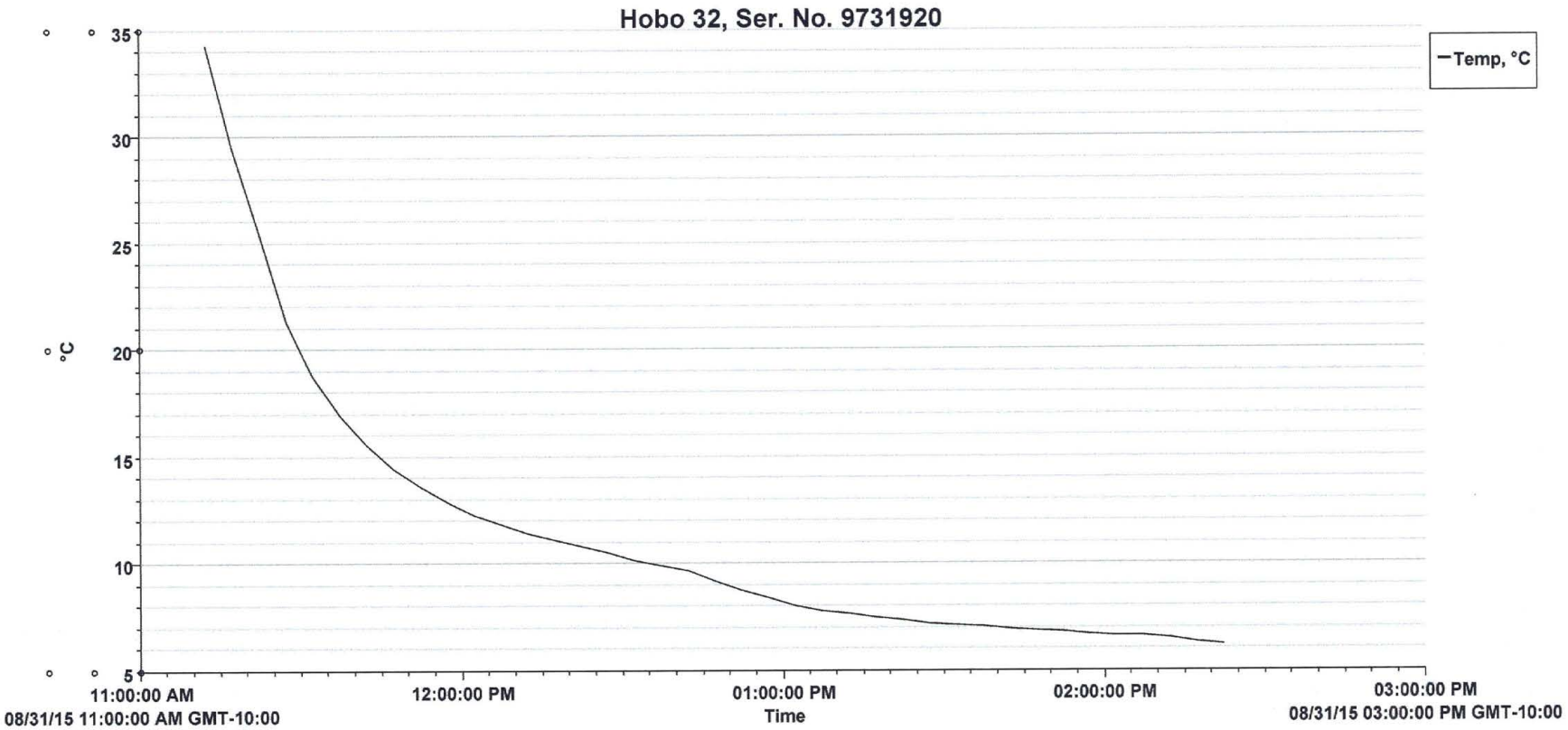
Sample cooler temperature from field to freezer for TRT 01, Samples G+H.
JC 8/31/15

Series Statistics

- Samples: 51
- Max: 31.026
- Min: 8.270
- Avg: 13.187
- Std Dev (σ): 4.989
- First Sample Time: 08/31/15 10:06:56 AM GMT-10:00
- Last Sample Time: 08/31/15 02:16:56 PM GMT-10:00

JC 8/31/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin



Deployment Info

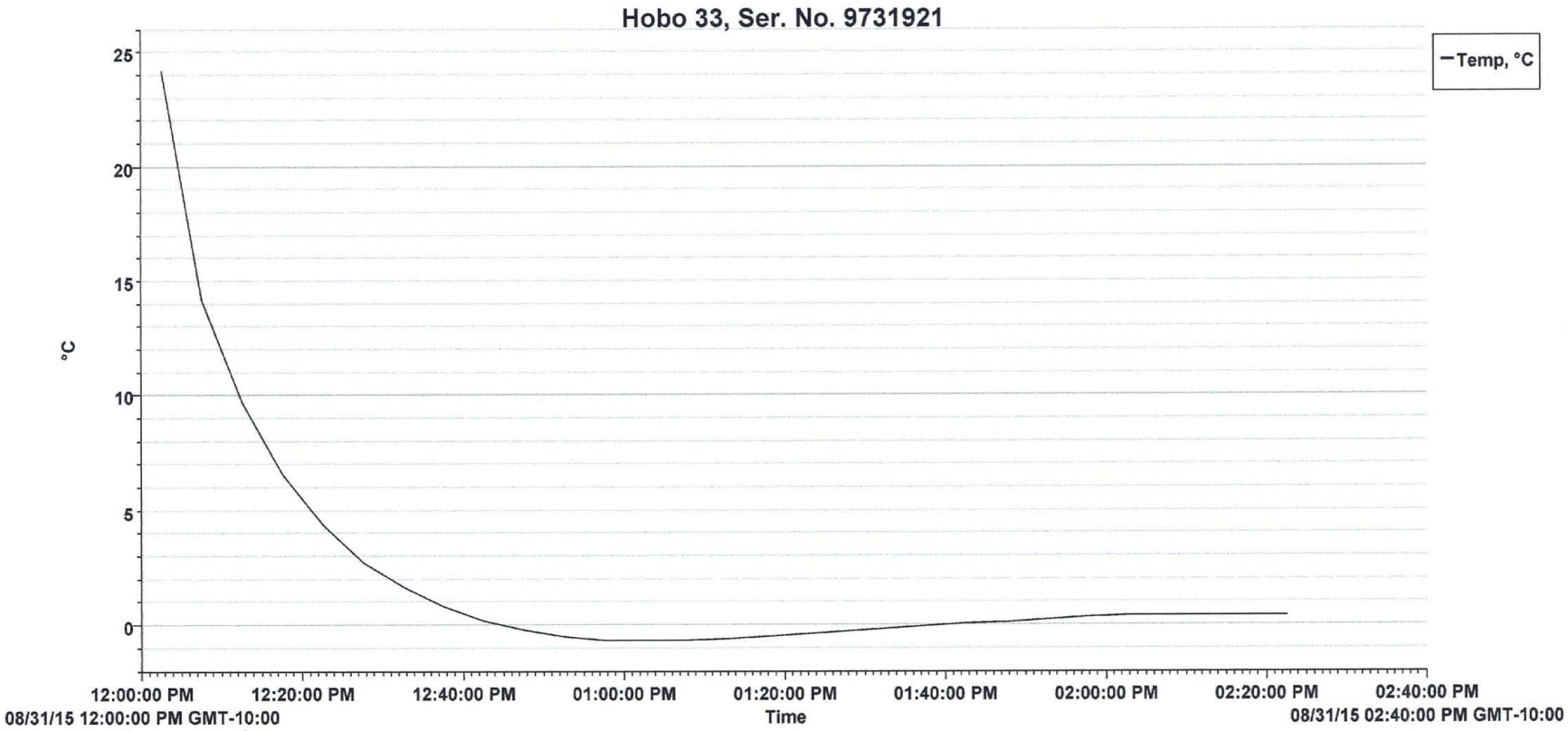
- Launch Description: Hobo 32, Ser. No. 9731920
- Launch Time: 08/31/15 11:11:27 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Sample cooler temperature from field to freezer for TRT 02, Samples I + J.
jc 8/31/15

Series Statistics

- Samples: 39
- Max: 34.255
- Min: 6.204
- Avg: 11.408
- Std Dev (σ): 6.544
- First Sample Time: 08/31/15 11:12:22 AM GMT-10:00
- Last Sample Time: 08/31/15 02:22:22 PM GMT-10:00

jc 8/31/15



Deployment Info

- Launch Description: Hobo 33, Ser. No. 9731921
- Launch Time: 08/31/15 11:57:46 AM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Sample cooler temperature from field to freezer for TRT 03, Samples K+L.
gc 8/31/15

Series Statistics

- Samples: 29
- Max: 24.171
- Min: -0.676
- Avg: 2.147
- Std Dev (σ): 5.411
- First Sample Time: 08/31/15 12:02:44 PM GMT-10:00
- Last Sample Time: 08/31/15 02:22:44 PM GMT-10:00

gc 8/31/15

Stover Sampling

CORN STOVER PRE-SAMPLING PROCEDURE

Corn stover pre-samples were harvested 6 days before the sampling event to determine target weights and percent moisture estimates. The Protocol specifies a stover moisture content of 15-20%, therefore a method for estimating percent moisture is required.

Pre-samples were collected the same way that the actual samples will be collected as follows:

For each pre-sample, 12 corn plants were selected from the TRT 01, Untreated plot. Plants were cut just above the first node. The 12 corn stalks were placed on a clean tarp-lined table. Corn ears were removed from each stalk. To reduce gross sample size, the plants were separated into 3 groups of 4 plants each. Each plant was divided into 3 approximately equal lengths with leaves attached, using clean lopers. Bottom portions were selected from one group, middle portions were selected from the next group and top portions were selected from the last group. The remaining plant portions were discarded. The selected plant portions were placed into a clean, green mesh drying bag. The bag was labeled. A total of 3 pre-samples were collected in this manner.

The pre-samples were transported to the University of Hawaii in the cab of the pick-up truck. The pre-samples were weighed and then placed into a forced air oven set to 55°C. The oven temperature was set higher than the commercial drying temperature of 35°C to speed the dry down process (for the pre-samples only). Periodically, pre-samples were removed from the oven to check the weight. Pre-samples were dried in the oven until they no longer changed in weight (0% moisture).

Final pre-sample weights were recorded and percent moisture, percent dry matter, and target dry weight ranges for the actual samples were calculated.

JC 8/25/15

JC 8/25/15

Corn Stover Moisture Estimation Using Pre-sampling

Sample ID	Wet wt w/ bag (lbs)	Bag wt (lbs)	Wet wt w/o bag (lbs)	Final dry wt w/bag (lbs)	Final dry wt w/o bag (lbs)	% Moisture (wet wt-dry wt)÷wet wt*100	% Dry Matter (100-% Moisture)
Pre-Sample 1	2.100	0.125	1.975	0.775	0.650	67.1	32.9
Pre-Sample 2	2.150	0.125	2.025	0.830	0.705	65.2	34.8
Pre-Sample 3	2.470	0.125	2.345	0.860	0.735	68.7	31.3
Initials/Date	JC 8/25/15		x = 2.115 JC 8/25/15	JC 8/31/15		Average= 67%	Average= 33%

Date/Time Into Oven: 8/25/15 12:20pm JC 8/25/15

Date/Time Out of Oven: 8/31/15 6:25 am JC 8/31/15

Target Dry Weight (80%) = (% dry matter in wet weight * wet wt of sample) ÷ dry matter in final product (0.80)

Target Dry Weight (80%) = (0.33)(2.115) ÷ 0.80 = 0.872 lbs.

EE JC 8/31/15

Target Dry Weight (85%) = (% dry matter in wet weight * wet wt of sample) ÷ dry matter in final product (0.85)

Target Dry Weight (85%) = (0.33)(2.115) ÷ 0.85 = 0.821 lbs.

Target range of weights for Stover Samples (15-20% moisture, 80-85% dry matter) = 0.821 lbs – 0.872 lbs.

Corn Stover Pre-Sampling Procedure Followed? YES ✓ NO_____

Balance Used to Weigh Stover: A+D Field Balance, S/N Q2005443

Hobo Recorder Used to Record Oven Temperature: Hobo #36

ABOVE DATA ENTERED BY: Jamie Coughlin DATE: 8/31/15

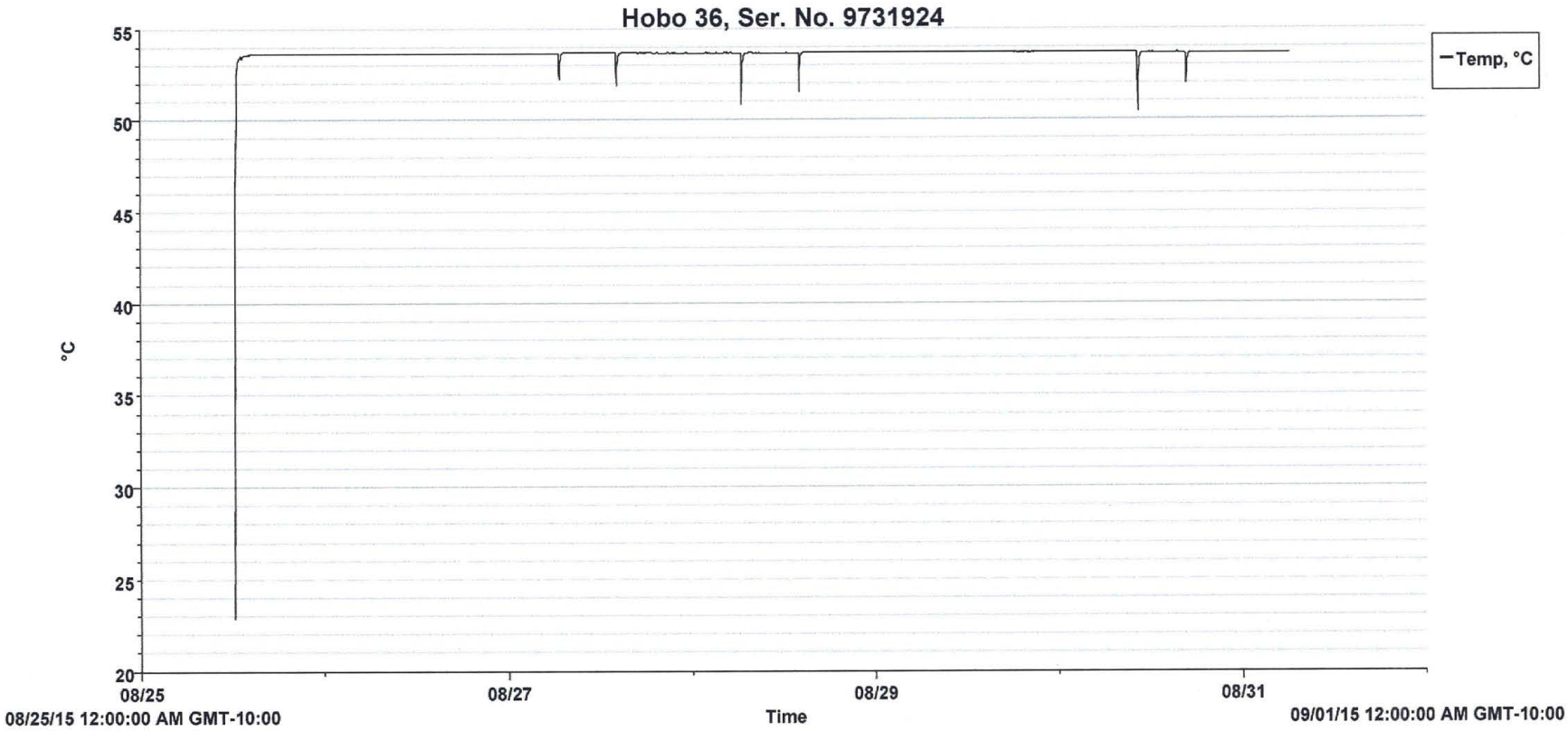
Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

out of oven 8/31/15 - 6:25 am.

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

Corn Stover Pre-Sample Drying

SAMPLE ID	DATE	TIME	WEIGHT WITH BAG (LBS)	INITIALS/DATE
1	8/27/15	6:40 am	0.995	
1	8/27/15	2:00 pm	0.925	
1	8/28/15	6:30 am	~~0.845~~ ① ← 0.850	
1	8/28/15	2:05 pm	0.825	
1	8/30/15	10:25 am	0.775	① Non-glp correction.
1	8/30/15	4:45 pm	0.775	gc 11/28/16
1	8/31/15	6:25 am	0.775	
1				
1				
1				
1				
1				
2	8/27/15	6:40 am	1.115	
2	8/27/15	2:00 pm	1.050	
2	8/28/15	6:30 am	0.935	
2	8/28/15	2:05 pm	0.900	
2	8/30/15	10:25 am	0.835	
2	8/30/15	4:45 pm	0.830	
2	8/31/15	6:25 am	0.830	
2				
2				
2				
2				
2				
3	8/27/15	6:40 am	1.295	
3	8/27/15	2:00 pm	1.200	
3	8/28/15	6:30 am	1.045	
3	8/28/15	2:05 pm	0.995	
3	8/30/15	10:25 am	0.885	
3	8/30/15	4:45 pm	0.880	
3	8/31/15	6:25 am	0.860	
3				
3				
3				
3				
3				



Deployment Info

- Launch Description: Hobo 36, Ser. No. 9731924
- Launch Time: 08/25/15 12:16:59 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 1,658
- Max: 53.664
- Min: 22.896
- Avg: 53.578
- Std Dev (σ): 0.878
- First Sample Time: 08/25/15 12:17:00 PM GMT-10:00
- Last Sample Time: 08/31/15 06:22:00 AM GMT-10:00

Oven temperature for corn stover pre-samples. JC 8/31/15

JC 8/31/15

PART 7 PAGE 21

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE — STOVER SAMPLE COLLECTION

A.1. GENERAL HARVESTING INFORMATION *INSTRUCTIONS: Complete a separate form for each sampling date.*

HARVEST DATE[1] 8/31/15 **SAMPLING DATE**[2] See Part 7B **PHI**[3] 41 days after soil applicatin

[1]*Record the date of crop harvest (harvest defined as crop digging, crop cutting, picking, etc.)*
[2]*Enter the date the sampled crop items were placed in sample bags (i.e. sample collection)*
[3]*Record the number of days from last application to harvest (PHI)*

IF THE PHI IS 0 DAYS, WAS THE SPRAY DRY BEFORE THE CROP WAS HARVESTED? YES___ NO___ NA ✓
(Check NA if PHI>0 days or if the test substance was not sprayed, e.g. a granular application.)

DESCRIPTION OF HARVESTED CROP STAGE
(E.g. commercially mature lettuce heads, blueberries mature in size (mostly blue in color), mature plums for drying)
mature corn stalks

Number of (check one) **Plants** ✓ **Trees**___ **Bushes**___ **Areas**___ **of the Plot from Which Each Sample was Collected**	12
Number and Location of Rows from Which Each Sample Was Collected *Examples: "6 middle rows" "All 3 rows" "1" (for single-row plot)*	TRT 01 + TRT 02 - 6 middle rows TRT 03 - 2 middle rows
Minimum Number of (check one) **Fruit**___ **Heads**___ **Roots**___ **Plants** ✓ **Other**___ (describe) **Actually Collected per Sample**	12 *(If a minimum is required by the protocol)*
Number of (check one) **Plants**___ **Trees**___ **Bushes**___ **at Each End,** or (check) **Length of Row Ends** ✓, **That Were Not Sampled**	5 ft. on each end of rows
Was Less Than 50% of the Harvestable Crop Sampled? (May be determined by visual estimation)	YES ✓ NO___ *If no is checked, contact the Study Director*
Was Each Sample Collected in a Separate Run Through the Entire Plot?	YES ✓ NO___ *If no is checked, contact the Study Director*
HARVESTING EQUIPMENT *(Provide a brief description of harvesting equipment, including make and model numbers, if appropriate. **Do not include gloves, sample bags, coolers, or scales.**)*	
Lopers	
ORDER OF SAMPLE COLLECTION	TRT 01, Sample M, N; TRT 02, Sample O, P; TRT 03, Sample Q, R.

see Part 7, page 11 for explanation.

BRIEFLY DESCRIBE PROCEDURES UTILIZED TO HARVEST CROP. Provide enough details in addition to data entered above to ensure that protocol requirements have been met and to inform a data reviewer exactly how this crop was harvested. *Examples: "Hand-picked berries from one side of the row, then the other. Collected fruit from high and low, exposed and shielded areas." "Barley was cut 3-4 inches above the ground with a scythe and left on the ground to dry for hay samples. Each entire plot was cut."* ATTACH A SEPARATE SHEET IF NECESSARY.

TRT 01 + TRT 02 - I cut 2 corn stalks per row from the inner 6 rows in each plot. TRT 03 - I cut 6 corn stalks per row from the middle 2 rows in the plot. Corn stalks were selected throughout the length of the rows, leaving at least 5 ft. on row ends unsampled. Corn stalks were cut just above the first node using clean lopers. 12 corn stalks were collected per sample.

Were harvested crop items collected directly into residue sample bags? YES___ NO ✓

IF NO, PLEASE EXPLAIN After cutting, corn stalks were handed to James and he carried the stalks out of the plot and placed them on a clean, tarp-lined table.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/31/15

FIELD ID NO: Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE

A.2. GENERAL SAMPLING INFORMATION--*Complete a separate form for each sampling date.*

DESCRIPTION OF SAMPLED CROP STAGE *(if different from harvested crop, such as dried plums, mint oil)*

Corn stover (corn stalks dried to approximately 15-20% moisture)

IF THE SAMPLING OCCURRED AFTER THE HARVEST DATE, DESCRIBE SAMPLE COLLECTION. ALSO, DESCRIBE ANY MODIFICATIONS TO THE HARVESTED CROP SUCH AS TRIMMING, CLEANING, CUTTING, DRYING AND/OR COMPOSITING SAMPLES. IF THE MODIFICATIONS ARE TOO COMPLEX TO BE DESCRIBED BELOW, ATTACH A SEPARATE SHEET THAT CLEARLY DESCRIBES THE MODIFICATION PROCEDURES

Include a description of equipment, duration of procedure(s), temperatures, estimated moisture content, etc., as appropriate.

See following page for modifications to harvested crop. JL 8/31/15

CHECK ALL PROCEDURES USED TO PREVENT CONTAMINATION OF RESIDUE SAMPLES

- ✓ UNCONTAMINATED GLOVES WORN AND CHANGED BETWEEN SAMPLES
- ___ TREATMENTS WERE SAMPLED BY DIFFERENT PEOPLE
- ✓ PHYSICALLY SEPARATED TREATED AND UNTREATED SAMPLES
- ✓ CLEANED SAMPLING EQUIPMENT BETWEEN COLLECTIONS OF EACH TREATMENT
- ✓ OTHER, EXPLAIN: Cleaned lopers with soap + water between each sample. Cleaned tarp-lined table with wet paper towels, then dried, between each sample.

DESCRIBE HOLDING AND TRANSPORT OF SAMPLES FROM FIELD TO FREEZER

(E.g. Sample bags placed in cooler with blue ice, then transported by pickup truck to research center for pitting. Following pit removal, sample bags were hand-carried to freezer.)

Green mesh bags containing stover were placed into new trash bags and then transported to the field lab at the Univ. of Hawaii in the cab of the pick-up truck. Separate trash bags were used for each treatment.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/31/15

PART 7. A.2

MODIFICATIONS TO THE HARVESTED CROP

For each sample, 12 corn stalks were placed on a clean tarp-lined table. To reduce gross sample size, the plants were separated into 3 groups of 4 plants each. Corn ears were removed by hand and discarded. Each plant was divided into 3 approximately equal lengths with leaves attached using clean lopers. Bottom portions were selected from one group, middle portions were selected from the next group and top portions were selected from the last group. The remaining plant portions were discarded. James and I removed the corn ears. James measured the portions and I cut the plants.

The selected plant portions were placed into green mesh plastic bags and tied shut. The green mesh bag was labeled with the Sample ID and then the duplicate samples from each treatment were placed into a new plastic trash bag and tied shut. The bags were transported to the University of Hawaii field lab in the cab of the pick-up truck.

Upon arrival at the field lab, the sample bags were removed from the plastic trash bags, weighed on the field balance, and the weights recorded. The weights included the green mesh bags. The samples were weighed in ascending order from TRT 01 to TRT 03. A tray was used on the balance to support the bags. The tray was washed with soap and water, rinsed and dried, between each sample. The TRT 02 samples O and P, and TRT 03 samples Q and R were placed on separate shelves in the drying oven located in the Field Lab (St. John, Rm. 006) at 2:40 pm. The TRT 01 samples M and N were placed into a drying oven located in St. John, Rm. 112 at 4:05 pm. Both ovens were set at 35°C with airflow setting at 8. Hobo temperature recorders were placed into each oven to record the drying temperatures.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 8/31/15

Samples were dried to within the target weight ranges calculated in the Stover Target Weights Table. During the drying process, samples were removed from the oven periodically to check the weight. When each stover sample was dried to the appropriate target weight, the bags were removed individually from the oven and weighed, and the weight recorded. The stover was removed from the green mesh bag and cut into smaller pieces so that it would fit in the sample bag. The stover was cut on a clean counter using clean pruning shears. The stover pieces were placed into a labeled IR-4 sample bag then into the lab freezer, RF-17. The final sample weights were calculated by subtracting the bag weight from the weight recorded.

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 9/9/15

STOVER HARVEST

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin





JC 8/31/15

STOVER HARVEST

Field stage at stover sample collection

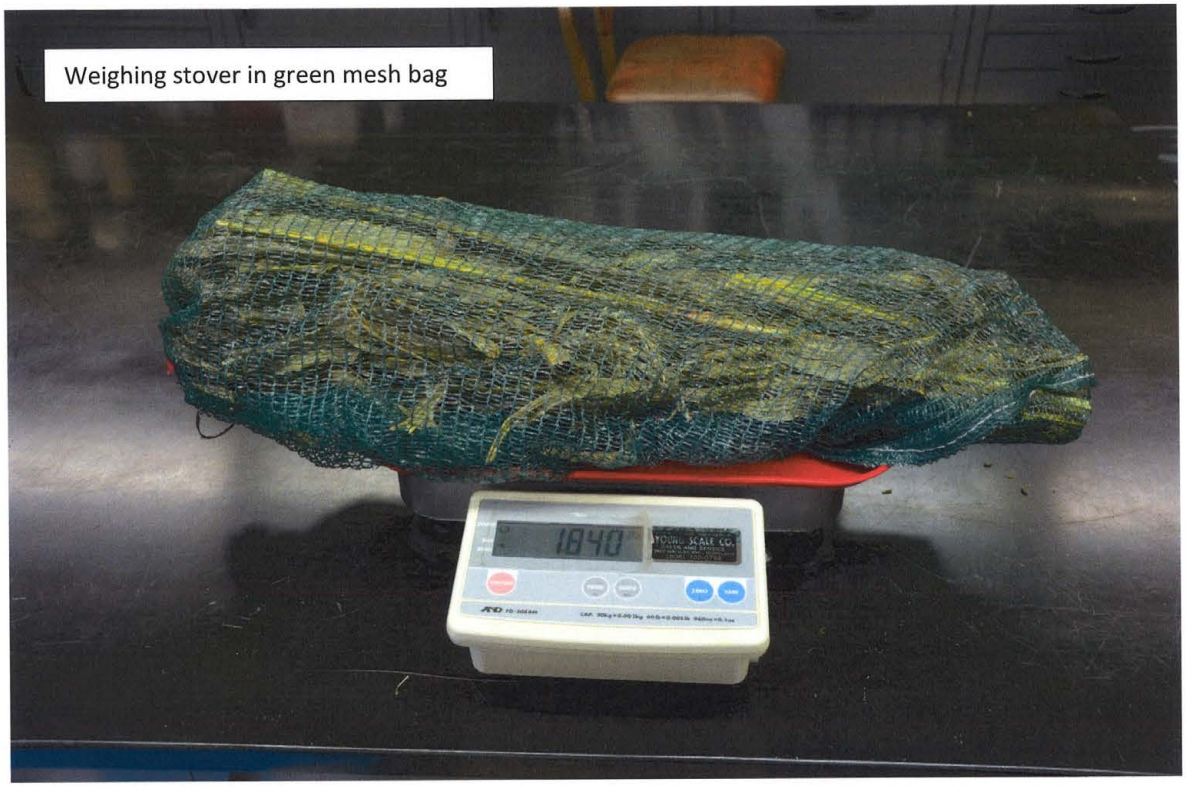


Stover samples in plastic trash bags



JC 8/31/15

STOVER DRYING





gc 8/31/15

STOVER HARVEST TABLE

SAMPLE ID	DATE/TIME HARVESTED	WET WEIGHT W/BAG (LBS)	TIME SAMPLE PLACED INTO OVEN	OVEN LOCATION
M	8/31/15 10:40 am	1.335	4:05 pm	St. John, Rm 112
N	8/31/15 10:55 am	1.420	4:05 pm	St. John, Rm 112
O	8/31/15 11:35 am	2.105	3:00 pm	St. John, Rm. 006
P	8/31/15 11:45 am	2.290	3:00 pm	St. John, Rm. 006
Q	8/31/15 12:15 pm	2.585	3:00 pm	St. John, Rm. 006
R	8/31/15 12:25 pm	2.275	3:00 pm	St. John, Rm. 006

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 8/31/15

JC 10/16/15

STOVER TARGET WEIGHTS TABLE

SAMPLE ID	WET WEIGHT W/BAG (LBS)	BAG WEIGHT (LBS)	WET WEIGHT W/O BAG (LBS)	% DRY MATTER[1]	15% MOISTURE TARGET WEIGHT W/O BAG (LBS)[2]	20% MOISTURE TARGET WEIGHT W/O BAG (LBS)[3]	15% MOISTURE TARGET WEIGHT W/BAG (LBS)	20% MOISTURE TARGET WEIGHT W/BAG (LBS)
M	1.335	0.125	1.210	0.3300	0.470	0.499	0.595	0.624
N	1.420	0.125	1.295	0.3300	0.503	0.534	0.628	0.659
O	2.105	0.125	1.980	0.3300	0.769	0.817	0.894	0.942
P	2.290	0.125	2.165	0.3300	0.841	0.893	0.966	1.018
Q	2.585	0.125	2.460	0.3300	0.955	1.015	1.080	1.140
R	2.275	0.125	2.150	0.3300	0.835	0.887	0.960	1.012

[1] % Dry Matter estimation from pre-sample calculations.

[2] Target dry weight (85%) = (% dry matter X wet wt of sample) ÷ dry matter in final product (.85)

[3] Target dry weight (80%) = (% dry matter X wet wt of sample) ÷ dry matter in final product (.80)

8/31/15

ABOVE DATA ENTERED BY: Julie Coughlin DATE: 8/31/15

Final Stover Sample Weights and % Moisture

Sample ID	Wet wt w/o bag (lbs)	Final dry wt w/bag (lbs)	Final dry wt w/o bag[1] (lbs)	Dry wt (Wet wt w/o bag x % dry matter calc. from pre-sampling)	% Moisture (Final dry wt w/o bag - Dry wt) ÷ Final dry wt w/o bag x 100	Meets Protocol 15% -20% moisture content?
M	1.210	0.620	0.495	0.3993 lbs	19.33	Yes
N	1.295	0.640	0.515	0.4274 lbs.	17.01	Yes
O	1.980	0.940	0.815	0.6534 lbs.	19.83	Yes
P	2.165	1.010	0.885	0.7145 lbs.	19.27	Yes
Q	2.460	1.105	0.980	0.8118 lbs.	17.16	Yes
R	2.150	0.985	0.860	0.7095 lbs.	17.50	Yes
Initials/Date	JC 9/9/15					

[1] Bag Weight = 0.125 lbs

Comments:

% dry matter calculated from pre-sampling = 33.00%

ABOVE DATA ENTERED BY: Jillie Coughlin DATE: 9/9/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 6

Equipment type: Precision Oven (Freas) Model no.: 645 Serial no.: 605628-36

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
8/7/15 gc	U	11270.14-HI196		gc 8/7/15	Y	Removed sample O at 9:25 am. Removed Sample P at 10:00 am. Samples O and P are TRT 02, Corn Stover samples.
8/7/15 gc	M	11270.14-HI196		gc 8/7/15	Y	Cleaned oven by vacuuming out, then wiping down all surfaces with dilute soapy water, then rinse and dry with paper towels. Oven turned off at 10:10 am.
8/25/15 gc	C	11270.15-HI196	55 °C	54 °C	Y	Calibrated oven using NIST thermometer, S/N N23880. OK. Oven set point = 55°C, Air flow = 8. Left oven on.
8/25/15 gc	U	11270.15-HI196		gc 8/25/15	Y	Put corn stover pre-samples #1, #2, and #3 into oven for drying.
8/31/15 gc	U, M	11270.15-HI196		gc 8/31/15	Y	Remove corn stover pre-samples #1, #2 and #3. Cleaned oven by vacuuming out, then wiping down all surfaces with wet sponge, then dry. Turn oven off.
8/31/15 gc	C	11270.15-HI196	35 °C	35 °C	Y	Calibrate oven using NIST thermometer S/N N23880, OK. Oven set point = 35 °C, air flow = 8. Left oven on.
8/31/15 gc	U	11270.15-HI196		gc 8/31/15	Y	Put corn stover samples, O, P, Q and R into oven to dry.
9/9/15 gc	U	11270.15-HI196		gc 9/9/15	Y	Remove corn stover sample Q from oven at ~~6:55 am~~ 6:20 am. Remove corn stover sample R from oven at ~~7:~~ 6:20 am. TRT 03 samples. (WE) gc 9/9/15

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: _____ INITIALS _____ DATE _____

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 7

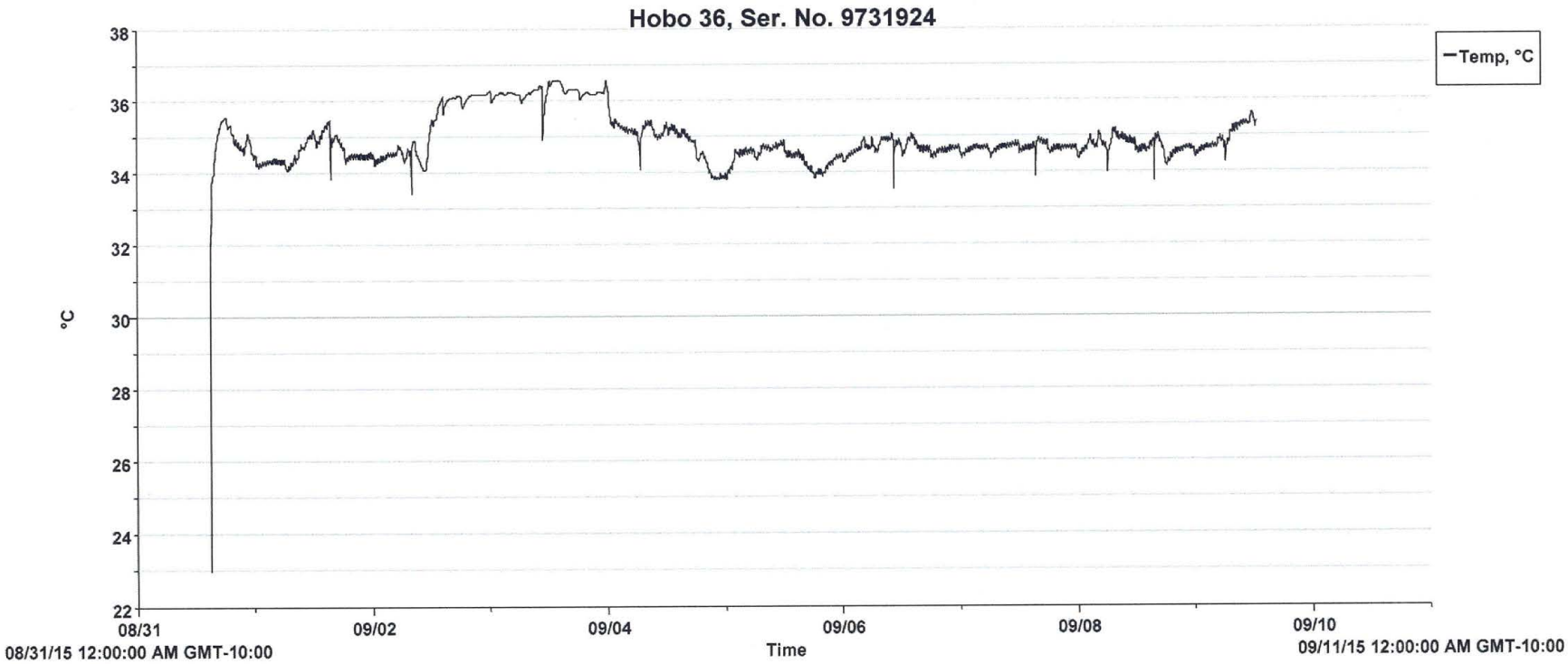
Equipment type: Precision Oven (Freas) Model no.: 645 Serial no.: 605628-36

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
9/9/15 gc	U	11270.15-HI196		gc 9/9/15	Y	Remove corn stover Sample O from oven at 12:00pm. Remove corn stover sample P from oven at 12:20pm. TRT 02 samples. Turned oven off at 12:20pm.
9/9/15 gc	M	11270.15-HI196		gc 9/9/15	Y	Cleaned oven by vacuuming out. Cleaned all surfaces inside oven with dilute soapy water, then rinsed and dried with paper towels.
						gc 10/16/15

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, Precision Oven Log INITIALS gc DATE 10/16/15



Deployment Info

- Launch Description: Hobo 36, Ser. No. 9731924
- Launch Time: 08/31/15 02:58:35 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 2,564
- Max: 36.579
- Min: 22.992
- Avg: 34.907
- Std Dev (σ): 0.701
- First Sample Time: 08/31/15 02:58:36 PM GMT-10:00
- Last Sample Time: 09/09/15 12:33:36 PM GMT-10:00

Oven temperature for Stover samples, TRT 02, Samples O and P, and TRT 03, Samples Q and R.

Oven location = St. John, Rm. 006, Field Lab.

gc 9/9/15

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Equipment type: Precision Oven (Freas) Model no.: 645 Serial no.: 9308-007

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
7/29/15 gc	M	11270.14-HI196		gc 7/29/15	Y	Cleaned oven by wiping out all debris, then washing all surfaces with a wet sponge. Then dry with paper towels.
7/29/15 gc	C	11270.14-HI196	35°C	35°C	Y	Calibrate oven using NIST thermometer, S/N N23880, OK. Oven set point = 35°C, Air flow = 8. Turn off oven.
7/29/15 gc	U	11270.14-HI196		gc 7/29/15	Y	Turn on oven, set temp. to 35°C, air flow set at 8, Put corn stover samples into oven to dry. TRT 01, Samples M and N were placed into oven.
8/7/15 gc	U	11270.14-HI196		gc 8/7/15	Y	Removed TRT 01 corn stover samples M and N from oven at 2:55 pm. Turned off oven at 3:00 pm.
8/7/15 gc	M	11270.14-HI196		gc 8/7/15	Y	Cleaned oven by wiping out all debris with a damp paper towel, then washing all surfaces and shelves with a wet sponge, then dry with paper towels.
8/31/15 gc	U	11270.15-HI196			Y	Turned on oven to use to dry stover samples M+N. The oven turned on, but the controller did not work. The controller would not light up and the oven would
〃	〃	〃		gc 8/31/15	〃	not heat. I unplugged the oven, then plugged back in, but the controller still did not work. Will call the manufacturer for advice on parts and repair.
〃	〃	〃			〃	Will borrow Skip Bittenbinders oven to dry stover samples M+N.

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, Precision Oven Log INITIALS gc DATE 10/16/15

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 1

Equipment type: Precision Oven (Freas) Model no.: 645 Serial no.: Borrowed Oven from: Dr. Skip Bittenbender JC 8/31/15

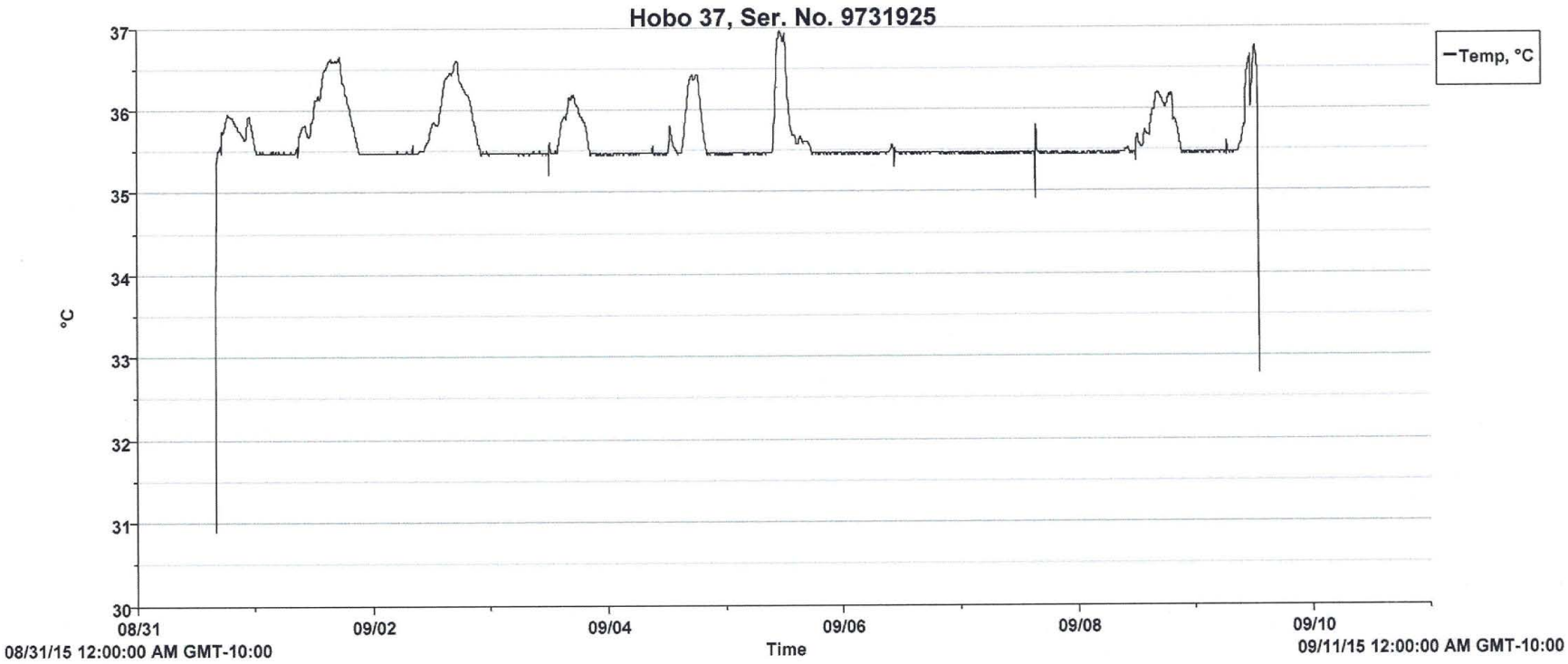
Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
8/31/15 JC	M	11270.15-HI196			Y	Our oven is not working, so I borrowed Skip Bittenbender oven located in St. John, Room 112. I will use this oven to dry the TRT 01 stover samples. Oven was cleaned
" "	"	"		JC 8/31/15	Y	by vacuuming out, then wiping all surfaces with dilute soapy water, then rinse and dry with paper towels.
8/31/15 JC	C	11270.15-HI196	35°C	35°C	Y	Turn on oven and set temperature to 35°C and airflow to 8. Wait 15 mins. Then calibrate using NIST thermometer, S/N N23880. OK.
8/31/15 JC	U	11270.15-HI196		JC 8/31/15	Y	Put TRT 01, Stover samples M and N into oven to dry.
9/9/15 JC	U	11270.15-HI196		JC 9/9/15	Y	Removed TRT 01, Stover samples M and N. Samples were removed from oven at 1:00 pm. Turned off oven at 1:00 pm. after removing samples.
9/9/15 JC	M	11270.15-HI196		JC 9/9/15	Y	Cleaned oven by sweeping out any corn stover pieces, then wiping all surfaces with dilute soapy water, followed by rinsing with damp sponge, then dry with paper towels.
						JC 10/16/15

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin



Deployment Info

- Launch Description: Hobo 37, Ser. No. 9731925
- Launch Time: 08/31/15 04:00:51 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 2,557
- Max: 36.960
- Min: 30.900
- Avg: 35.629
- Std Dev (σ): 0.334
- First Sample Time: 08/31/15 04:04:42 PM GMT-10:00
- Last Sample Time: 09/09/15 01:04:42 PM GMT-10:00

Oven temperature for Stover samples, TRT 01, Samples M and N.

Oven location = St. John, Rm 112.

JC 9/9/15

PART 7. SAMPLE COLLECTION AND STORAGE

B. SPECIFIC SAMPLE INFORMATION AND INVENTORY

INSTRUCTIONS: Complete this form ***or*** *provide equivalent information.* **USE A SEPARATE PAGE FOR EACH SAMPLE DATE.** *Enter the date the individual samples were collected (***do not enter the harvest date when this date is different from sample date***), the sample ID (see protocol Section 18 for Sample ID code), a brief description of the crop part sampled (e.g. turnip roots, turnip tops, tomato fruit, corn forage etc.,), the weight of the sample, the approximate time of day of* **completion of each sample collection–i.e., sample placed in sample bag following any modifications** *(e.g., 10:15 a.m.), the approximate time of day that each sample was placed in a freezer, the approximate time interval between completion of collection of each sample (***placement of the sample in sample bag***) and the placement of the sample in freezer (e.g., 45 minutes), the identification code of the freezer where the samples are stored, and the initials of the person providing the above information and the date it is entered on this form.*

SAMPLE COLLECTION DATE: 9/9/15

SAMPLE ID*	CROP FRACTION	WEIGHT (INCLUDE UNITS)	APPROXIMATE TIME OF DAY OF COMPLETION OF SAMPLE COLLECTION ①	APPROXIMATE TIME OF DAY THAT SAMPLE WAS PLACED IN FREEZER	APPROXIMATE ELAPSED TIME TO FREEZER FROM SAMPLE COLLECTION	FREEZER ID	INITIALS & DATE
M	Stover	0.495 lbs.	1:00 pm	1:40 pm	40 mins.	RF-17	JC 9/9/15
N	Stover	0.515 lbs.	1:00 pm	1:55 pm	55 mins.	RF-17	JC 9/9/15
O	Stover	0.815 lbs	12:00 pm	12:15 pm	15 mins.	RF-17	JC 9/9/15
P	Stover	0.885 lbs	12:20 pm	12:35 pm	15 mins.	RF-17	JC 9/9/15
Q	Stover	0.980 lbs	6:20 am	6:55 am	35 mins.	RF-17	JC 9/9/15
R	Stover	0.860 lbs.	6:20 am	7:05 am	45 mins.	RF-17	JC 9/9/15
① Time of day that sample was removed from drying oven.							
						JC	10/16/15

* See Protocol Section 18 for assigned Sample ID code

Was a GLP-maintained scale used to determine weight of residue samples? YES____ NO ✓

CROP DESTRUCT: Please describe in Part 5I of this Field Data Book how the (leftover) treated crop has been destroyed or handled in such a way that it cannot be consumed as a human food or animal feed.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/9/15

PART 7. SAMPLE COLLECTION AND STORAGE

C. FREEZER TEMPERATURE LOG

INSTRUCTIONS: Use this (or an equivalent) form when freezer temperatures are taken manually. For each day that temperatures are taken, directly record the date, the minimum and maximum temperature, the degree units (°F or °C), and provide the initials of the person entering the data. Photocopy this form if space for more freezer records is needed. When temperature records are monitored automatically, the original or certified true copy of the output (disk from data logger, computer printout, etc.) must be placed in this Field Data Book.

UNIQUE IDENTIFIER FOR FREEZER: RF-17
Enter Freezer ID—may be make/model/serial# or assigned identifier.

UNIQUE IDENTIFIER FOR FREEZER TEMPERATURE RECORDER: Hobo # 40
Enter Freezer Temperature Recorder ID—may be make/model/serial# or assigned identifier.

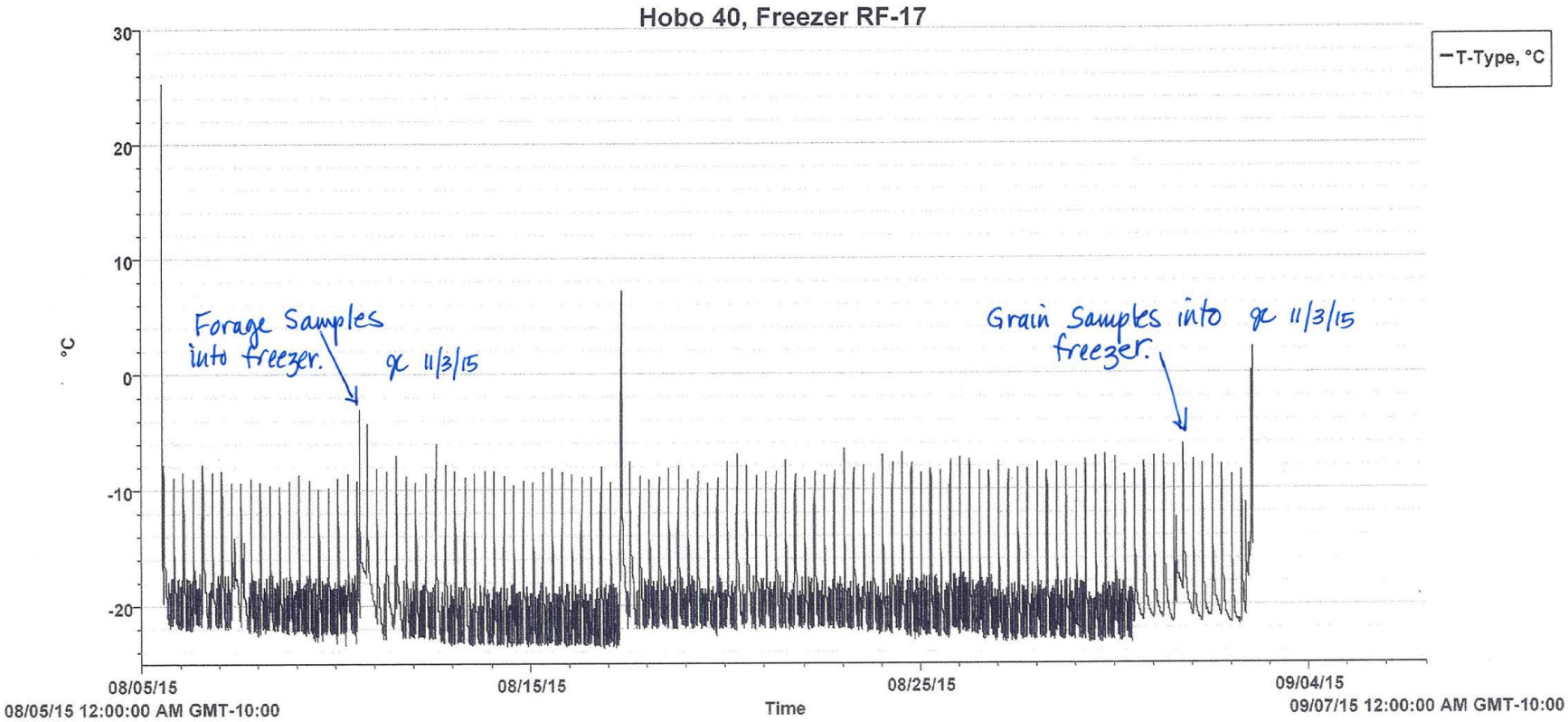
DATE	TEMP MIN/MAX	INITIALS	DATE	TEMP. MIN/MAX	INITIALS	DATE	TEMP MIN/MAX	INITIALS

See following pages for freezer temperature charts.
JC 11/3/15

Unless otherwise noted in the table above, all temperature units are in (*Check one*):

°C ✓ °F ___ JC (Initials) 11/3/15 (Date)

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____



Deployment Info

- Launch Description: Hobo 40, Freezer RF-17
- Launch Time: 08/05/15 01:20:34 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

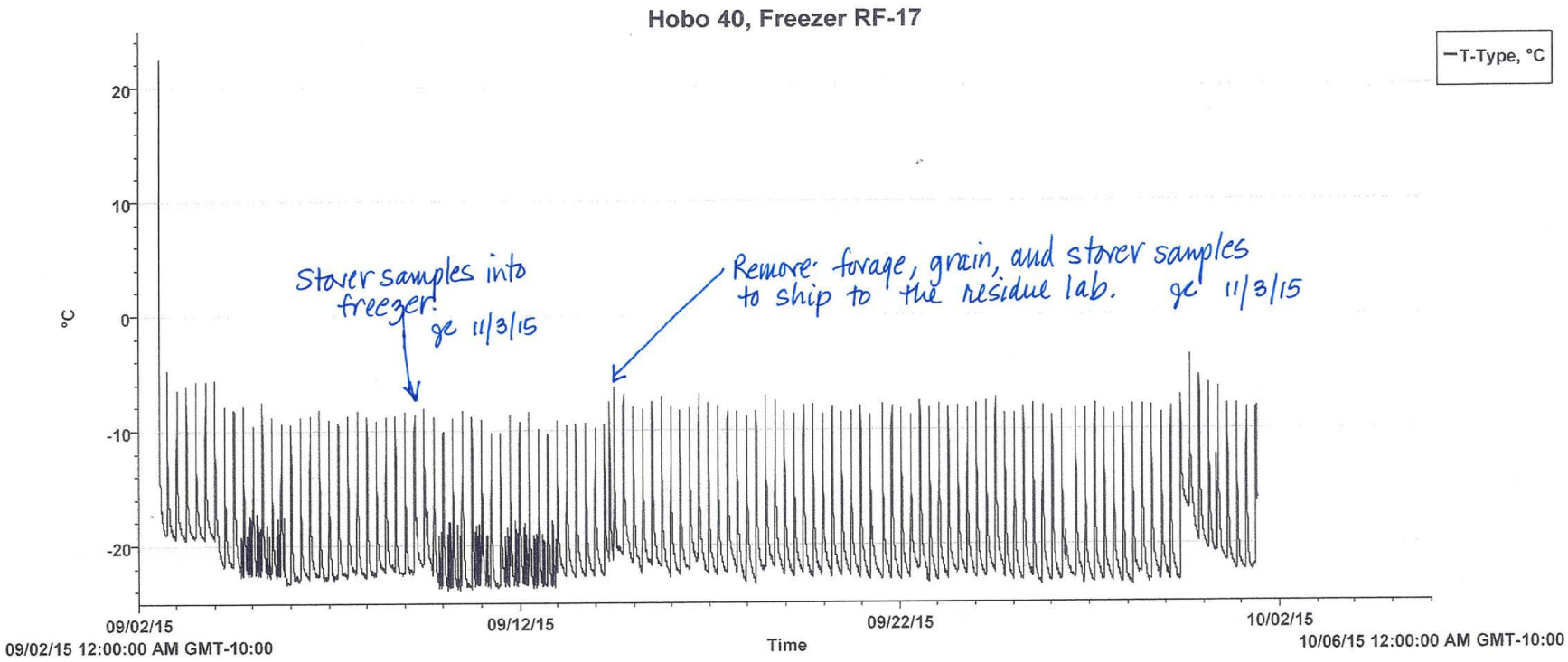
Series Statistics

- Samples: 8,069
- Max: 25.24
- Min: -23.67
- Avg: -19.68
- Std Dev (σ): 3.31
- First Sample Time: 08/05/15 01:20:35 PM GMT-10:00
- Last Sample Time: 09/02/15 01:40:35 PM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, RF-17 Log
location of original
qc 11/3/15
verified by/date

qc 9/2/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin



Deployment Info

- Launch Description: Hobo 40, Freezer RF-17
- Launch Time: 09/02/15 01:45:48 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 8,311
- Max: 22.61
- Min: -23.97
- Avg: -20.11
- Std Dev (σ): 3.41
- First Sample Time: 09/02/15 01:45:49 PM GMT-10:00
- Last Sample Time: 10/01/15 10:15:49 AM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, RF-17 Log
location of original
jc 11/3/15
verified by/date

jc 10/1/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

FIELD ID NO:

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE

D. FREEZER CONTENTS LOG

INSTRUCTIONS: Use this (or an equivalent) form to record the movement of residue samples in and out of the freezer. Note the trial ID # (e.g., 06788.99-CA45), "contents" (e.g. treated peppers), the day and time it entered the freezer and the initials of the person putting the samples into the freezer. Also note the date and time the same samples are removed from the freezer and the initials of the person removing the samples from the freezer.

UNIQUE IDENTIFIER FOR FREEZER: RF-17 JC 11/3/15
Enter Freezer ID—may be make/model/serial# or assigned identifier.

TRIAL ID#	CONTENTS	DAY/TIME IN	INITIALS	DAY/TIME OUT	INITIALS

See following pages for Freezer Contents Log.

JC 11/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

FREEZER STORAGE LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 37

Equipment type: Master-Bilt Freezer Model no.: TAF-48HD Serial no.: RF-17 (S/N 052786 KZ01)

PR #	Date In & Initials	# of Containers	Description	Date Out & Initials	Description
11270.15 -HI196	8/10/15 3:20 pm JC	Six (6) IR-4 Sample Bags	Imidacloprid/Corn (seed crop) TRT 01, Forage Samples A+B TRT 02, Forage Samples C+D TRT 03, Forage Samples E+F	9/14/15 9:00 am JC	Removed 6 sample bags, Samples A,B,C,D,E,F, to ship to the residue lab in Wapato, WA.
11270.15 -HI196	8/31/15 2:15 pm JC	Six (6) IR-4 Sample Bags	Imidacloprid/Corn (seed crop) TRT 01, Grain Samples G+H TRT 02, Grain Samples I+J TRT 03, Grain Samples K+L	9/14/15 9:00 am JC	Removed 6 sample bags, Samples G,H,I,J,K+L, to ship to the residue lab in Wapato, WA.
11270.15 - HI196	9/9/15 6:55 am JC	One (1) IR-4 Sample Bag	Imidacloprid/Corn (seed crop) TRT 03, Sample Q, Stover	9/14/15 9:00 am JC	Removed 1 sample bag, Sample Q, to ship to the residue lab in Wapato, WA.
11270.15 - HI196	9/9/15 7:05 am JC	One (1) IR-4 Sample Bag	Imidacloprid/Corn (seed crop) TRT 03, Sample R, Stover	9/14/15 9:00 am JC	Removed 1 sample bag, Sample R, to ship to the residue lab in Wapato, WA.
11270.15 - HI196	9/9/15 12:15 pm JC	One (1) IR-4 Sample Bag	Imidacloprid/Corn (seed crop) TRT 02, Sample O, Stover	9/14/15 9:00 am JC	Removed 1 sample bag, Sample O, to ship to the residue lab in Wapato, WA.

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, RF-17 Freezer Log INITIALS JC DATE 11/3/15

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

FREEZER STORAGE LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 38

Equipment type: Master-Bilt Freezer Model no.: TAF-48HD Serial no.: RF-17 (S/N 052786 KZ01)

PR #	Date In & Initials	# of Containers	Description	Date Out & Initials	Description
11270.15-HI196	9/9/15 12:35 pm JC	One (1) IR-4 Sample Bag	Imidacloprid / Corn (seed crop) TRT 02, Sample P, Storer	9/14/15 9:00 am JC	Removed 1 sample bag, Sample P, to ship to the residue lab in Wapato, WA.
11270.15-HI196	9/9/15 1:40 pm JC	One (1) IR-4 Sample Bag	Imidacloprid / Corn (seed crop) TRT 01, Sample M, Storer	9/14/15 9:00 am JC	Removed 1 sample bag, Sample M, to ship to the residue lab in Wapato, WA.
11270.15-HI196	9/9/15 1:55 pm JC	One (1) IR-4 Sample Bag	Imidacloprid / Corn (seed crop) TRT 01, Sample N, Storer	9/14/15 9:00 am JC	Removed 1 sample bag, Sample N, to ship to the residue lab in Wapato, WA.
11514.15-HI204	9/29/15 9:35 am JC	Four (4) IR-4 Sample Bags	Spinetoram / Dragon Fruit TRT 01, Samples A + B TRT 02, Samples C + D	10/13/15 8:15 am JC	Removed 4 sample bags, Samples A, B, C + D, to ship to the residue lab in Gainesville, FL.
					JC 11/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, RF-17 Freezer Log INITIALS JC DATE 11/3/15

FIELD ID NO: Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PART 7. SAMPLE COLLECTION AND STORAGE

E. FREEZER MAINTENANCE AND REPAIR LOG

INSTRUCTIONS: Complete this form or provide equivalent information. Provide dates and a brief description of maintenance and repair work completed on the freezers relevant to this trial. Be sure to date and initial all entries.

UNIQUE IDENTIFIER FOR FREEZER: RF-17
Enter Freezer ID—may be make/model/serial# or assigned identifier.

RECORD DATES AND BRIEF DESCRIPTION OF ANY CALIBRATION, MAINTENANCE AND REPAIR WORK DONE ON FREEZER.

ALSO RECORD SOP# FOLLOWED, IF APPLICABLE: SOP# 5-16.1

Initials and Date	Was Maintenance or Repair routine? (Check one)		Description
	Routine	Non-Routine	

See following pages for Freezer Maintenance Log.
JK 11/3/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

Page No.: 13

Equipment type: Master-Bilt Freezer Model no.: TAF-48HD Serial no.: RF-17 (S/N 052786 KZ01)

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
4/9/15 JC	N/A	N/A			Y	On 3/16/15, I replaced the Hobo temperature recorder in this freezer with a newer model. Hobo #26 was retired and replaced with Hobo #40. The back-up Hobo was replaced also. Hobo #27 was replaced with Hobo #41. Loggers were programmed to record temp. at 5 min. intervals.
		JC 4/9/15		JC 4/9/15		
6/29/15 JC	R	N/A			Y	At approximately 1:30 pm, the freezer alarm high limit sounded. I checked the freezer and the temperature was high, above 15°F. The air conditioning was off in the building and I called facilities to see what the status was. They are working on restoring the AC, but can't tell me anything else. The lab was very hot. The freezer was not cooling properly and it seemed that the doors were not sealing correctly. I transferred the guava samples to freezer RF-16 located in another building (Sherman 225). See storage log for details. After sample transfer, I shut the freezer down and disabled the sinsaphone alarm system for this freezer. I scheduled freezer repair service for tomorrow morning. (Freezer was shut down at 2:40 pm).
				JC 6/29/15		
6/30/15	R, M	N/A		JC 6/30/15	Y	Greg from Robert's refrigeration came and checked the freezer. He checked all pressures, refrigerant, seals. They were OK. He cleaned the compressor coils. He said the problem

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, RF-17 Freezer Log INITIALS JC DATE 11/3/15

EQUIPMENT USE, CALIBRATION, MAINTENANCE, AND REPAIR LOG

Department of Plant and Environmental Protection Sciences
University of Hawaii at Manoa

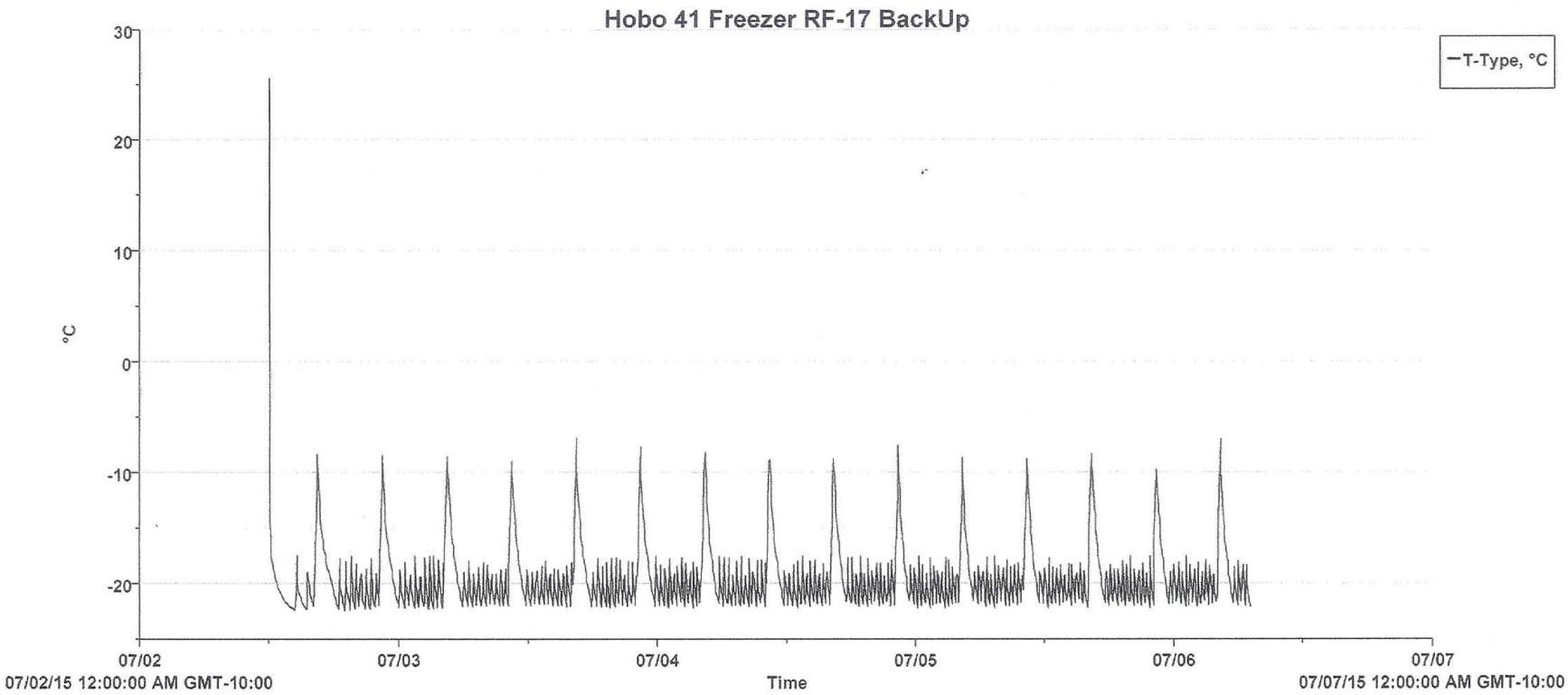
Equipment type: Master-Bilt Freezer Model no.: TAF-48HD Serial no.: RF-17 (S/N 052786 KZ01)

Date and Initials	Activity Performed①	Project No. (if any)	If activity = C, expected measurement②	If activity = C, actual measurement②	SOP followed? (Y, N, N/A)	Comments (for repair, indicate how & when discovered, nature of defect, and any remedial action taken)
6/30/15 JC	R, M	N/A			Y	is probably the ambient air around the freezer is too hot so the freezer can't cool. We set up a fan to blow air away from compressor. The air conditioning in
↓	↓	↓		JC 6/30/15	↓	the building has been restored, but the room has not cooled down completely. We will wait overnight to see if freezer cools down to set point.
7/1/15 JC	R, M	N/A		JC 7/1/15	Y	Freezer cooled but was not staying at set point of -5°F (-20.5°C). It was cooling to about 0°F, so we lowered the set point temp. to -15°F. Let run ~~overnight~~
↓	↓	↓		JC 7/1/15	↓	(AW) JC 7/1/15 overnight.
7/2/15 JC	NA	NA		JC 7/2/15	Y	Downloaded Hobo chart. Freezer is too cold now, running at a low of -25°C. I raised the set point to -10°F and will run the freezer over the weekend.
7/6/15 JC	N/A	N/A			Y	Downloaded Hobo #41 (back-up Hobo) and checked freezer temps. Freezer is running at an average -19.49°C. The freezer is cycling consistently and
↓	↓	↓		JC 7/6/15	↓	temp. and operation are good. I will leave the freezer controller set point at -10°F. See Hobo #41 chart following this page. Freezer is OK for use now.

① All activities are routine unless otherwise indicated:
C = calibration/standardization, **U** = use, **M** = maintenance, **R** = repair (all repairs are non-routine)
② Specify measurement unit (*e.g.*, g, mL, lb, gal, *etc.*), if applicable

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"

THE ORIGINAL IS LOCATED: University of Hawaii, Field Lab, RF-17 Freezer Log INITIALS JC DATE 11/3/15



Deployment Info

- Launch Description: Hobo 41 Freezer RF-17 BackUp
- Launch Time: 07/02/15 12:04:08 PM GMT-10:00
- Logging Interval: 00 Hr 05 Min 00 Sec

Series Statistics

- Samples: 1,093
- Max: 25.45
- Min: -22.52
- Avg: -19.49
- Std Dev (σ): 3.21
- First Sample Time: 07/02/15 12:04:09 PM GMT-10:00
- Last Sample Time: 07/06/15 07:04:09 AM GMT-10:00

VERIFIED EXACT COPY
Univ. of HI, RF-17 log
location of original
JC 11/3/15
verified by/date

JC 7/6/15
WE JC 7/6/15

Sample Shipping
Part 8

FIELD ID NO: Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PART 8. RESIDUE SAMPLE SHIPPING

A. RESIDUE SAMPLE SHIPPING INFORMATION

INSTRUCTIONS: Complete this form for each sample shipment. ***Fax, mail, or email a true copy to the Study Director and to your Regional Field Coordinator (along with 8B).*** *Retain the original in the Field Data Book.*

WERE SAMPLES KEPT FROZEN[1] FROM SAMPLE COLLECTION DATE TO SHIPMENT? *(Check one)* YES ✓ NO ____

[1] *"Kept frozen" indicates storage at temperatures generally <0 °F (-18 °C).*

IF NO, PLEASE EXPLAIN: ____

JC 9/14/15

DATE RESIDUE SAMPLES PACKAGED: 9/14/15 TIME: 9:35 AM ✓ PM ___ *(Check one)*

DESCRIBE PROCEDURES UTILIZED TO PACKAGE SAMPLES:

See following page for packaging procedure.

JC 9/14/15

METHOD OF SHIPMENT *(Check one)* OVERNIGHT AIR EXPRESS ✓ FREEZER TRUCK ____

OTHER ____ *(Describe)*: ____

DATE SAMPLES GIVEN TO CARRIER: 9/14/15 TIME: 11:30 AM ✓ PM ___ *(Check one)*

NAME OF CARRIER Federal Express

Were the Chain of Custody Form (8B) and the Sample Arrival Check Sheet (8C) sent with the samples? YES ✓ NO ___

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/14/15

INSERT THE ORIGINAL OR VERIFIED TRUE COPY OF THE BILL OF LADING (WAY BILL) INTO THIS FIELD DATA BOOK AFTER THIS PAGE

****

SHIPPING ADDRESS (include the name of the person to whom the samples are being sent):

T. Todd Wixson, USDA-ARS
Fruit and Vegetable Insect Research
5230 Konnowac Pass Rd.
Wapato, WA 98951-9651

NAME OF PERSON CONTACTED AT LAB REGARDING SHIPMENT: Todd Wixson

DATE OF CONTACT: 8/17/15 TIME: 2:17 AM ___ PM ✓ *(Check one)*

METHOD OF CONTACT *(e.g., telephone)*: e-mail

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/14/15

Total number of pages in this section at initial pagination: 17

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. ____ INITIALS ____ DATE ____

PROCEDURE UTILIZED TO PACKAGE SAMPLES:

On , Sept. 14, 2015, I shipped corn samples A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q & R from Imidacloprid/Corn trial, IR-4 PR #11270.15-HI196, to the residue lab at the USDA-ARS facility in Wapato, WA.

I removed 18 sample bags of corn from the University of Hawaii Laboratory freezer (RF-17) at 9:00 am. I placed TRT 01 samples A, B, M, and N into one clean cooler. I placed TRT 02 samples C, D, O & P into another clean cooler. I placed TRT 03 samples E & F into one clean cooler and TRT 03 Samples Q & R into another clean cooler. I placed TRT 02 and TRT 03 samples I, J, K & L into a clean cooler. I placed TRT 01 samples G & H into another clean cooler. Four (4) blocks of blue ice were added to each cooler to keep samples frozen. The coolers were transported in the bed of a pick-up truck to USDA-APHIS for inspection, and the samples were packaged there. The sample bags were packed in a new styrofoam box with dry ice, then taped shut and placed into a new fitted cardboard box and sealed with tape. A sample chain of custody form (Part 8B) and a sample arrival check sheet (Part 8C) were added to each box before sealing. Seven (7) boxes were packed in the following order:

Box 1--TRT 01, Samples A & B, Forage, with 28 kg dry ice.
Box 2--TRT 01, Samples M & N, Stover, with 28 kg dry ice.
Box 3--TRT 01, Samples G & H; TRT 02, Samples I & J; TRT 03, Samples K & L; Grain, with 28 kg dry ice. (Note: TRT's 01, 02 and 03 were overbagged with plastic trash bags to separate treatments in the shipping box).
Box 4—TRT 02, Samples C & D, Forage, with 28 kg dry ice.
Box 5—TRT 02, Samples O & P, Stover, with 28 kg dry ice.
Box 6—TRT 03, Samples E & F, Forage, with 28 kg dry ice.
Box 7—TRT 03, Samples Q & R, Stover, with 28 kg dry ice.

The sample boxes were taken to the Federal Express terminal and accepted for shipment at 11:30 am.

JC 9/14/15

JC 9/14/15

ORIGIN ID:HIKA (808) 956-2003
JULIE COUGHLIN

UNIVERSITY OF HAWAII AT MANOA
3190 MAILE WAY, ST. JOHN, RM 307
HONOLULU, HI 96822
UNITED STATES US

SHIP DATE: 14SEP15
ACTWGT: 70.00 LB
CAD: 100837865/INET3670
DIMS: 28x14x13 IN
DRY ICE: 27.73 KG
BILL THIRD PARTY

TO **TODD WIXSON**

5230 KONNOWAC PASS RD
USDA-ARS FRUIT AND VEG. INSECT RES.
WAPATO WA 98951
(509) 454-6552
INV:
PO:
REF: BOX 1, SAMPLES A & B, FORAGE
DEPT:

539J2/CBB9/31D0

FedEx Express

J1520150Z501ue

WED - 16 SEP 12:00P
PRIORITY OVERNIGHT

TRK# 0201 **7744 9386 9471**

ICE

98951

XH YKMA

WA-US GEG

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

PART 8 PAGE 3

9C 9/14/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

ORIGIN ID:HIKA (808) 956-2003
JULIE COUGHLIN

UNIVERSITY OF HAWAII AT MANOA
3190 MAILE WAY, ST. JOHN, RM 307
HONOLULU, HI 96822
UNITED STATES US

SHIP DATE: 14SEP15
ACTWGT: 70.00 LB
CAD: 100837865/INET3670
DIMS: 28x14x13 IN
DRY ICE: 27.73 KG
BILL THIRD PARTY

TO **TODD WIXSON**

5230 KONNOWAC PASS RD
USDA-ARS FRUIT AND VEG. INSECT RES.
WAPATO WA 98951
(509) 454-6552 REF: BOX 2, SAMPLES M & N, STOVER
INV:
PO: DEPT:

539J2/CBB9/31D0

FedEx Express

E

J15201506260 1uv

WED - 16 SEP 12:00P
PRIORITY OVERNIGHT
ICE
98951
WA-US GEG

TRK# 0201 **7744 9393 9600**

XH YKMA

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

PART 8 PAGE 4

JC 9/14/15

ORIGIN ID:HIKA (808) 956-2003
JULIE COUGHLIN

UNIVERSITY OF HAWAII AT MANOA
3190 MAILE WAY ST. JOHN, RM 307
HONOLULU, HI 96822
UNITED STATES US

SHIP DATE: 14SEP15
ACTWGT: 70.00 LB
CAD: 100837865/INET3670
DIMS: 28x14x13 IN
DRY ICE: 27.73 KG
BILL THIRD PARTY

TO **TODD WIXSON**

5230 KONNOWAC PASS RD
USDA-ARS FRUIT AND VEG. INSECT RES.
WAPATO WA 98951
(509) 454-6552
INV:
PO:
REF: BOX 3, SAMPLES GHIJKL, GRAIN
DEPT:

539J2/CBB9/31D0

FedEx Express

J152015062501ue

WED - 16 SEP 12:00P
PRIORITY OVERNIGHT

TRK# 7744 9401 8096
0201

ICE

XH YKMA

98951
WA-US GEG

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

PART 8 PAGE 5

9c 9/14/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

ORIGIN ID:HIKA (808) 956-2003
JULIE COUGHLIN

UNIVERSITY OF HAWAII AT MANOA
3190 MAILE WAY, ST. JOHN, RM 307
HONOLULU, HI 96822
UNITED STATES US

SHIP DATE: 14SEP15
ACTWGT: 70.00 LB
CAD: 100837865/INET3670
DIMS: 28x14x13 IN
DRY ICE: 27.73 KG
BILL THIRD PARTY

TO **TODD WIXSON**

5230 KONNOWAC PASS RD
USDA-ARS FRUIT AND VEG. INSECT RES.
WAPATO WA 98951

(509) 454-6552 REF: BOX 4, SAMPLES C & D, FORAGE
INV:
PO: DEPT:

539J2/CBB9/31D0

FedEx Express

E

J15201506260 1uv

WED - 16 SEP 12:00P
PRIORITY OVERNIGHT
ICE
98951
WA-US **GEG**

TRK# 0201 **7744 9406 2596**

XH YKMA

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

PART 8 PAGE 6

JC 9/14/15

ORIGIN ID:HIKA (808) 956-2003
JULIE COUGHLIN

UNIVERSITY OF HAWAII AT MANOA
3190 MAILE WAY ST, JOHN, RM 307
HONOLULU, HI 96822
UNITED STATES US

SHIP DATE: 14SEP15
ACTWGT: 70.00 LB
CAD: 100837865/INET3670
DIMS: 28x14x13 IN
DRY ICE: 27.73 KG
BILL THIRD PARTY

TO TODD WIXSON

5230 KONNOWAC PASS RD
USDA-ARS FRUIT AND VEG. INSECT RES.
WAPATO WA 98951
(509) 454-6552
REF: BOX 5, SAMPLES O &P, STOVER
INV:
PO: DEPT:

539J2/CBB9/31D0

FedEx Express

J15201506Z601uv

WED - 16 SEP 12:00P
PRIORITY OVERNIGHT

TRK# 0201 7744 9410 1049

ICE

98951

XH YKMA

WA-US GEG

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

PART 8 PAGE 7

9c 9/14/15

Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

ORIGIN ID:HIKA (808) 956-2003
JULIE COUGHLIN

UNIVERSITY OF HAWAII AT MANOA
3190 MAILE WAY, ST. JOHN, RM 307
HONOLULU, HI 96822
UNITED STATES US

SHIP DATE: 14SEP15
ACTWGT: 70.00 LB
CAD: 100837865/INET3670
DIMS: 28x14x13 IN
DRY ICE: 27.73 KG
BILL THIRD PARTY

TO **TODD WIXSON**

5230 KONNOWAC PASS RD
USDA-ARS FRUIT AND VEG. INSECT RES.
WAPATO WA 98951

(509) 454-6552 REF: BOX 6, SAMPLES E & F, FORAGE
INV:
PO: DEPT:

539J2/CBB9/31D0

FedEx Express

E

J152015062601uv

WED - 16 SEP 12:00P
PRIORITY OVERNIGHT

TRK# 0201 **7744 9413 3846**

ICE
98951
WA-US **GEG**

XH YKMA

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

PART 8 PAGE 8

JC 9/14/15

ORIGIN ID:HIKA (808) 956-2003
JULIE COUGHLIN

UNIVERSITY OF HAWAII AT MANOA
3190 MAILE WAY, ST. JOHN, RM 307
HONOLULU, HI 96822
UNITED STATES US

SHIP DATE: 14SEP15
ACTWGT: 70.00 LB
CAD: 100837865/INET3670
DIMS: 28x14x13 IN
DRY ICE: 27.73 KG
BILL THIRD PARTY

TO **TODD WIXSON**

5230 KONNOWAC PASS RD
USDA-ARS FRUIT AND VEG. INSECT RES.
WAPATO WA 98951
(509) 454-6552
INV:
PO:
REF: BOX 7, SAMPLES, Q & R, STOVER
DEPT:

539J2/CBB9/31D0

FedEx Express

J152015062501uv

WED - 16 SEP 12:00P
PRIORITY OVERNIGHT

TRK# 0201 **7744 9417 5132**

ICE

XH YKMA

98951
WA-US **GEG**

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

PART 8 PAGE 9

9/14/15

Julie Coughlin

From: Wixson, Todd <Todd.Wixson@ARS.USDA.GOV>
Sent: Thursday, May 7, 2015 4:10 AM
To: Julie Coughlin
Subject: RE: IR-4 PR 11270 sample shipment dates

Thank you for the update.

Todd

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Wednesday, May 06, 2015 4:58 PM
To: Wixson, Todd
Subject: IR-4 PR 11270 sample shipment dates

Hi Todd,

I have experienced several delays with the field work for the Imidacloprid/Corn trials. I have tentative sample shipment dates as follows:

PR 11270.14-HI196—07/27/15
PR 11270.15-HI196—08/31/15
PR 11270.15-HI197—02/29/16

I apologize for the delays. These dates may change because I have not started applications yet. I will update you closer to the shipment dates. I hope this works for your lab schedule.

Thanks!

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

JC 5/7/15

Julie Coughlin

From: Wixson, Todd <Todd.Wixson@ARS.USDA.GOV>
Sent: Thursday, July 16, 2015 7:35 AM
To: Julie Coughlin
Subject: RE: Updated sample shipping schedule

I think that should be fine. I will likely be out on 8/19 but my sample receiving person will be here.

Todd

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Thursday, July 16, 2015 10:33 AM
To: Wixson, Todd
Subject: Updated sample shipping schedule

Hi Todd,

I have an updated sample shipping schedule for the IR-4 Imidacloprid/Corn (seed crop) trials as follows:

PR 11270.14-HI196: Sample ship on 8/17/15. Samples will arrive at your lab on 8/19/15.
PR 11270.15-HI196: Sample ship on 9/7/15. Samples will arrive at your lab on 9/9/15.

Please let me know if you are OK with this schedule.

Thanks,

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

JC 7/16/15

Julie Coughlin

From: Julie Coughlin <jcoughli@hawaii.edu>
Sent: Monday, August 17, 2015 2:17 PM
To: Todd Wixson
Subject: Next corn shipment schedule change

Hi Todd,

The next set of corn samples from IR-4 PR # 11270.15-HI196 was scheduled to be shipped to your lab on September 7, 2015. I need to change that date because the 7th is a Holiday. I plan to ship these samples on Sept. 14, 2015, and samples will arrive at your lab on Sept. 16 in the morning.

Will that schedule work for you?

Thanks,

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

JC 8/17/15

Julie Coughlin

From: Wixson, Todd <Todd.Wixson@ARS.USDA.GOV>
Sent: Wednesday, September 9, 2015 9:54 AM
To: Julie Coughlin
Subject: RE: sample shipment

Should be fine.

Mahalo,

Todd

From: Julie Coughlin [mailto:jcoughli@hawaii.edu]
Sent: Wednesday, September 09, 2015 12:52 PM
To: Wixson, Todd <Todd.Wixson@ARS.USDA.GOV>
Subject: sample shipment

Hi Todd,

I am scheduled to ship corn samples from IR-4 PR 11270.15-HI196 next Monday, Sept. 14, 2015. Samples will arrive at your lab on Wednesday, Sept. 16 before noon.

Please let me know if this schedule works for your lab.

Thank You!

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

JC 9/9/15

Julie Coughlin

From: Julie Coughlin <jcoughli@hawaii.edu>
Sent: Tuesday, September 15, 2015 8:32 AM
To: Todd Wixson
Subject: Sample Shipment

Hi Todd,

yesterday (EE) qc 11/3/15

I shipped the following samples to your lab ~~today~~ from IR-4 PR #11270.15-HI196, Imidacloprid/Corn (seed crop):

Box 1, TRT 01, Samples A & B, Forage. FedEx Tracking No.: 7744 9386 9471
Box 2, TRT 01, Samples M & N, Stover. FedEx Tracking No.: 7744 9393 9600
Box 3, TRT 01, 02, 03, Samples G, H, I, J, K, & L, Grain. FedEx Tracking No.: 7744 9401 8096
Box 4, TRT 02, Samples C & D, Forage. FedEx Tracking No.: 7744 9406 2596
Box 5, TRT 02, Samples O & P, Stover. FedEx Tracking No.: 7744 9410 1049
Box 6, TRT 03, Samples E & F, Forage. FedEx Tracking No.: 7744 9413 3846
Box 7, TRT 03, Samples Q & R, Stover. FedEx Tracking No.: 7744 9417 5132

Samples should arrive at your lab on Wednesday, Sept. 16 before 12:00 noon.

Please let me know if you have any problems with this shipment.

Thank You!

Julie Coughlin
University of Hawaii at Manoa
Dept. of Plant and Environmental Protection Sciences
3190 Maile Way, St. John Rm 307
Honolulu, HI 96822
(808) 956-2003
(808) 542-3933 (mobile)

qc 9/15/15

FIELD ID NO: Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PART 8. RESIDUE SAMPLE SHIPPING

B. RESIDUE SAMPLE CHAIN OF CUSTODY FORM

INSTRUCTIONS: Complete this form for each sample shipment. ***Use separate forms if different samples from the same trial are going to different destinations.*** ***Place a true copy within each shipping container and fax, mail, or email a true copy to the Study Director and to your Regional Field Coordinator.*** *Retain the original in the Field Data Book.*

TEST SUBSTANCE Imidacloprid

CROP Corn (seed crop)

Include protocol-specified information such as sour or sweet, small-fruited or large-fruited, processing variety, if applicable.

FIELD RESEARCH DIRECTOR Julie Coughlin

PHONE# (808) 956-2003 FAX# (808) 956-9675

TRIAL LOCATION Dupont Pioneer, Waialua Parent Seed Plant, Waialua, HI

NUMBER OF BOXES SHIPPED 7 TOTAL NUMBER OF SAMPLES SHIPPED 18

DESTINATION (do not enter more than one destination) Todd Wixson, Wapato, WA

CARRIER Federal Express

Sample ID[1]	Treatment/Rate[2]	No. of Applics.	Date of Last Application	Date Harvested	Date Sampled	Crop Fraction[3]	LAB ID (Lab Use only)
A	TRT 01- Untreated	0	N/A	8/10/15	8/10/15	Forage	
B	TRT 01- Untreated	0	N/A	8/10/15	8/10/15	Forage	
C	TRT 02- 0.5 lbs ai/A	1	7/21/15	8/10/15	8/10/15	Forage	
D	TRT 02- 0.5 lbs ai/A	1	7/21/15	8/10/15	8/10/15	Forage	
E	TRT 03- 0.27 lbs ai/A + 0.23 lbs ai/A	4	8/10/15	8/10/15	8/10/15	Forage	
F	TRT 03- 0.27 lbs ai/A + 0.23 lbs ai/A	4	8/10/15	8/10/15	8/10/15	Forage	
G	TRT 01- Untreated	0	N/A	8/31/15	8/31/15	Grain	
H	TRT 01- Untreated	0	N/A	8/31/15	8/31/15	Grain	
I	TRT 02- 0.5 lbs ai/A	1	7/21/15	8/31/15	8/31/15	Grain	
J	TRT 02- 0.5 lbs ai/A	1	7/21/15	8/31/15	8/31/15	Grain	
K	TRT 03- 0.27 lbs ai/A + 0.23 lbs ai/A	4	8/10/15	8/31/15	8/31/15	Grain	
L	TRT 03- 0.27 lbs ai/A + 0.23 lbs ai/A	4	8/10/15	8/31/15	8/31/15	Grain	

[1] *See protocol for assigned ID code under Section 18, Sample ID column*

[2] *Use the rate of the last application if different applications had different rates assigned by the protocol. If there are two active ingredients (a.i.) in the test substance, enter the rate of the a.i. that is to be analyzed for that sample.*

[3] *E.g. fruit, straw, processed apple juice*

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/14/15

****

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 8. RESIDUE SAMPLE SHIPPING (continued)

B. RESIDUE SAMPLE CHAIN OF CUSTODY FORM

INSTRUCTIONS: Complete this form for each sample shipment. ***Use separate forms if different samples from the same trial are going to different destinations.*** ***Place a true copy within each shipping container and fax, mail, or email a true copy to the Study Director and to your Regional Field Coordinator.*** *Retain the original in the Field Data Book.*

TEST SUBSTANCE Imidacloprid

CROP Corn (seed crop)

Include protocol-specified information such as sour or sweet, small-fruited or large-fruited, processing variety, if applicable.

FIELD RESEARCH DIRECTOR Julie Coughlin

PHONE# (808) 956-2003 FAX# (808) 956-9675

TRIAL LOCATION DuPont Pioneer, Waialua Parent Seed Plant, Waialua, HI

NUMBER OF BOXES SHIPPED 7 TOTAL NUMBER OF SAMPLES SHIPPED 18

DESTINATION (do not enter more than one destination) Todd Wixson, Wapato, WA

CARRIER Federal Express

Sample ID[1]	Treatment/Rate[2]	No. of Applics.	Date of Last Application	Date Harvested	Date Sampled	Crop Fraction[3]	LAB ID (Lab Use only)
M	TRT 01- Untreated	0	N/A	8/31/15	9/9/15	Stover	
N	TRT 01- Untreated	0	N/A	8/31/15	9/9/15	Stover	
O	TRT 02- 0.5 lbsai/A	1	7/21/15	8/31/15	9/9/15	Stover	
P	TRT 02- 0.5 lbsai/A	1	7/21/15	8/31/15	9/9/15	Stover	
Q	TRT 03- 0.27 lbsai/A + 0.23 lbsai/A	4	8/10/15	8/31/15	9/9/15	Stover	
R	TRT 03- 0.27 lbsai/A + 0.23 lbsai/A	4	8/10/15	8/31/15	9/9/15	Stover	
					JC	9/14/15	

[1] *See protocol for assigned ID code under Section 18, Sample ID column*

[2] *Use the rate of the last application if different applications had different rates assigned by the protocol. If there are two active ingredients (a.i.) in the test substance, enter the rate of the a.i. that is to be analyzed for that sample.*

[3] *E.g. fruit, straw, processed apple juice*

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/14/15

****

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

IR-4 PROJECT	PART 8C: SAMPLE ARRIVAL CHECK SHEET

Note to Field or Processing Personnel: Place a copy of this blank form inside each of the sample boxes before shipment. If a copy of the completed form is received back from the laboratory prior to completion of the Field Data Book, then insert the form in the appropriate area of Part 8.

This form should be completed by the Laboratory Personnel, unless a similar form kept at the laboratory is used instead. Complete all blanks in this form that apply to these samples. Keep this form and any accompanying shipping forms, such as Federal Express receipts and field cooperator's residue sample shipping forms, in the raw data file for this study. ***Mail, fax, or e-mail a copy to the Field Research Director, the Regional Field Coordinator and the Study Director.*** If multiple boxes from one trial are received, each with a copy of this form, then it is only necessary to complete one form for all of the samples.

Laboratory ID# (from Protocol Part 24 or amendment): 11270.14-YAR02			
Chemical: IMIDACLOPRID		Commodity: CORN	
Field Trial ID# (format is 00000.YY-XX##): 11270.15-HI196			
Shipper: [ ]ACDS [✓]Federal Express [ ]Other:			
Shipping Reference#: SEE E. COMMENTS		# Boxes: 7	
Date Received: 09/16/2015		Rec'd by *(print name)*: STEVEN D. BRANSFORD	

A. CONDITION OF SAMPLES (check all that apply)

[✓]Frozen	[✓]Dry Ice Present	[ ]Fresh, Never Frozen
[ ]Thawed	[✓]Sample Bags Intact	[ ]Sample Bags Not Intact and Contents Mixed

B. FORM OF SAMPLES AS RECEIVED		Matrix (e.g., roots, leaves): FORAGE, GRAIN, STOVER	
[ ] Whole	[ ] Halved or Quartered	[ ] Sliced	[✓] Other:

C. RESIDUE SAMPLE CHAIN OF CUSTODY FORM	Received with Samples: [✓] Yes [ ] No

Please note any apparent missing samples or protocol deviations in Section E.

D. SAMPLE LOG	Project Listed on the Laboratory's Master Schedule: [✓]Yes [ ]No	
Lab Numbers Assigned:	15748-15765	Date: JW 9/16/2015

E. COMMENTS: FEDERAL EXPRESS SHIPPING NUMBERS: BOX 1 - 7744 9386 9471, BOX 2 - 7744 9393 9600, BOX 3 - 7744 9401 8096, BOX 4 - 7744 9406 2596, BOX 5 - 7744 9410 1049, BOX 6 - 7744 9413 3946, BOX 7 - 7744 9417 5132

Signature/Date of person filling out this form:

J. Tock 9/16/2015 Steven D. Bransford 9/16/2015

(Paginate if a copy of the completed form is received from the analytical laboratory.)

Weather & Irrigation
Part 9

FIELD ID NO: Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PART 9. WEATHER AND IRRIGATION RECORDS

A. DAILY FIELD TRIAL WEATHER RECORDS

INSTRUCTIONS: Document field trial weather records by manually collecting information or by providing computer generated records. ***Weather records are required from planting of annual crops or for a minimum of one month prior to the first application onto perennial crops, until last residue sample collection.*** *Weather records that are collected manually must be recorded directly on this (or equivalent) forms daily. Document computer generated weather data by placing the original or true copy of the data printout directly behind this page.* **Whether manually recorded or computer-generated, please indicate the approximate time of day that weather data were collected.** *Be sure to date and initial all entries.*

MONTH _____

Date/Initials	Air Temp. Min/Max	Rainfall	Irrigation	Date/Initials	Air Temp. Min/Max	Rainfall	Irrigation
1 /				17/			
2/				18/			
3/				19/			
4/				20/			
5/				21/			
6/				22/			
7/				23/			
8/				24/			
9/				25/			
10/				26/			
11/				27/			
12/				28/			
13/				29/			
14/				30/			
15/				31/			
16/							

See following pages for weather and irrigation data. JC 10/9/15

TEMPERATURE UNITS: °F ✓ °C ___ *(Check one)* MOISTURE UNITS: **CM** ___ **Inches** ✓ *(Check one)*

APPROXIMATE TIME OF DAY THAT WEATHER DATA WERE COLLECTED 7:00 am

LOCATION AND AFFILIATION OF WEATHER STATION Pioneer Waialua Parent Seed Co.
Provide the location (nearest town) and affiliation (on-site, NOAA, state, etc.) of the weather station(s) from which meteorological data are obtained.

ESTIMATED DISTANCE FROM METEOROLOGICAL STATION TO FIELD TRIAL SITE 2980 ft²

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 10/9/15

Total number of pages in this section at initial pagination: 10

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Imidacloprid/Corn (seed crop)
11270.15-HI196
Coughlin

Pioneer Waialua
Weather Data

Date	Rainfall (inches)	Hi Temp °F	Lo Temp °F
4/1/2015	0.00	88.1	67.6
4/2/2015	0.00	86.5	66.2
4/3/2015	0.00	88.8	66.8
4/4/2015	0.01	87.6	66.8
4/5/2015	0.02	86.3	67.3
4/6/2015	0.00	84.1	62.8
4/7/2015	0.24	81.3	64.4
4/8/2015	0.00	83.5	63.4
4/9/2015	0.00	82.9	64.9
4/10/2015	0.00	84.3	63.5
4/11/2015	0.00	85.8	64.7
4/12/2015	0.00	85.8	64.2
4/13/2015	0.00	84.1	65.1
4/14/2015	0.03	81.9	66.7
4/15/2015	0.00	85.5	65.5
4/16/2015	0.00	86.3	64.1
4/17/2015	0.01	87.0	66.4
4/18/2015	0.00	86.0	64.6
4/19/2015	0.03	84.1	66.7
4/20/2015	0.00	81.7	66.5
4/21/2015	0.03	86.6	65.3
4/22/2015	0.05	89.9	65.9
4/23/2015	0.01	86.3	65.8
4/24/2015	0.04	92.2	67.5
4/25/2015	0.03	88.7	68.5
4/26/2015	0.05	82.5	70.9
4/27/2015	0.01	80.9	69.0
4/28/2015	0.33	80.3	66.3
4/29/2015	0.01	84.9	65.9
4/30/2015	0.00	87.0	65.3
5/1/2015	0.01	86.4	68.3
5/2/2015	0.00	87.6	65.5
5/3/2015	0.00	87.8	65.8
5/4/2015	0.00	89.7	68.4
5/5/2015	0.00	86.6	68.6
5/6/2015	0.01	85.2	67.7
5/7/2015	0.02	85.4	66.9
5/8/2015	0.07	80.9	68.2
5/9/2015	0.01	85.7	68.3
5/10/2015	0.03	84.0	68.1
5/11/2015	0.00	83.9	67.0
5/12/2015	0.00	86.1	67.9
5/13/2015	0.00	86.4	66.6
5/14/2015	0.00	86.4	66.1
5/15/2015	0.00	88.4	65.4
5/16/2015	0.00	87.9	67.5

JC 10/9/15

Pioneer Waialua
Weather Data

Date	Rainfall (inches)	Hi Temp °F	Lo Temp °F
5/17/2015	0.02	84.1	66.9
5/18/2015	0.00	89.7	66.1
5/19/2015	0.00	88.4	66.6
5/20/2015	0.28	81.8	66.7
5/21/2015	0.05	81.7	65.2
5/22/2015	0.04	81.8	68.6
5/23/2015	0.05	80.9	67.4
5/24/2015	0.01	80.2	64.6
5/25/2015	0.00	80.0	63.9
5/26/2015	0.00	81.6	66.6
5/27/2015	0.00	83.7	65.3
5/28/2015	0.02	80.2	67.3
5/29/2015	0.00	84.0	66.1
5/30/2015	0.00	84.3	65.2
6/1/2015	not recorded	not recorded	not recorded
6/2/2015	0.01	89.0	67.1
6/3/2015	0.00	88.3	67.5
6/4/2015	0.01	90.3	70.0
6/5/2015	0.00	84.8	68.6
6/6/2015	0.00	86.5	69.1
6/7/2015	0.00	92.3	68.9
6/8/2015	0.00	90.8	68.9
6/9/2015	0.00	87.9	68.1
6/10/2015	0.00	89.5	67.5
6/11/2015	0.00	88.5	67.9
6/12/2015	0.00	86.6	66.8
6/13/2015	0.00	86.2	66.3
6/14/2015	0.69	89.3	68.1
6/15/2015	0.00	88.0	67.8
6/16/2015	0.00	90.1	67.7
6/17/2015	0.03	89.2	70.1
6/18/2015	0.02	88.9	70.0
6/19/2015	0.00	87.3	71.0
6/20/2015	0.02	88.7	70.7
6/21/2015	0.00	86.9	69.3
6/22/2015	0.00	90.9	69.2
6/23/2015	0.02	88.6	68.9
6/24/2015	0.03	86.3	69.7
6/25/2015	0.00	90.8	68.9
6/26/2015	0.04	89.7	70.3
6/27/2015	0.00	86.5	69.5
6/28/2015	0.09	88.4	70.6
6/29/2015	0.00	85.9	70.2
6/30/2015	0.00	86.9	71.3
7/1/2015	0.00	85.9	70.2
7/2/2015	0.00	87.3	71.8

JC 10/9/15

Pioneer Waialua
Weather Data

Date	Rainfall (inches)	Hi Temp °F	Lo Temp °F
7/3/2015	0.00	89.5	73.2
7/4/2015	0.00	95.7	71.3
7/5/2015	0.00	92.8	69.1
7/6/2015	0.00	91.3	71.3
7/7/2015	0.04	87.8	71.5
7/8/2015	0.01	91.5	71.9
7/9/2015	0.02	91.7	71.8
7/10/2015	0.07	87.6	73.6
7/11/2015	0.13	83.3	73.8
7/12/2015	0.15	84.9	75.7
7/13/2015	0.12	90.2	74.2
7/14/2015	0.02	91.0	72.2
7/15/2015	0.01	92.5	71.8
7/16/2015	0.06	91.8	72.4
7/17/2015	0.01	96.7	74.0
7/18/2015	0.00	90.3	71.8
7/19/2015	0.05	90.3	70.4
7/20/2015	0.00	92.2	70.2
7/21/2015	0.00	93.8	71.7
7/22/2015	0.02	93.1	72.8
7/23/2015	0.00	92.9	71.1
7/24/2015	0.00	93.5	73.0
7/25/2015	0.00	89.8	70.2
7/26/2015	0.00	91.0	72.5
7/27/2015	0.00	92.3	72.0
7/28/2015	0.00	95.8	72.9
7/29/2015	0.00	96.6	73.4
7/30/2015	0.00	95.0	70.9
7/31/2015	0.01	93.9	73.2
8/1/2015	0.00	91.8	73.0
8/2/2015	0.00	92.7	72.0
8/3/2015	0.00	90.8	71.3
8/4/2015	0.00	92.6	71.3
8/5/2015	0.05	93.2	74.3
8/6/2015	0.02	87.9	74.3
8/7/2015	0.04	92.9	73.6
8/8/2015	0.02	91.1	73.9
8/9/2015	0.03	90.9	74.5
8/10/2015	0.00	90.7	72.9
8/11/2015	0.38	86.6	71.5
8/12/2015	0.00	96.1	73.6
8/13/2015	0.00	93.5	74.3
8/14/2015	0.06	93.4	73.8
8/15/2015	0.00	88.9	73.7
8/16/2015	0.05	86.5	73.9
8/17/2015	0.01	87.9	73.3

gc 10/9/15

Pioneer Waialua
Weather Data

Date	Rainfall (inches)	Hi Temp °F	Lo Temp °F
8/18/2015	0.02	86.6	73.7
8/19/2015	0.00	90.8	72.9
8/20/2015	2.17	85.9	72.7
8/21/2015	0.00	94.1	73.8
8/22/2015	0.28	95.6	73.8
8/23/2015	0.65	90.3	76.6
8/24/2015	1.61	86.7	74.3
8/25/2015	0.78	85.9	74.9
8/26/2015	1.65	85.4	74.5
8/27/2015	0.00	86.7	74.3
8/28/2015	0.00	89.9	74.9
8/29/2015	0.00	90.5	73.7
8/30/2015	0.00	90.3	73.1
8/31/2015	0.00	89.0	74.6

qc 10/9/15

qc 10/9/15

Irrigation Data: TRT 01 Corn Plot

Date	Gal/Plot	Gal/Acre	Acre Inch
5/7/2015	580	12632.4	0.47
5/15/2015	160	3484.8	0.13
5/22/2015	80	1742.4	0.06
5/26/2015	90	1960.2	0.07
5/28/2015	90	1960.2	0.07
6/1/2015	80	1742.4	0.06
6/9/2015	400	8712	0.32
6/19/2015	870	18948.6	0.7
6/24/2015	1250	27225	1
7/2/2015	120	2613.6	0.1
7/7/2015	560	12196.8	0.45
7/10/2015	70	1524.6	0.06
7/16/2015	810	17641.8	0.65
7/20/2015	160	3484.8	0.13
7/30/2015	460	10018.8	0.37
8/4/2015	610	13285.8	0.49

qc 10/9/15

qc 10/9/15

Irrigation Data: TRT 02 Corn Plot

Date	Gal/Plot	Gal/Acre	Acre Inch
5/7/2015	430	9365.4	0.34
5/15/2015	440	9583.2	0.35
5/22/2015	130	2831.4	0.10
5/26/2015	70	1524.6	0.06
5/28/2015	80	1742.4	0.06
6/1/2015	140	3049.2	0.11
6/9/2015	480	10454.4	0.39
6/19/2015	730	15899.4	0.59
6/24/2015	660	14374.8	0.53
7/2/2015	170	3702.6	0.14
7/7/2015	590	12850.2	0.47
7/10/2015	120	2613.6	0.10
7/16/2015	410	8929.8	0.33
7/20/2015	90	1960.2	0.07
7/30/2015	290	6316.2	0.23
8/4/2015	540	11761.2	0.43

gc 10/9/15

Note: No irrigation occurred between 5/5/15 and 5/7/15. (LE) gc 2/16/17

gc 10/9/15

Irrigation Data: TRT 03 Corn Plot

Date	Gal/Plot	Gal/Acre	Acre Inch
5/7/2015	300	6534	0.24
5/15/2015	420	9147.6	0.34
5/22/2015	310	6751.8	0.25
5/26/2015	170	3702.6	0.14
5/28/2015	130	2831.4	0.10
6/1/2015	80	1742.4	0.06
6/9/2015	520	11325.6	0.42
6/19/2015	900	19602	0.72
6/24/2015	1210	26353.8	0.97
7/2/2015	210	4573.8	0.17
7/7/2015	570	12414.6	0.46
7/10/2015	100	2178	0.08
7/16/2015	440	9583.2	0.35
7/20/2015	190	4138.2	0.15
7/30/2015	520	11325.6	0.42
8/4/2015	470	10236.6	0.38

JC 10/9/15

JC 10/9/15

FIELD ID NO: Imidacloprid/Corn (seed crop) 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

PART 9. WEATHER AND IRRIGATION RECORDS

B. ADDITIONAL METEOROLOGICAL INFORMATION

WERE THE TEST PLOTS IRRIGATED? (*Check one*) YES ✓ NO ____

TYPE OF IRRIGATION (e.g., drip, flood, overhead sprinkler) drip

IRRIGATION WATER SOURCE (e.g., canal, well) Reservoir

IF THE TEST PLOTS WERE IRRIGATED, DESCRIBE HOW THE DAILY AMOUNTS WERE DETERMINED:

See following pages for description of how daily amounts were determined.

JC 10/9/15

IF IRRIGATION DATA ARE PLACED IN THIS FIELD DATA BOOK IN A SECTION OTHER THAN PART 9*,

INDICATE HERE THE PART AND PAGE NUMBERS WHERE THE DATA ARE FOUND: PART____ PAGES_____

**Excluding the "first irrigation after application" entries in Part 6.*

WAS WEATHER NORMAL? (*Check one*) YES____ NO ✓

Severe weather events such as damaging hail, hard frosts, tropical storms, excessive rain and unusually prolonged or high winds are cause for checking "no" above, even if such events are not considered unusual in the location of the trial.

INSTRUCTIONS: ***IF "NO" IS CHECKED,*** *then assess the impact on the crop in the test plots for this trial of any unusual weather conditions. Note whether temperatures were unusually high or low, and whether precipitation was unusually heavy or light, during the growing season of the crop, and include the dates of unusual or severe weather events. Include the initials of the person making these notes along with the date the notes are recorded.*

Remnants of Hurricanes Guillermo, Hilda and Ignacio brought unusually heavy rainfall to the Islands in August 2015. These storms were downgraded to tropical storms when they approached the Islands. There was no high winds associated with these storms and there was no negative impact to the corn plots. There was some concern that the corn plants would get moldy before collecting stover samples, but that did not happen.

JC 10/9/15

ABOVE DATA ENTERED BY: Jillie Coughlin *DATE:* 10/9/15

COMPLETE IF APPROPRIATE: "THIS IS A TRUE COPY OF THE ORIGINAL"
THE ORIGINAL IS IN IR-4 FIELD DATA BOOK NO. _____ INITIALS _____ DATE _____

Description of how daily irrigation amounts were determined:

were (WE) gc 11/3/15

Four irrigation risers were connected to the plot area. Each of the 3 plots ~~was~~ connected to a separate riser. Water flow meters were installed at each of these 3 risers. The remaining riser was connected to the corn buffer area. On each irrigation event, flow meter readings were recorded by the irrigation operator at Pioneer.

Irrigation dates and the amount of irrigation in gallons recorded from the flow meter were entered into an Excel spreadsheet. Gallons per acre and Acre Inches were calculated on the spreadsheet using the following formulas:

Gallon per Acre = gallon amount from flow meter reading x 43560 ft2/acre ÷ plot area irrigated (2000 ft^2/plot)

Acre Inch = gallons per acre ÷ 27154.2857 gal/acre inch

gc 10/9/15

gc 10/9/15

Protocol & Changes
Part 10

FIELD ID NO: Imidacloprid/Corn (seed crop)
ID No. 11270.15-HI196
Coughlin

IR-4 FIELD DATA BOOK

PROTOCOL & PROTOCOL CHANGES

The protocol shall be inserted into this IR-4 Field Data Book after this protocol cover page. Sequentially insert all relevant protocol amendments and deviations that have been received from the Study Director. Protocol changes are sent only to those field trials to which they pertain, thus the changes that are received during the course of this trial may not comprise a complete set. ***Protocol changes pertinent to this trial that have been signed by the Study Director or received by the Field Research Director (FRD) after the Field Data Book has left the custody of the FRD do not need to be inserted into the Field Data Book.***

PAGES IN THIS SECTION DO NOT NEED TO BE NUMBERED.

PAGES IN THIS SECTION DO NOT NEED LINING OUT IF NO ENTRIES ARE MADE

INSTRUCTIONS FOR COMPLETING THE PROTOCOL/SOP DEVIATION FORM:
Every effort should be made to follow the protocol and standard operating procedures. If an unforeseen or an unavoidable circumstance results in a change, the Study Director must be notified as soon as practical (via phone call, email or FAX). **Also notify the Regional Field Coordinator (via phone call, fax, or cc on an email message). If possible, contact the Study Director prior to taking actions that differ from the protocol.** The Study Director will provide instructions and/or appropriate protocol change authorization. Otherwise, document the deviation with completion of this or similar form for each individual deviation. **If the deviation is faxed or emailed to the Study Director, then the original should be mailed to the Study Director. A true copy should be retained in the Field Data Book in the Protocol and Protocol Changes section.** The return copy (signed by the Study Director) should be placed in the Protocol/Protocol Changes section of the Field Data Book.

The brief description of the deviation should make clear what the protocol or SOP requirement is, and what was done that is different from this requirement. For example, *"The application interval was 10 days instead of the 7(±1) days required by the protocol."*

IR-4 NATIONAL PESTICIDE CLEARANCE PROTOCOL
IMIDACLOPRID/CORN (SEED CROP)

PR No.: 11270
Date: 03/14

RECEIVED
NOV 04 2014
WR IR-4

1. PROJECT TITLE: IMIDACLOPRID: Magnitude of the Residue on CORN (SEED CROP)

2. JUSTIFICATION AND OBJECTIVES:

Imidacloprid, formulated as Admire Pro, has a 24(C) Special Local Need registration allowing seed corn grown in Hawaii to be treated using both soil and foliar applications. The treated crop, however, is restricted from entering the food supply. IR-4 has received a request from Hawaii to remove the label restrictions preventing the treated seed corn crop from being diverted as food for human consumption or feed for animal consumption.

To remove these restrictions and establish appropriate tolerances (if necessary), it is required that the magnitude of the residue in or on the commodity be determined as per EPA Series 860 Guidelines. The purpose of this study is to collect and analyze treated and untreated residue samples from appropriate field sites according to the application parameters requested to provide the sponsor with residue chemistry data to potentially support a pesticide tolerance and remove food and feed restrictions from the SLN label.

To determine the magnitude of residues of total imidacloprid in or on corn (seed crop), this protocol will be employed using appropriate Standard Operating Procedures (SOP's) and will be conducted under provisions outlined in 40 CFR Part 160 **(IN ACCORDANCE WITH EPA's GOOD LABORATORY PRACTICE STANDARDS)**.

3. SPONSOR/TESTING FACILITY NAME, ADDRESS AND PHONE:

IR-4 Project Headquarters, 500 College Road East, Suite 201 W, Princeton, NJ 08540, (732) 932-9575, FAX# (609) 514-2612.

4. STUDY DIRECTOR[1]:

Dr. Keith Dorschner, IR-4 Project Headquarters, 500 College Road East, Suite 201 W, Princeton, NJ 08540, (732) 932-9575 ext. 4615, FAX# (609) 514-2612, E-mail: dorschner@aesop.rutgers.edu

5. PROPOSED DATES:

Experimental Start :	03/14
Experimental Termination:	9/16
Study Completion:	04/17

6. PROPOSED TEST SITES:

Field sites:	Refer to Section 23
Laboratory:	Refer to Section 24

7. STUDY AUTHORIZATION:

Deborah Carpenter March 20 2014	Keith Dorschner 3/20/2014
Sponsor Representative / Date	Keith Dorschner, Ph.D. / Study Director / Date

7.1 STUDY DIRECTOR INITIALS: KD

[1]In case the Study Director is not available, contact Dr. Deborah Carpenter (x4637) or Dr. Daniel Kunkel (x4616) at IR-4 Headquarters (732) 932-9575 for guidance.

8. GOOD LABORATORY PRACTICE COMPLIANCE:

The appropriate cooperative testing facility (field and laboratory) will be responsible for certifying that its portion of the study will be conducted in accordance with EPA's Good Laboratory Practice (GLP) Standards, 40 CFR 160, amended and effective Oct. 16, 1989. A statement of compliance, together with any GLP deviations will be signed and submitted by the appropriate Research Directors in their report or data package.

9. QUALITY ASSURANCE:

Quality Assurance duties and responsibilities will be in conformance with 40 CFR 160.35. A Quality Assurance Statement will be submitted in the final report and shall include the date inspections were made and date(s) the findings were reported to the Study Director and management.

10. TEST SYSTEM/CROP:

CORN (SEED CROP) - Use a commercial variety. Report: variety, source, lot number, date received, and other descriptive information if available and appropriate.

Field trials will be conducted at the appropriate sites to meet the objectives of this study. **See Section 23 for these assignments**. Refer to Section 11.4 for requirements to differentiate multiple trials by the same field researcher.

11. TEST SYSTEM DESIGN and STATISTICAL METHOD:

11.1 Each test site will consist of **one** untreated plot and **two** treated plots.

The individual plots shall be of adequate size to ensure that no more than 50% of the harvestable crop in the sampled area will be needed to provide the necessary plant material. See Parts 17 & 18 for requirements for residue sampling.

11.2 Employ adequate buffer zones between each of the plots to prevent contamination. For most application types, a minimum distance of 15 feet is required, but a minimum of 50 feet is strongly preferred. For applications made by airblast, mist blower, or power sprayers, a minimum distance of 50 feet is required, but a minimum of 100 feet is strongly preferred. When plants are used as a buffer between the untreated and treated plots, a lower distance is needed to prevent contamination, but the minimums indicated above must be observed. If another study using a test substance with the same active ingredient is being conducted at the same research site, the untreated plot from one study must be separated from the treated plot(s) of the other by the appropriate buffer zone indicated above.

11.3 The pesticide use is registered on this crop; however, federal law requires that the treated crop must be destroyed or handled in such a way that it is not consumed as a human food or animal feed.

11.4 If a Field Research Director is assigned more than one trial in this study, the following requirements must be met: An independently prepared tank-mix must be used in each trial. Also, choose at least one option from Set 1 or at least two options from Set 2:

Set	Option	Description
1	A	Trial sites must be separated by at least 20 miles (32 km)
	B	First application or planting date (for annual crops) in each trial is separated by at least 30 days
	C	Different crop variety (different size or shape at maturity, rough vs. smooth surface, different amount of foliage shielding the commodity, different rate of growth, or representative of the major varieties grown within the region)—confirm with Study Director if this option will be chosen
2	A	Spray volume must vary by at least 25% of the lower volume (minimum 10 GPA difference) Example 1, Trial A has a volume of 20 GPA and Trial B has a volume ≥ 30 GPA Example 2, Trial A has a volume of 60 GPA and Trial B has a volume ≥ 75 GPA The trial with the lowest spray volume for the first application must remain the lowest for each application; the trial with the highest must remain the highest for each, and so on
	B	Use of an adjuvant (of any suitable type) in the tank mix for one trial vs. no adjuvant in the tank mix for another trial. **NOTE: use of adjuvants is not appropriate for soil applications.**
	C	Different foliar application type: foliar directed or foliar broadcast (Do not use this option if the label instructions for this commodity will specify one type or the other)
	D	NA
	E	Different types of application equipment be used in each trial (for example, tractor-pulled boom sprayer, tractor-pulled spreader, airblast sprayer, axial fan orchard sprayer, proptec sprayer, cannon mist sprayer, tower sprayer, over-row sprayer, tunnel sprayer, backpack sprayer, waist pack sprayer, hand gun, hand-held spreader, or shaker can)
	F	Different spray droplet size for a foliar application (fine or medium) This may be accomplished by changing nozzles and/or by changing spray pressure Document in the Field Data Book the droplet size that results from the pressure and nozzles used in the trial (nozzle catalog may be used as a reference) Coarse, very course, and extra course are appropriate for herbicides only
	G	NA
	H	Different band width for soil applications: band width must vary by at least 50% of the lower width
	I	Different irrigation type (drip or furrow or sprinkler/over-the-top) (Irrigation must be applied at least once after each application, but over-the-top irrigation must not be applied within one hour of an application, and irrigation is not needed following the last application if samples are to be collected on the same day)
	J	
	K	Different planting arrangement for annual crops: single row beds or multi-row beds (two or more rows on each bed)
	L	NA
	M	NA
	N	NA
	O	Different soil series, type, or texture (only in trials in which applications are made to the soil)
	P	NA

If these criteria cannot be met to separate multiple trials, the Field Research Director should contact the Study Director to discuss possible alternatives that can be amended to the protocol. Trials conducted in different calendar years are exempt from these requirements.

11.5 Mark plots with identifiable markers containing at minimum the Field ID number and treatment number or treatment name that will persist for the duration of the field research trial or that can be readily replaced.

11.6 This study is not designed for statistical evaluation of field data.

12. TEST SITE PREPARATION:

Prepare or select a test site that has been maintained following good local agricultural practices for the production of seed corn including fertilization, irrigation, if necessary and available, and other practices that ensure commercially acceptable crop production.

The test site will have a known pesticide and crop treatment history of a minimum of 1 year and preferably 3 years.

13. TEST/CONTROL SUBSTANCE:

Use the ADMIRE PRO (4.6 lbs imidacloprid per gallon) (EPA Reg. No. 264-827, CAS# 138261-41-3) that has been characterized to meet GLP standards. IR-4 Headquarters personnel will arrange procurement of GLP test substance from the Registrant. Upon receipt, document the lot/batch number, condition, quantity received and if GLP characterized. **Temperature monitoring should begin within 2 days of receipt of the test substance, regardless of where it is held or stored.**

Contact the Study Director if there are any concerns regarding the GLP status, labeled identification, expiration date, etc. of the test substance.

The registrant will provide a copy of the Certificate of Analysis to IR-4 Headquarters.

Store the test substance in a secure, clean, dry area and document storage temperatures.

EPA regulations require that test substance container(s) must be retained until the final study report is completed.

Study completion can be confirmed by contacting the Study Director or the Regional Field Coordinator, or by searching the IR-4 web site; click on "Food Crops" and under the "IR-4 Food Crops Database" click on the "Test Substance Container Disposal Approval" link. URL: http://ir4.rutgers.edu/FoodUse/Food_UseSimple3.cfm

Alternatively, some registrants will archive the test substance containers. If test substance containers are shipped to another location, the shipment must be conducted in accordance with local, state, and Federal regulations. See shipping documents for directions for return of the test substance; if none are given, contact the registrant representative: George J. Sabbagh, Ph,D., BayerCrop Science USA LP; Mobile Phone 913-231-6291, FAX# 919-549-2971, e-mail: George.sabbagh@bayer.com

The registrant will archive a retention sample of the test substance.

Control substances are not relevant to this study.

14. TEST SUBSTANCE APPLICATION:

14.1 Simulate commercial application practices by applying the test substance in a manner that represents a major application technique that is used by area commercial growers, while following the directions specified in Section 15.

- Use application equipment that will provide uniform application of the test substance and result in adequate canopy penetration and coverage.
- The test substance, if applied in a mixture, must be applied to the test system within 30 minutes of mixing, otherwise the mixture must be agitated just prior to making the application to ensure that it is well mixed. (The additional agitation should be documented in Part 6G of the Field Data Book.) The mixture must always be applied to the test system within 2 hours of mixing.

- Each field trial requires a unique spray mixture. Do not use the spray mixture from one field trial on another field trial.

For foliar directed applications (generally used for insecticides and fungicides), do not proportionally reduce the application rate (the amount of active ingredient applied per acre). Direct the entire per-acre rate onto the crop. If row widths in the research plots are greater than local commercial practices, then the application rate should be calculated using a local commercial row width. **Contact the Study Director** if guidance is needed.

14.2 Full Calibrations for output and speed must be performed to ensure accurate delivery.
A calibration consists of a minimum of three consecutive, documented checks for nozzle or hopper output and speed (equipment or walking speed). (When the output of an airblast sprayer is calibrated or rechecked, it is not necessary to record the outputs of individual nozzles.) The variation of the total output recorded for any one of the three checks must not be greater than 5% from the mean for the full calibration.

Discharge/Output Calibrations must be performed:
Just prior to the first application of test substance, completely calibrate[2].

Another complete calibration must be performed and documented when application parameters or equipment components have changed between applications. Recalibration is required after any of the following have changed: application type; intended nozzle or hopper output; nozzle size or type, or other equipment that may affect the output etc. A recalibration is required even if the pressure (intended nozzle output) has been changed back to the pressure used at the initial calibration. It is not necessary to fully recalibrate when CO_2 tanks are changed, or when equipment is transported offsite or cleaned, or if nozzles are removed and then placed back on (even if other nozzles have been used in the interim, unless the pressure has also been changed); however a recheck must take place prior to the next application. If the recheck is out of specification (see paragraphs below) a recalibration is required. Use equipment logs to document changes in the equipment parameters.

Rechecking the output, at a minimum, is necessary for multiple applications, as long as parameters have not changed. A single output check may be conducted to confirm consistent delivery (±5% of the last complete calibration) just prior to subsequent applications. **A recheck is also required if the equipment has been moved from the location where the most recent full calibration or recheck has occurred, even if no applications have been made in the interim. (A sprayer that has been calibrated or rechecked at a farm or research station and then used to make an application somewhere else on that same farm or research station is *not* considered to have been "moved".)**

The equipment must be completely recalibrated if:
- a recheck results in an output that differs from the mean of the complete calibration by greater than 5%
- the variation of any nozzle's output from the mean output of all of the nozzles during the same run is greater than 5% (this statement does not apply to airblast sprayers)

To minimize the occurrence of application rates that fall outside the protocol range, calculations for the amount of test substance to be applied that are based on the discharge rate should be performed using mean output calculated from the most recent complete calibration data (mean of three output checks), not on single-output recheck results. The use of a target output rather than the mean output may be used in the calculations made prior to the application; however a complete calibration must be conducted just prior to each use of a target output, and the mean output must be within 5% of the target output. Using a target output rather than a mean output increases the probability that an application rate deviation will occur. Verification of the amount of test substance that has been applied in calculations that use the discharge rate will always be made using the most recent complete calibration data.

[2] "Just prior" includes the day prior to the application, but calibration on the day of use is preferred.

A speed calibration must also be performed prior to the first test substance application. Conduct the speed calibration in an area adjacent to the test plot, or on similar terrain. **Speed rechecks are required for multiple applications on different days.** Speed should be recalibrated if a major equipment change has been made, such as from a tractor-pulled sprayer to a backpack sprayer. (When a handgun is used to spray tree fruits or nuts, and each tree is sprayed for a predetermined time from a stationary position, a speed calibration is not required.)

Complete calibration data from another trial (performed on the day of or day prior to the application in this trial) may be used. However, a recheck (single output check **and speed recheck**) must be performed just prior to the application in this trial, but subsequent to any other applications with the application equipment. If more than one field trial in this study has been assigned to the same Field Research Director, it is not necessary to perform separate output rechecks for applications made on the same day in the respective trials, and separate speed rechecks are not required unless the treated plots are located on separate farms.

14.3 Actual Application Rate: Record actual application pass-times in the Field Data Book and verify the accuracy of the application against the protocol rate. **The application is considered acceptable if the accuracy is within -5% and +10% of the target rate specified in Section 15. If the application did not meet this range, the Study Director must be notified of this deviation before proceeding with this trial.**

The submitted Field Data Book shall contain the original calibration data or a true copy of all complete calibrations referenced, along with the original data from the rechecks performed for this trial.

15. APPLICATION TREATMENTS AND TIMING:

Trt#	Treatment	Target Rate of active ingredient	Target Rate of formulated product*	Application Type	Spray Volume Range**
01	Untreated	Not Applicable	Not Applicable	Not Applicable	Not Applicable
02	IMIDACLOPRID (soil applied only)	0.5 lbs ai/acre	411.4 ml/acre	Soil Directed	30 to 200 ml solution per plant
03	IMIDACLOPRID (foliar applied plus soil applied)	0.047 lb ai/A (first foliar application)	38.7 ml/acre + adjuvant***	Foliar	20 to 100 GPA
		0.0934 lb ai/A (2nd and 3rd foliar applications)	76.9 ml/acre + adjuvant***	Foliar	20 to 100 GPA
		0.27 lb ai/A (soil application)	222.2 ml/acre	Soil directed	30 to 200 ml solution per plant

*The nominal formulation concentration of the test substance will be used in calculating application rates (see Section 13 for the nominal concentration).
**GPA=gallons per acre
***All foliar applications shall include an adjuvant at a rate recommended by the adjuvant label. **Include a copy of the label in the Field Data Book. This requirement is waived if adjuvant usage is a means of trial differentiation (see Section 11.4)**

If it appears that phytotoxicity has resulted from applications made in this trial, contact the Study Director. If possible, take one or more photographs and send them to the Study Director via email to facilitate the evaluation of crop/ test substance effects.

Treatment 02: Make one soil application 20 (±1) days before forage harvest and 40 (±3) days before harvest of grain and stover. Apply as a basal soil drench or as chemigation into the root zone through low-pressure drip or trickle irrigation.

Treatment 03: This treatment requires foliar and soil applications to the same plot.

Make 3 foliar sprays at 7 (±1) day intervals with the last application on the day of forage harvest and 20 (±1) days before grain and stover harvest. (Note that the first foliar application is at a lower rate than subsequent applications.)

Make one soil application 40 (± 3) days before grain and stover harvest. Apply soil application as a basal soil drench or as chemigation into the root zone through low-pressure drip or trickle irrigation.

16. SUPPLEMENTAL CROP TREATMENTS:

Protect the integrity of the field trial by managing pests that may cause significant damage to the test crop. Only EPA-registered maintenance pesticides should be used; apply according to labeled directions. Make identical applications to the untreated and treated plots.

Consult with Study Director if no registered pesticides are available to control the pests. Document all supplemental crop treatments. DO NOT USE pesticides that are similar to the test substance or other chemicals that might interfere with analysis of the test substance. If unsure, **contact the Study Director**.

17. RESIDUE SAMPLE COLLECTION:

Forage Samples:
Collect two samples from each plot. Each sample should be representative of the entire plot (except plot ends). Corn should be in the late dough to early dent stage. At 20 (±1) days after the TRT 02 application and on the same day as the final foliar application in TRT 03, starting with the untreated plot, harvest corn forage in a manner simulating commercial practices from at least 12 plants. Forage consists of the entire aerial portion of the plant, including ears. Select 12 stems and separate them into 3 groups of 4 stems each. Divide each stem with leaves attached into 3 approximately equal lengths. Take top portions from one group, middle portions from the second group, and bottom portions from the third group, to ensure that parts of all 12 stems are included in each sample. Collect at least 2 lbs per sample (but preferably not more than 5 lbs).

Grain Samples:
Collect two samples from each plot. Each sample should be representative of the entire plot (except plot ends). At 40 (±3) days after soil application in TRT 02 and TRT 03, starting with the untreated plot, harvest ears of corn in a manner simulating commercial practices from at least 12 plants. If corn is not dry enough for shelling, it may be dried to proper moisture content in an appropriate low-temperature dryer (e.g. a forage drier) or held in a warm, dry, and well-ventilated location. Record the drying conditions and time. The drying time will be a short as possible. Collect at least 2 lbs (but preferably not more than 4 lbs) of grain per sample.

Stover Samples:
Collect two samples from each plot. Each sample should be representative of the entire plot (except plot ends). At 40 (±3) days after soil application in TRT 02 and TRT 03, starting with the untreated plot, harvest at least 12 stalks of corn in a manner simulating commercial practices and allow the stalks to dry. The stalks may be allowed to dry in the field if no rain is expected or removed to a sheltered location suitable for drying. Remove the ears from the stalks. When the stalks have reached a moisture content of approximately 15-20% (80-85% dry matter), then collect stover samples. (Percent dry matter may be estimated.) The harvest date for stover samples is when the plants are cut in the field. The sampling date will be after drying is complete and the samples are placed in the sample bags. Upon sampling, the

stalks may be cut into pieces to better fit into the sample bags.

Follow proper handling practices with clean or gloved hands and clean tools to prevent transfer of pesticide residue from one sample to another. If practical, complete harvest and sample preparation for the untreated plot(s) before proceeding to the treated plot(s). Place all samples in plastic-lined cloth bags. Bags may be obtained from the Field Research Coordinator (Section 23). Identify each sample bag** with correct Field ID number, Test Substance (common chemical name and formulation), complete sample ID (see Section 18) and harvest/sampling dates. See Section 19 for residue sample handling directions.

When using **IR-4 plastic lined cloth residue sample bags, complete attached sample tag as follows: **Field ID Number; Crop Fraction; Test Substance** (enter the chemical name listed in Section 15); **Sample ID; Trt#; Harvest Date; Sample Date; Field Research Director** (enter name and telephone number).

18. FIELD RESIDUE SAMPLE INVENTORY:

SAMPLE ID	TRT#	TREATMENT	DAYS AFTER APPLIC. (PHI)	MINIMUM SAMPLE SIZE	CROP FRACTION
A	01	Untreated	NA	2 lbs.	Forage
B	01	Untreated	NA	2 lbs.	Forage
C	02	IMIDACLOPRID SOIL	20 (±1)	2 lbs.	Forage
D	02	IMIDACLOPRID SOIL	20 (±1)	2 lbs.	Forage
E	03	IMIDACLOPRID SOIL + FOLIAR	Same day as last foliar application	2 lbs.	Forage
F	03	IMIDACLOPRID SOIL + FOLIAR	Same day as last foliar application	2 lbs.	Forage
G	01	Untreated	NA	2 lbs.	Grain
H	01	Untreated	NA	2 lbs.	Grain
I	02	IMIDACLOPRID SOIL	40 (±3)	2 lbs.	Grain
J	02	IMIDACLOPRID SOIL	40 (±3)	2 lbs.	Grain
K	03	IMIDACLOPRID SOIL + FOLIAR	40 (±3) after soil application	2 lbs.	Grain
L	03	IMIDACLOPRID SOIL + FOLIAR	40 (±3) after soil application	2 lbs.	Grain
M	01	Untreated	NA	12 stalks	Stover
N	01	Untreated	NA	12 stalks	Stover
O	02	IMIDACLOPRID SOIL	40 (±3)	12 stalks	Stover
P	02	IMIDACLOPRID SOIL	40 (±3)	12 stalks	Stover
Q	03	IMIDACLOPRID SOIL + FOLIAR	40 (±3) after soil application	12 stalks	Stover
R	03	IMIDACLOPRID SOIL + FOLIAR	40 (±3) after soil application	12 stalks	Stover

19. RESIDUE SAMPLE HANDLING AND SHIPMENT:

After residue sample collection, store samples in a freezer. If the samples cannot be placed into a freezer within approximately one hour, use an appropriate method of cooling and temperature-monitoring samples in order to maintain integrity.

Sample handling and storage methods can be outlined generally in SOP's, but describe methods fully in the Field Data Book.

For pre-shipment storage, the samples will be held frozen at temperatures generally less than -18 °C (0 °F), allowing for normal variations of less than 24 hours duration due to freezer cycling, sample movement, etc.

Freezer logs will be used to document all sample additions to and removals from storage. All on-site storage temperatures will be monitored and documented.

Shipment of frozen samples will be by express shipment. Shipments sent via express shipment (overnight carriers such as Federal Express or Airborne) will require the addition of quantities of dry ice sufficient to maintain sample integrity while in transit to the laboratory. Document the notification made to the sample destination by use of e-mail, fax, telephone log, Field Data Book communication note, etc.

Insert a true copy of Field Data Book Part 8B and a blank copy of Field Data Book Part 8C (Sample Arrival Check Sheet) into each box or container used to ship sample bags.

For analysis, send samples to: Mr. T. Todd Wixson, USDA-ARS, Fruit and Vegetable Insect Research, 5230 Konnowac Pass Road, Wapato, WA 98951-9651 (509) 454-6552, FAX# 509-454-5646; e-mail: Todd.Wixson@ars.usda.gov

20. FIELD DOCUMENTATION AND RECORD KEEPING:

All operations, data and observations appropriate to this study should be **recorded directly and promptly into the IR-4 Field Data Book.**

The content of the Field Data Book should be **sufficiently detailed to completely reconstruct the field trial.** At a minimum, collect and maintain the following raw data:

20.01- Names of all personnel conducting specific research functions

20.02- Amendments and deviations from protocol and standard operating procedures (including copies of signed protocol changes received prior to submission of the Field Data Book to the Regional Field Coordinator).

20.03- Test site information

20.04- Plot maps

20.05- Test substance receipt, use and container/substance disposition records

20.06- Test substance storage conditions (including temperatures)

20.07- Data regarding calibration and use of application equipment

20.08- Treatment application data

20.09- Crop maintenance pesticides and cultural practices, test plot history, and soil information. (Reporting soil information from typical farm service soil analysis labs, or past history for the farm, or from official documents, such as the SCS Soil Survey for the test plot area is adequate for this study. The nature of this study is such that soil characteristics do not need to be determined under GLP standards.)

20.10- Residue sample identification, collection, storage conditions and handling (Weight measurements are considered estimates for the samples collected from field or processing trials, and the scales/balances used for this purpose do not need to be maintained in strict adherence to GLP.)

20.11- Residue sample shipping information

20.12- Description of crop destruction, or explanation for lack of destruction

20.13- Meteorological/Irrigation records (temperature/humidity records for greenhouse trials)--required from planting of annual crops or for a minimum of one month prior to the first application onto perennial crops, until last residue sample collection. These records do not need to be determined under GLP standards.

20.14- Pass times (if applicable) and other data to confirm amount of material applied to plots

20.15- Equipment maintenance records with indication of routine vs. non-routine nature of maintenance

20.16- Other applicable data requested in the IR-4 Field Data Book necessary for confirmation that the study was conducted in accordance with the protocol.

Compliance with GLP's is not required for the collection of data associated with crop phytotoxicity.

21. PROTOCOL/SOP MODIFICATIONS - FIELD RESEARCH:

Consult with the Study Director and with the Regional/ARS Field Research Coordinator to discuss desired changes in the protocol prior to occurrence. If appropriate, an amendment will be issued.

Any deviations from the protocol will require the Field Research Director to complete a written report outlining the changes. **Provide this report to the Study Director promptly** (e.g. within 14 days of occurrence or recognition) for review and signature.

All deviations from the approved SOP's also require documentation and **approval by the Study Director**.

22. FIELD RESEARCH REPORT/ARCHIVING:

The Field Research Director will forward the completed originals of the IR-4 Field Data Book and other raw data to the Regional/ARS Field Research Coordinator as soon as possible after the shipment of residue samples.

The Field Research Director will maintain a complete certified true copy of these field documents.

The original IR-4 Field Data Book and other raw data will be forwarded to IR-4 Headquarters for reporting and archiving.

23. FIELD PERSONNEL / ID NO. / REGIONAL/ARS FIELD RESEARCH LOCATION

If a Field Research Director is assigned more than one trial in this study, refer to Section 11.4 for requirements to differentiate the trials.

Field Research Director	Field ID NO.	RFC
Julie Coughlin, Univ. of Hawaii at Manoa, CTAHR/PEPS Dept., 3190 Maile Way, St. John Rm 307, Honolulu, HI 96822, (808) 956-2003, FAX# 808-956-9675; Cell: 808-542-3933; e-mail: jcoughli@hawaii.edu	11270.14-CA195 11270.14-CA196	WSR

RFC = Regional/ARS Field Coordinator
Location:

WSR: Ms. Rebecca Sisco, Regional Field Coordinator, Western Region IR-4 Project, Univ. of CA, Dept. of Environmental Toxicology, One Shields Ave., 4218 Meyer Hall, Davis, CA 95616; Tel: (530) 752-7634; FAX# 530-752-2866; e-mail: rsisco@ucdavis.edu.

24. LABORATORY PERSONNEL/ID NO.: **LAB ID NO.:** 11270.14-YAR02

LABORATORY RESEARCH DIRECTOR/TESTING LABORATORY:
Mr. T. Todd Wixson, USDA-ARS, Fruit and Vegetable Insect Research, 5230 Konnowac Pass Road, Wapato, WA 98951-9651 (509) 454-6552, FAX# 509-454-5646; e-mail: Todd.Wixson@ars.usda.gov

25. LABORATORY SAMPLE INVENTORY:

Treated and untreated samples of corn (seed crop) will be received from each of the field sites in Section 23.

Notify appropriate Field Research Director and Regional/ARS Field Research Coordinator of sample receipt.

26. LABORATORY SAMPLE IDENTIFICATION:

Each sample (raw commodity, crop fractions, storage stability, method validation, etc.) is to be assigned a unique laboratory sample number by the laboratory personnel.

A cross-reference must be maintained between the assigned laboratory sample number and the identification utilized in the Residue Sample Shipping and Identification Sheet.

27. LABORATORY SAMPLE STORAGE/PREPARATION:

Store samples in a limited access area at temperatures that will maintain frozen sample integrity (generally less than -20°C), until extraction.

The samples may be stored whole or ground, depending on the standard procedure of the analytical laboratory. However, if maceration will cause residue deterioration, then samples must be stored whole until analysis.

Do not composite samples.

The entire sample provide from the field must be ground, if sample is too large to be manageable then contact the Study Director for appropriate subsampling to assure the representative nature of the sample obtained in the field is maintained by the laboratory procedure.

Generally, sample extracts should be stored at $\leq$ 4°C for no longer than 14 days before analysis.

Storage stability of extracts must be demonstrated if extracts are not analyzed on the same day as they are obtained.

Concurrent fortifications may be used to show extract storage stability, as long as the extracts from the concurrent fortifications have been stored at least as long as the extracts obtained from the weathered samples.

Contact the Study Director if samples extracts are stored greater than 14 days prior to analysis.

All storage temperatures, conditions and location of sample storage are to be monitored and documented.

28. LABORATORY REFERENCE SUBSTANCE:

Obtain the laboratory reference substance(s), Imidacloprid, WAK 4140, WAK 3745, WAK 4103, and 6-chloronicotinic acid, from the Registrant. Contact George J. Sabbagh, Ph,D., BayerCrop Science USA LP; Mobile Phone 913-231-6291, FAX# 919-549-2971, e-mail: George.sabbagh@bayer.com to procure the proper material.

Document the date the analytical standards are received, the source, stated purity, storage conditions, and expiration date.

Use only reference standards that have been characterized to meet GLP standards.

Archival and characterization of the reference substance (purity, identity, stability and solubility) is the responsibility of the registrant.

29. ANALYTICAL METHODOLOGY:

REFERENCE METHOD:

"Method for the Determination of Total Residues of Imidacloprid in Plant Materials and Beverages" (Bayer Method 00200-Reformated, Report No. 102624-R1 dated 02/23/94).

REFERENCE METHOD MODIFICATIONS/METHOD VALIDATION

The above listed Reference Method(s) may be modified if needed for the test matrix.

The Reference Method, along with any modifications must be validated on each crop fraction prior to residue sample analysis of that crop fraction.

Validate the method in triplicate using an equimolar mixture (i.e. a "mixed" standard) of imidacloprid, WAK 4140, WAK 3745, WAK 4103, and 6-chloronicotinic acid. For grain, validate at lowest level of method validation (LLMV, 0.05 ppm or lower) and 0.5 ppm. For forage and stover, validate at lowest level of method validation (LLMV, 0.05 ppm or lower), 0.5 ppm, and 10 ppm.

A minimum of 6 fortification samples (recovery spikes) at the lowest level of method validation (LLMV) is required for each analyte on each fraction prior to completion of the analytical phase of the study. **The acceptable recovery range is 70-120%.**

Documented approval from the Study Director is needed for recoveries outside of this range.

Document the exact procedures for sample analysis.

This validated step-by-step Working Method should incorporate all changes from the Reference Method.

Provide the Study Director with a copy of this Working Method and results of method validation prior to treated sample analysis.

If the Working Method has been used successfully on the test matrix or a similar matrix, the Study Director may waive the requirement for method validation. **Contact the Study Director for details.**

SAMPLE ANALYSIS:

Samples will be analyzed for the total and/or combined residues of imidacloprid following the Working Method.

For each field trial associated with this study, analyze at least one untreated and all treated residue samples for each matrix.

Contact the Study Director if residues above the lowest level of method validation for each matrix are detected in the untreated samples.

Any changes or modifications to the Working Method require Study Director approval. Whenever possible, notify the Study Director prior to occurrence.

Any change or modification to the Working Method must be documented in the raw data and discussed in the final report.

A typical analytical set (or run) should consist of calibration standards, untreated sample(s), concurrent recovery sample(s), and treated sample(s). Each analytical set must begin and end with a calibration standard. Additional calibration standards should be injected with sample analysis to ensure goodness of fit to the standard curve.

Over the course of method validation, residue sample and storage stability (if appropriate) analysis, adequate fortification samples that bracket the actual residues should be analyzed. At least one concurrent fortification sample should be analyzed per analytical set.

The Study Director should be immediately notified if concurrent recoveries deviate from the acceptable recovery range of 70% to 120%.

All efforts will be made to resolve existing recovery problems before continuing forward with additional analytical sets.

If residues in samples are above the highest Working Method validation concentration, additional recovery samples at levels above actual residues must be run in triplicate (3 uniquely extracted samples) as soon as practical. A minimum of 6 fortification samples (recovery spikes) at the lowest level of method validation (LLMV) is required for each analyte on each fraction prior to completion of the analytical phase of the study.

Treated samples may be analyzed using a screening run prior to analysis of treated samples using the working method, if the procedure is covered in the laboratory SOPs and the working method for the study. The peak areas of the treated samples and highest standard from any screening run will not be quantified or reported. (Any data, such as chromatograms, generated during screening run(s) will be kept).

STORAGE STABILITY ANALYSIS:

As soon as possible after receipt of samples, spike a minimum of six control samples of each crop fraction with 0.5 ppm total residue using an equimolar mixture (i.e. a "mixed" standard) of imidacloprid, WAK 4140, WAK 3745, WAK 4103, and 6-chloronicotinic acid.

Three samples of each analyte and crop fraction will be analyzed after the appropriate storage period. The analysis of storage stability samples may be conducted following a storage period equal to or greater than 90% of the longest storage period of the field-treated samples prior to their analysis. The remaining samples will be retained for long-term storage.

If analysis of treated/control samples is completed within 30 days of harvest analysis of storage fortification samples may not be required. If appropriate, contact Study Director.

STATISTICAL METHOD(S):

Utilize regression analysis to determine the linearity of the standard curve (r^2) or the goodness of fit if the standard curve is non-linear.

Criteria for acceptance of the standard curve(s) or other statistical methods shall be determined by Laboratory Research Director and documented in the raw data.

30. DISPOSITION OF SAMPLES:

A minimum of 100 g or all (if less than 100 g) of each of the remaining frozen treated and untreated crop samples is to be retained for at least 12 months after submission of the laboratory report.

Long term fortified storage study samples shall be retained for a period of 1 to 5 years, as appropriate, after submission of the final report.

Sample extracts can be disposed of after data analysis.

The Study Director is to be contacted prior to discarding samples.

31. LABORATORY PROTOCOL/SOP MODIFICATIONS - LABORATORY RESEARCH:

Consult with the Study Director regarding desired changes in the protocol prior to occurrence. If appropriate, an amendment will be issued. Any unauthorized changes to the protocol will require the Laboratory Research Director to complete a written report outlining the changes.

This report should be **provided to the Study Director promptly** (e.g. within 14 days of occurrence) for review and signature.

All deviations from the approved SOP's also require documentation and approval by the Study Director.

32. LABORATORY DOCUMENTATION AND RECORD KEEPING:

All operations, data and observations shall be recorded in the analyst's notebook and log books, which must be signed and dated on date of entry.

At a minimum, collect and maintain the following raw data:

32.01 - Analytical standard(s) receipt, use and disposition records

32.02 - Analytical standard(s) storage conditions

32.03 - Analytical standard(s) dilution calculations and preparation records

32.04 - Sample storage conditions and locations

32.05 - Calculation work sheets

32.06 - All chromatograms, including those that are not reported

32.07 - Chain of custody records

32.08 - Deviations from protocol, Working Method and/or standard operating procedures

32.09 - Name of personnel conducting specific research functions

32.10 - Sample analysis worksheets

32.11- Storage stability fortification records

32.12 - Concurrent recovery fortification records

A study file shall be developed and maintained by the Laboratory Research Director in conjunction with the analysis. It will contain a copy of the protocol, all pertinent raw data, documentation, records, correspondence, and the final analytical summary report. In addition, records of equipment maintenance and calibrations will be kept and periodically archived.

33. LABORATORY RESEARCH REPORT:

The analytical summary report sent to IR-4 HQ shall contain, but not be limited to:

33.01 - Applicable method validation data

33.02 - Applicable storage stability data

33.03 - Residue levels for control and treated samples with concurrent fortified recoveries

33.04 - Complete copy of the analytical Working Method

33.05 - Any modifications or deviations from the protocol and/or Working Method

33.06 - Completed IR-4 residue data reporting form or appropriate reporting form which includes information listed on the IR-4 generic residue data reporting form

33.07 - A minimum of 10 representative chromatograms of treated samples (if fewer than 10 submit all), a minimum of three chromatograms each of control and fortified control samples, chromatograms (one of each concentration) for at least one set of calibration standards for each compound analyzed, and any chromatograms of samples with unusual or inconsistent results

33.08 - Summary of quantitative data associated with samples and spike recovery samples should be provided (e.g. peak heights, injection volumes, sample sizes, final volumes, etc.)

33.09 - Clearly presented example calculations or statistical evaluations

33.10 - Discussion of results (including purpose of method modifications, sample storage conditions, etc.)

33.11 - Summary data associated with calibration standards (dilution and use records, calibration curves, etc.)

34. LABORATORY ARCHIVES:

When the final analytical summary report is completed the analytical report and all original raw data will be sent to IR-4 Project Headquarters, 500 College Road East, Suite 201 W, Princeton, NJ 08540, (732) 932-9575, FAX# (609) 514-2612 (when an original document cannot be provided a "true copy" will be provided). All original raw data shall be secured in the archives of IR-4 Headquarters, Princeton, NJ. A "true copy" of the raw data and the final analytical report shall be secured in the archives of the Laboratory Research Director/Testing Facility.

Change 1

Imidacloprid/Corn (seed crop)
ID No. 11270.14-HI195
Coughlin

CHEMICAL/CROP/FIELD ID NO:

Amendment *

IR-4 FIELD DATA BOOK

~~DEVIATION~~ FORM (PHOTOCOPY THIS PART IF NECESSARY)

9/29/14

THE DATE ~~THAT THE DEVIATION~~ OCCURRED: Has not occurred yet.

THE DATE THAT THE ~~DEVIATION~~ amendment * WAS RECOGNIZED: 9/26/14

THE DATE THAT THE STUDY DIRECTOR WAS NOTIFIED: 9/26/14

METHOD OF NOTIFICATION (e.g. telephone, email, fax): e-mail
(Include telephone notes or copy of email or fax in Part 3 of this book)

THE ~~DEVIATION~~ amendment * IS FROM *(check appropriate)* PROTOCOL ✓ SOP'S

SECTION OF THE PROTOCOL OR SOP'S THAT IS AFFECTED: 15

BRIEF DESCRIPTION OF DEVIATION: The foliar applications for this trial will include the adjuvant WetCit at a rate that is lower than the rate recommended on the WetCit label. I will use the rate of 15 oz/100 gal and the label rate is 25 oz to 100 oz/100 gal.

EXPLAIN WHY THE ~~DEVIATION~~ amendment * OCCURRED: The grower uses the lower rate of 15 oz/100 gal because they also use a similar product, Pre Vam, and they feel that using a higher rate of WetCit may result in cuticle damage on the corn plants.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 9/26/14

FIELD PERSONNEL: DO NOT WRITE BELOW THIS LINE

STUDY DIRECTOR'S ASSESSMENT OF IMPACT OF THIS ~~DEVIATION~~ amendment * ON THE STUDY:

The application will be identical to local commercial practice.

APPROVED BY:

[signature] 9/29/2014 — Study Director/Date

Deborah Carpenter Sept 30, 2014 — Sponsor/Date

PROTOCOL CHANGE NUMBER

cc: QA Field Research Director: Coughlin
Regional Field Coordinator: Sisco
Laboratory Research Director: Wixson

Trial Year 2014

This protocol change form when copied on colored paper is an exact copy of the original.

* This was reported prior to assurance; therefore, it is an amendment and not a deviation
9/29/2014

IR-4 Project Headquarters, Rutgers, The State University of NJ, 500 College Road East, Suite 201 W, Princeton, NJ 08540,
Phone 732.932.9575, Fax 609.514.2612

CHANGE# 2

IR-4 PROTOCOL AMENDMENT FORM

Project Title: Imidacloprid/Corn (Seed Crop) PR No.: 11270

Field I.D. No.: all

Laboratory I.D. No.: 11270.14-YAR02

Description of Change:

If forage samples are too heavy when collected according to protocol instructions in Section 17, sample size may be further reduced by splitting each portion (top, middle, and bottom portions) vertically along the stalk, retaining ½ of each portion for the sample.

Methods to reduce the size of the stover samples are not provided in the protocol. If needed, the stover samples may be reduced by using one or more of the procedures approved for the forage samples.

Both forage and stover samples may be cut into smaller pieces to better fit into the sample bags.

Instead of using the plastic-lined cloth bags supplied by IR-4, the Field Research Director may use heavy duty plastic bags. If plastic bags are chosen, the samples should be double-bagged.

Reason for Change:

Changes were requested in order to provide samples of appropriate weight and to ensure ease of collecting and shipping.

Impact on Study:

Changes will ensure proper samples for analysis.

Authorization:

Dr. Keith Dorschner 10/13/2014 Date
Study Director

Sponsor Representative Oct 13 2014 Date

cc: IR-4 QA Unit, Coughlin, Sisco, Wixson, Schwartz

THIS PROTOCOL CHANGE FORM COPIED ON COLORED PAPER IS AN EXACT COPY OF THE ORIGINAL

IR-4 Project Headquarters, Rutgers, The State University of NJ, 500 College Road East, Suite 201 W, Princeton, NJ 08540,
Phone 732.932.9575, Fax 609.514.2612

CHANGE# 3

IR-4 PROTOCOL AMENDMENT FORM

Project Title: Imidacloprid/Corn (Seed Crop) PR No.: 11270

Field I.D. Nos.: 11270.14-HI195, -HI196

Laboratory I.D. No.: 11270.14-YAR02

Description of Change:

The correct Field ID Numbers for the two field trials in this study are 11270.14-HI195 and 11270.14-HI196.

Reason for Change:

The protocol in Section 23 identifies the trials as taking place in California.

Impact on Study:

This amendment identifies the correct Field ID Numbers for the field trials, properly indicating that the field work is taking place in Hawaii.

Authorization:

Keith Dorschner 10/22/2014
Dr. Keith Dorschner / Date
Study Director

Richard Carpenter Oct 22, 2014
Sponsor Representative Date

cc: IR-4 QA Unit, Wixson, Sisco, Schwartz, Coughlin

THIS PROTOCOL CHANGE FORM COPIED ON COLORED PAPER IS AN EXACT COPY OF THE ORIGINAL

IR-4 PROJECT HEADQUARTERS, 500 COLLEGE ROAD EAST, SUITE 201 W, PRINCETON, NJ 08540
PHONE: (732) 932-9575; FAX#: (609) 514-2612

CHANGE # 4

IR-4 PROTOCOL AMENDMENT FORM*

Project Title: Imidacloprid / Corn (Seed Crop) **PR No.:** 11270

Field I. D. No.: 11270.15-HI196 and 11270.15-HI197

Lab I.D. No.: 11270.14-YAR02

Description of Change:

Add the following Field Trial to Section 23:

Field Research Director	Field ID NO.	RFC
Julie Coughlin, Univ. of Hawaii at Manoa, CTAHR/PEPS Dept., 3190 Maile Way, St. John Rm 307, Honolulu, HI 96822, (808) 956-2003, FAX# 808-956-9675; Cell: 808-542-3933; e-mail: jcoughli@hawaii.edu	11270.15-HI196 11270.15-HI197	WSR

Reason for Change:

The above trial(s) been added to meet the study data requirements.

Impact on Study:

Meets required data requirements.

Authorization:

11/3/2014

Study Director (DATE)
Dr. Keith W. Dorschner

Nov 3, 2014

Sponsor Representative (DATE)

cc: IR-4 QA Unit J. Coughlin R. Sisco
T. Wixson J. Fernandez (Bayer)

THIS PROTOCOL CHANGE FORM COPIED ON COLORED PAPER IS AN EXACT COPY OF THE ORIGINAL

Change 5

CHEMICAL/CROP/FIELD ID NO.: Imidacloprid/Corn (seed crop) ID No. 11270.14-HI195 Coughlin

IR-4 FIELD DATA BOOK

DEVIATION FORM **(PHOTOCOPY THIS PART IF NECESSARY)**

THE DATE THAT THE DEVIATION OCCURRED 11/6/14

THE DATE THAT THE DEVIATION WAS RECOGNIZED 11/7/14

THE DATE THAT THE STUDY DIRECTOR WAS NOTIFIED 11/9/14

METHOD OF NOTIFICATION (e.g. telephone, email, fax) e-mail
(Include telephone notes or copy of email or fax in Part 3 of this book)

THE DEVIATION IS FROM *(check appropriate)* PROTOCOL ✓ SOP'S

SECTION OF THE PROTOCOL OR SOP'S THAT IS AFFECTED Section 17

BRIEF DESCRIPTION OF DEVIATION: The moisture content in TRT 01, Stover Sample M is 35%. The protocol specifies a Stover moisture content of 15-20%.

EXPLAIN WHY THE DEVIATION OCCURRED: Stover Sample M was removed from the drier early because the target weight was mis-calculated.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 11/10/14

FIELD PERSONNEL: DO NOT WRITE BELOW THIS LINE

STUDY DIRECTOR'S ASSESSMENT OF IMPACT OF THIS DEVIATION ON THE STUDY:
No negative impact is expected. The LRD is advised not to use Sample "M" for validation or storage stability purposes.

APPROVED BY:

Keith Shuler 11/17/2014
Study Director/Date

Deborah Carpenter Nov 17, 2014
Sponsor/Date

PROTOCOL CHANGE NUMBER 5

cc: QA Field Research Director: Coughlin
Regional Field Coordinator: Sisco
Laboratory Research Director: Wilson

Trial Year 2014

This protocol change form when copied on colored paper is an exact copy of the original.

IR-4 Project Headquarters, Rutgers, The State University of NJ, 500 College Road East, Suite 201 W, Princeton, NJ 08540,
Phone 732.932.9575, Fax 609.514.2612

CHANGE# 6

IR-4 PROTOCOL AMENDMENT/DEVIATION FORM

Project Title: Imidacloprid/Corn (seed Crop) PR No.: 11270

Field I.D. No.: all

Laboratory I.D. No.: 11270.14-YAR02

Description of Change:

1. The soil directed spray volume in Protocol Section 15 only applies to the soil drench application technique. It is not appropriate for the chemigation application technique.
2. Immediately following chemigation applications, flush the irrigation system with water for approximately 30 minutes to remove any test substance in the lines. Continue to irrigate for approximately 1-2 hours to incorporate the test substance into the root zone. This is standard commercial chemigation practice for applying Admire Pro to corn in Hawaii.

Reason for Change:

1. Changes were requested by the Field Research Director so that the chemigation tank mixture could be prepared and applied using a water volume that follows standard commercial practices in Hawaii.
2. Add directions allowing chemigation to be made following standard commercial practices in Hawaii.

Impact on Study:

Change allows chemigation applications to proceed using standard local practices, which increases the quality of the field trials.

Authorization:

2/10/2015
Dr. Keith Dorschner Date
Study Director

Feb 10 2015
Sponsor Representative Date

cc: IR-4 QA Unit, Coughlin, Wixson, Sisco

THIS PROTOCOL CHANGE FORM COPIED ON COLORED PAPER IS AN EXACT COPY OF THE ORIGINAL

Change 7

CHEMICAL/CROP/FIELD ID NO: Imidacloprid/Corn (seed crop) 11270.14-HI195 Coughlin

IR-4 FIELD DATA BOOK

DEVIATION FORM **(PHOTOCOPY THIS PART IF NECESSARY)**

THE DATE THAT THE DEVIATION OCCURRED 9/24/14

THE DATE THAT THE DEVIATION WAS RECOGNIZED 1/30/15

THE DATE THAT THE STUDY DIRECTOR WAS NOTIFIED 1/30/15

METHOD OF NOTIFICATION (e.g. telephone, email, fax) e-mail
(Include telephone notes or copy of email or fax in Part 3 of this book)

THE DEVIATION IS FROM *(check appropriate)* PROTOCOL ✓ SOP'S

SECTION OF THE PROTOCOL OR SOP'S THAT IS AFFECTED 14.2

BRIEF DESCRIPTION OF DEVIATION: A discharge calibration was not performed for the chemigation equipment used in the soil applications.

EXPLAIN WHY THE DEVIATION OCCURRED: An output calibration was not necessary because there was no time requirement for application duration, and the entire tank mixture was applied to the plot through the irrigation lines.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 2/6/15

FIELD PERSONNEL: DO NOT WRITE BELOW THIS LINE

STUDY DIRECTOR'S ASSESSMENT OF IMPACT OF THIS DEVIATION ON THE STUDY:

No negative impact.

APPROVED BY:

Study Director/Date 2/20/2015

Sponsor/Date Feb 23, 2015

PROTOCOL CHANGE NUMBER 7

cc: (QA) Field Research Director: Coughlin
Regional Field Coordinator: Sisco
Laboratory Research Director: Wixson

Trial Year 2014

This protocol change form when copied on colored paper is an exact copy of the original.

Change 8

CHEMICAL/CROP/FIELD ID NO: Imidacloprid/Corn (seed crop) 11270.14-HI195 Coughlin

IR-4 FIELD DATA BOOK

DEVIATION FORM **(PHOTOCOPY THIS PART IF NECESSARY)**

THE DATE THAT THE DEVIATION OCCURRED 9/24/14

THE DATE THAT THE DEVIATION WAS RECOGNIZED 1/30/15

THE DATE THAT THE STUDY DIRECTOR WAS NOTIFIED 1/30/15

METHOD OF NOTIFICATION (e.g. telephone, email, fax) e-mail
(Include telephone notes or copy of email or fax in Part 3 of this book)

THE DEVIATION IS FROM *(check appropriate)* PROTOCOL ✓ SOP'S

SECTION OF THE PROTOCOL OR SOP'S THAT IS AFFECTED Section 15

BRIEF DESCRIPTION OF DEVIATION: Spray volume range for the TRT 02 and TRT 03 soil applications exceeded the protocol specified rate of 30-200 mL per plant by 12% and 3%, respectively.

EXPLAIN WHY THE DEVIATION OCCURRED: The field research director assumed that the spray volume range applied only to a soil drench application and not to chemigation. The spray volume used in the soil applications followed standard commercial practices. 100% of the test substance target rate was applied in both applications.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 2/9/15

FIELD PERSONNEL: DO NOT WRITE BELOW THIS LINE

STUDY DIRECTOR'S ASSESSMENT OF IMPACT OF THIS DEVIATION ON THE STUDY:
This practice is approved in change No. 6 that was signed 2/10/2015. This deviation occurred before that protocol change and it has no negative impact.

APPROVED BY:

Study Director/Date 2/20/2015

Sponsor/Date Deborah Carpenter Feb 23 2015

PROTOCOL CHANGE NUMBER 8

cc: (QA) Field Research Director: Coughlin
Regional Field Coordinator: Susico/Schmutz
Laboratory Research Director: Wixson

Trial Year 2014

This protocol change form when copied on colored paper is an exact copy of the original.

IR-4 Project Headquarters, Rutgers, The State University of NJ, 500 College Road East, Suite 201 W, Princeton, NJ 08540,
Phone 732.932.9575, Fax 609.514.2612

CHANGE# 9

IR-4 PROTOCOL AMENDMENT FORM

Project Title: Imidacloprid/Corn (seed crop) PR No.: 11270

Field I.D. No.: 11270.15-HI96

Laboratory I.D. No.: 11270.14-YAR02

Description of Change:

It is permissible to use WetCit as a surfactant in the foliar sprays for this trial. It may be used at a rate lower than what is recommended on the WetCit label.

Reason for Change:

The protocol requires an adjuvant to be used in the foliar applications at a rate recommended by the adjuvant label. However, such rates may be too high for the corn and may result in damage to the plant's cuticle.

Impact on Study:

No negative impact. This rate conforms to local commercial practice.

Authorization:

7/27/2015
Dr. Keith Dorschner Date
Study Director

7/28/15
Sponsor Representative Date

cc: IR-4 QA Unit, Wixson, Sisco, Coughlin, Schwartz

THIS PROTOCOL CHANGE FORM COPIED ON COLORED PAPER IS AN EXACT COPY OF THE ORIGINAL

IR-4 Project Headquarters, Rutgers, The State University of NJ, 500 College Road East, Suite 201 W, Princeton, NJ 08540,
Phone 732.932.9575, Fax 609.514.2612

CHANGE# 9

IR-4 PROTOCOL AMENDMENT FORM

Project Title: Imidacloprid/Corn (seed crop) PR No.: 11270

Field I.D. No.: 11270.15-~~HI96~~ - HI196 error
CD 8/28/2015

Laboratory I.D. No.: 11270.14-YAR02

Description of Change:

It is permissible to use WetCit as a surfactant in the foliar sprays for this trial. It may be used at a rate lower than what is recommended on the WetCit label.

Reason for Change:

The protocol requires an adjuvant to be used in the foliar applications at a rate recommended by the adjuvant label. However, such rates may be too high for the corn and may result in damage to the plant's cuticle.

Impact on Study:

No negative impact. This rate conforms to local commercial practice.

Authorization:

Keith Dorschner 7/27/2015
Dr. Keith Dorschner Date
Study Director

M. P. Barney 7/28/15
Sponsor Representative Date

cc: IR-4 QA Unit, Wixson, Sisco, Coughlin, Schwartz

THIS PROTOCOL CHANGE FORM COPIED ON COLORED PAPER IS AN EXACT COPY OF THE ORIGINAL

Change 10

CHEMICAL/CROP/FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.14-HI196 Coughlin

IR-4 FIELD DATA BOOK

DEVIATION FORM **(PHOTOCOPY THIS PART IF NECESSARY)**

THE DATE THAT THE DEVIATION OCCURRED 6/26/15

THE DATE THAT THE DEVIATION WAS RECOGNIZED 6/26/15

THE DATE THAT THE STUDY DIRECTOR WAS NOTIFIED 6/30/15

METHOD OF NOTIFICATION (e.g. telephone, email, fax) email
(Include telephone notes or copy of email or fax in Part 3 of this book)

THE DEVIATION IS FROM *(check appropriate)* PROTOCOL X SOP'S

SECTION OF THE PROTOCOL OR SOP'S THAT IS AFFECTED 14.3

BRIEF DESCRIPTION OF DEVIATION: TRT 03, foliar application #1 was -6.04% under the target rate specified in the protocol. The under-application was discovered by measuring the unsprayed mixture after the application was completed.

EXPLAIN WHY THE DEVIATION OCCURRED: Sprayer calibration was performed on the ground and the sprayer output decreased slightly when the spray boom was elevated overhead during the spray application.

ABOVE DATA ENTERED BY: Julie Coughlin *DATE:* 8/3/15

FIELD PERSONNEL: DO NOT WRITE BELOW THIS LINE

STUDY DIRECTOR'S ASSESSMENT OF IMPACT OF THIS DEVIATION ON THE STUDY:
No significant negative impact

APPROVED BY:

Study Director/Date: 8/19/2015

Sponsor/Date: Deborah Carpenter Aug 19, 2015

PROTOCOL CHANGE NUMBER 10

cc: (QA) Field Research Director: Coughlin
Regional Field Coordinator: Sisco, Schwartz
Laboratory Research Director: Wixson

Trial Year 2015

This protocol change form when copied on colored paper is an exact copy of the original.

Change 11

CHEMICAL/CROP/FIELD ID NO: Imidacloprid/Corn (seed crop) ID No. 11270.15-HI196 Coughlin

IR-4 FIELD DATA BOOK

DEVIATION FORM **(PHOTOCOPY THIS PART IF NECESSARY)**

THE DATE THAT THE DEVIATION OCCURRED 7/27/15

THE DATE THAT THE DEVIATION WAS RECOGNIZED 7/27/15

THE DATE THAT THE STUDY DIRECTOR WAS NOTIFIED 7/28/15

METHOD OF NOTIFICATION (e.g. telephone, email, fax) email
(Include telephone notes or copy of email or fax in Part 3 of this book)

THE DEVIATION IS FROM *(check appropriate)* PROTOCOL X SOP'S

SECTION OF THE PROTOCOL OR SOP'S THAT IS AFFECTED 14.3

BRIEF DESCRIPTION OF DEVIATION: TRT 03, foliar application #1 was -5.78% under the target rate specified in the protocol. The under-application was discovered by measuring the unsprayed mixture after the application was completed.

EXPLAIN WHY THE DEVIATION OCCURRED: Sprayer calibration was performed on the ground and the sprayer output decreased slightly when the spray boom was elevated overhead during the spray application.

ABOVE DATA ENTERED BY: Jami Coughlin *DATE:* 8/3/15

FIELD PERSONNEL: DO NOT WRITE BELOW THIS LINE

STUDY DIRECTOR'S ASSESSMENT OF IMPACT OF THIS DEVIATION ON THE STUDY:
No significant negative impact.

APPROVED BY:

Study Director/Date 8/19/2015

Sponsor/Date Aug 19, 2015

PROTOCOL CHANGE NUMBER 11

cc: (QA) Field Research Director: Coughlin
Regional Field Coordinator: Sisco, Schwartz
Laboratory Research Director: Wilson

Trial Year 2015

This protocol change form when copied on colored paper is an exact copy of the original.