



2024 IR-4 Training Webinar

May 21, 2024

Please ensure your name displayed on Zoom is correct

This will be the name that goes onto your training certificate!

If sharing a computer, please list any other attendee names in the chat.

Friendly Reminders

- Please type any questions in the chat to be addressed after presentations
- Please stay muted when you are not speaking
- This will be recorded and available on WR-IR4 Works page

Agenda

- **Top field QA findings**
Scott Muir
- **Creating stamps in Adobe**
Ann Rasmussen
- **Greenhouse Trials Tips & Tricks, Part II**
Markus Clodius, Marylee Ross
- **Test Substance Storage & Receipt**
Nicole Soldan
- **Protocol considerations: Stacking Plots**
Rob Welker

Common QA Findings for Field

FCPI & FRDA Findings Paper and eFDBs

Scott Muir, IR-4 QA

rsmuir@ncsu.edu

919-515-1437



Part 2

1. Additional personnel entering data have not signed the eFDB.
2. CV and Training records of additional personnel entering data have not been uploaded to the eFDB.
3. eFDB training not included in Training Documents.

	A	B	C
	Name	Initials	Username
1	Real FRD	RF	rfrd
2			

Curriculum vitae

Name, Title, and Location
John Doe
Director of Something
IR-4 Project
1730 Varsity Drive
Venture IV, Suite 210
Raleigh, NC 27606

Education
B.S. in Chemistry, Some Prestigious University, Emerald City, OZ
M.S. in Some Agriculture Related Field, A More Prestigious University, NC
Ph.D. in Something even more obscure, The University of Dorne, Dorne, W

Professional Experience
Dates(s): 1963 - Present
Title: Director of Something
Name and Location: IR-4 Project — Raleigh, NC (USA)
Work Description: Perform very important duties ensuring that yada, ya
blah.

CERTIFICATE OF COMPLETION

This certifies that

John Doe

has completed the IR-4 Project Southern Region Electronic Field
Databook Training.

February 20 – 22, 2024

 
Philip Munk
IR-4 eFDB Administrator



Part 4

4. Test Substance information not completed in eFDB before 1st application.
5. Number of containers/volume of TS received doesn't match packing list/COC. FRD sometimes receives multiple containers, but considers only 1 container received for each trial.

Approx. Amount Received per Container	25
Amount Unit	ml
Number of Containers	1

Packing List/COC

Chemical	Lot No	Quantity x Amount
SL-573 400SC	VSH032-180129	2 x 25 mL

Part 4

6. Adjuvant data not complete and/or label not uploaded prior to 1st application.
- If the protocol states "rate recommended by the adjuvant label", we want to see how that rate was chosen (e.g., 1-4 pints/100 gal).



Ground, Aerial, CDA: Use 1-4 pints per 100 gallons of spray or 0.125-0.50% by volume.
Aquatic: Use 1-4 pints per 100 gallons of spray or 0.125-0.50% by volume.

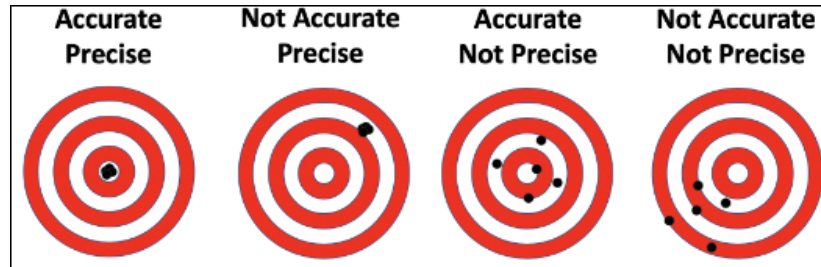
***Note:** The above use recommendations are considered to be adequate for most uses. Some pesticides however, may require higher or lower rates for optimum effect. Follow the pesticide(s) label(s) directions when this occurs.
For improved water penetration of hard-to-wet soils and the uniform distribution of applied moisture:

Lawns and Turf: Use INDUCE® at .50% v/v concentration.
Greens and Tees: Use INDUCE® at .125-.25% v/v concentration.
Deep Feeding Trees: Use INDUCE® at .25-.50% v/v concentration.
Application of INDUCE® through irrigation systems are possible provided that recommended use rates and dilutions are maintained and local, state, and federal guidelines are followed.

Part 5

7. Irrigation and Meteorological equipment missing from part 5.B.
8. Slope missing from Part 5.C.2.
9. GPS SOP is insufficient. Per Instructions on Part 5.C.1 *“Global Position System readings are acceptable for permanent reference points only if [SOPs] kept at the testing facility cover their use, accuracy, and precision”*.

Use = Operation (including verification/calibration) & Maintenance



Part 6

10. Application Diagram 6.B not available at 1st application.
11. Relative location and *size of the target crop missing from Application Diagram 6.B...or...
12. *Size of target crop at subsequent applications either missing or not coded with *late entry* or *new/additional information*.

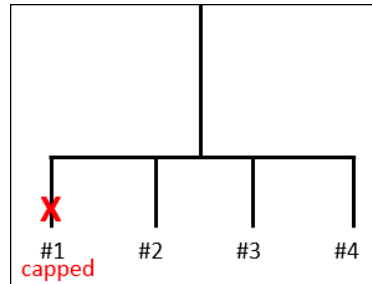
This goes for any form with data entered or corrections made **after** ABOVE DATA ENTERED
BY/DATE

*Consider writing on your paper diagram “Size of crop: See Part 6H”.

Part 6 continued

13. Capped Nozzle Numbering Discrepancy:

- Form 11C does not allow custom “nozzle numbering”.
- If you cap Nozzle “#1”, you’ll have a discrepancy between your drawing and the form***.



	Run 1	Run 2	Run 3	
Collection Time (sec)	15.00	15.00	15.00	45.00
Nozzle #1 (mL)	460	445	470	
Nozzle #2 (mL)	460	445	475	
Nozzle #3 (mL)	460	445	475	
Total Volume Output (mL)	1380	1335	1420	4135

Number of Nozzles: 3 [Update] Number of Runs: 3 [Update]

Total Run Collection Time (sec)

Total Catch Volume (mL)

- Then you’ll have to add eFDB Notes:

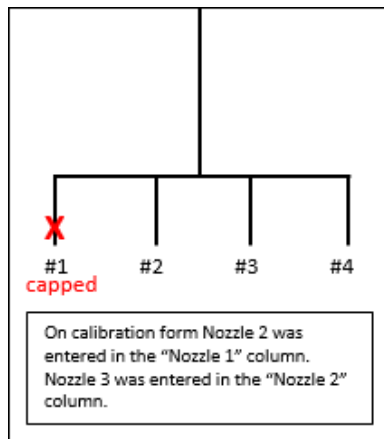
***3/28/2024 5:54:32 PM GMT +00:00 [redacted] \Form 11: Spray Equipment Description and Calibration *** A four nozzle boom was used with one nozzle capped. Since the eFDB cant accept zeroes I entered three nozzles into the eFDB forms. This applies to all three applications.

***3/29/2024 1:24:54 PM GMT +00:00 [eFDB Admin] \Form 11: Spray Equipment Description and Calibration *** Correction to [redacted]'s note regarding the number of nozzles: He couldn't put the number of nozzle =4 into Form 11C because that would change the broadcast application swath width auto calculation. He could have zeros for the nozzle #1 discharge calibration output, which some reviewers may like to see, since the nozzle was blocked, but then the swath width would be calculated as 4 nozzles X nozzle spacing. The correct swath width calculation is 3 nozzles x nozzle spacing.

Part 6 continued

13. Capped Nozzle Numbering Discrepancy (continued):

- Or you'll have to add a note to your diagram.

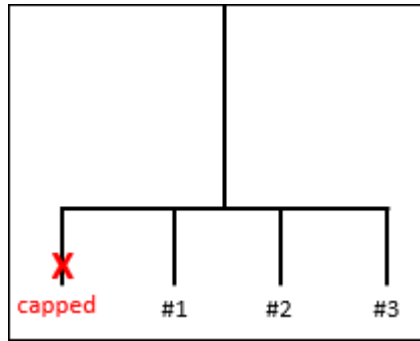


Number of Nozzles	3	Update	Number of Runs	3	Update
	Run 1	Run 2	Run 3		
Collection Time (sec)	15.00	15.00	15.00	45.00	Total Run Collection Time (sec)
Nozzle #1 (mL)	460	445	470		
Nozzle #2 (mL)	460	445	475		
Nozzle #3 (mL)	460	445	475		
Total Volume Output (mL)	1380	1335	1420	4135	Total Catch Volume (mL)

Part 6 continued

13. Capped Nozzle Numbering Discrepancy (continued):

- Consider the following for the diagram (don't over-think it).



Number of Nozzles	3	Update	Number of Runs	3	Update
	Run 1	Run 2	Run 3		
Collection Time (sec)	15.00	15.00	15.00	45.00	Total Run Collection Time (sec)
Nozzle #1 (mL)	460	445	470		
Nozzle #2 (mL)	460	445	475		
Nozzle #3 (mL)	460	445	475		
Total Volume Output (mL)	1380	1335	1420	4135	Total Catch Volume (mL)

- No Notes or explanation required.

Document & Notes

14. Trial ID (where required) and/or True Copy not included on uploaded documents. We still need definitive clarification regarding these.
15. Multiple uploads of the same document with no apparent “correction(s)”.
16. Uploaded document Filenames are difficult to follow. It looks like this is improving! **Exercise:** Pretend you are QA and you have to match the document uploads with the eFBD parts to which they belong.
17. Target Adjuvant rate not included in Notes when Form 12C is inadequate. We want to see how the rate was determined.

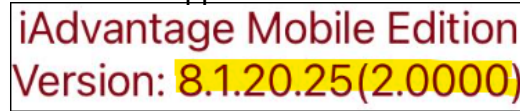
eFDB & Software Information

18. eFDB Device Maintenance Log not uploaded to eFDB.
19. Device Maintenance Log: eFDB software version doesn't match, i.e., 8.1.20.43 vs. 8.1.20.25 (recorded by FRD) vs. 8.1.20.15.

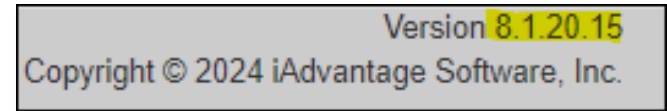
Windows Mobile



Apple iPad



Windows Online



- Note to QC/QA: This is only the difference between the Windows and Apple IOS Mobile Editions and the Online Edition. As QA, we only see the Online Edition.
- Note to FRDs: If you use both Online and Mobile, please include both - we need to consider this.
- Be aware that as iAdvantage versions are updated, these version numbers will change. The next update is scheduled for Thursday 5/23/2024 (but date could be subject to change).

eFDB & Software Information

20. Documents and Attachments (protocols, amendments, etc.) are unavailable in the Mobile Edition (unless you download them*). However, you must have access to the protocol, amendments and your SOPs while conducting the trial.

- * “Windows - they can select and download the document uploads directly in the program while online- but still have to save the file locally on their hard drive somewhere to open it outside the program while offline. There is no ability to download Attachments in the program directly and that is done entirely separately.” - *courtesy of Philip Moore*
- * “iPad - they can download while online the attachments and the document uploads and then view those they selected to download while offline entirely within the program.” - *courtesy of Philip Moore*

In Closing

- The EPA provides no guidance for electronic data and we don't know what *they* will “find”. Therefore, ensuring we accurately document exactly what we do is extremely important.
- QA is here ensure GLP compliance is achieved and that the entire study is reconstructable.
- Our “findings” are not directed toward you as a person.
- We use the protocol, (e)FDB instructions and the [QA Inspection Checklists](#) as a guide during inspections.
- We read your SOPs and expect that you follow them.

In Closing

- We are here to help but we must remain “...entirely separate from and independent of the personnel engaged in the direction and conduct of [the] study”. - *40 CFR 160.35(a)*
- We can suggest a course of corrective action. What the FRD/LRD/SD choose to do is your decision. The EPA inspector will not ask QA for an explanation. They will ask you.
- We are not infallible. We are, after all, *nearly* human.
- All QA Auditors should have their contact information in the eQA packet.
- Please contact us to discuss anything you don't understand.

In Closing

- The FRDs are the driving force of IR-4.
- Without your painstaking work, none of this would even exist, none of it!
- Thank you for all you do.
- Findings and deviations are not (always) bad things. They remind us to carefully review our protocols, SOPs, and our work. They can drive improvement.
- Let's work together to make everything we do better.
- Say what you do. Do what you Say. Be able to prove It. Continuously improve it.


Creating Stamps in Adobe for PDF Files (eFDB tips)

Ann Rasmussen



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada

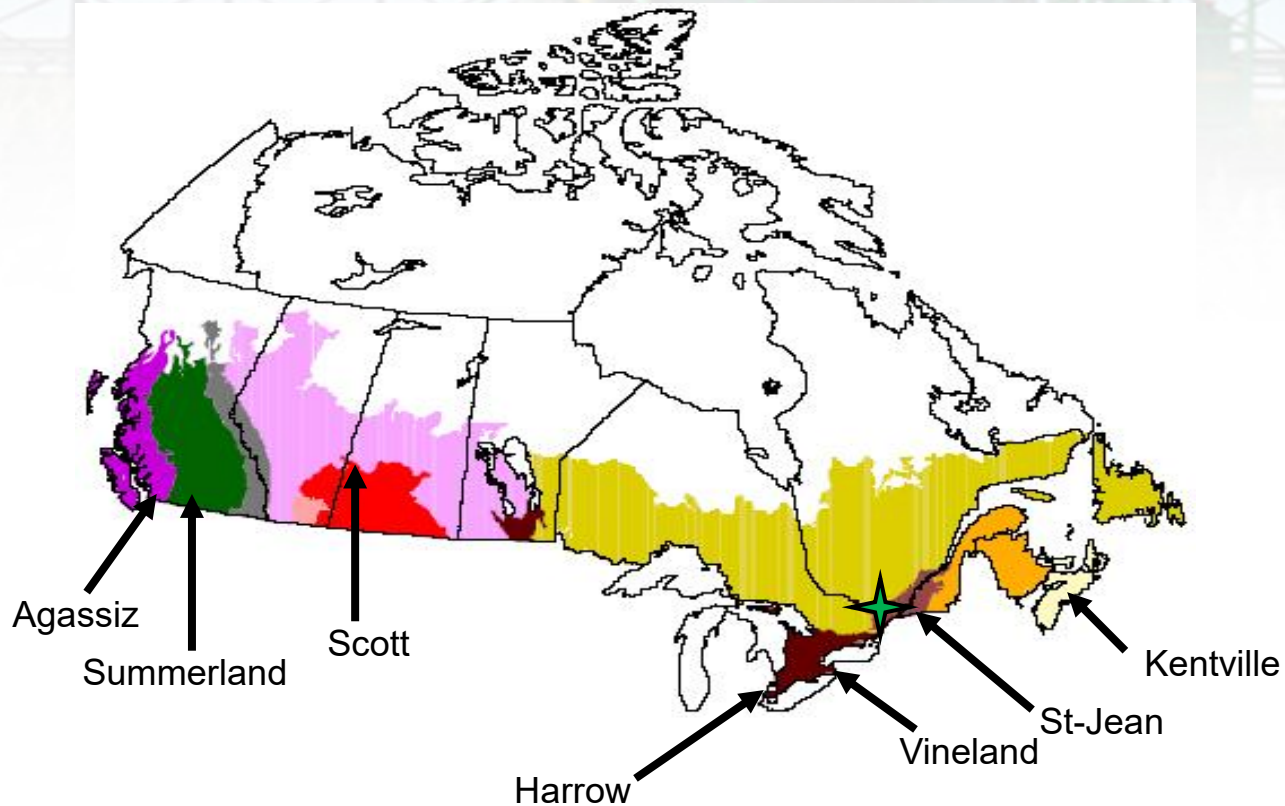


Greenhouse Trials Under the AAFC Minor Use Pesticides Program

Markus Clodius
Agriculture and Agri-Food Canada
Agassiz Research and Development Centre

Canada 

AAFC Minor Use Program sites



Strengths and Challenges

- Belonging to the same organization → consistent leadership and SOP
- Good working relations between site personnel
- Diversity of infrastructure
- Inconsistent help from other staff
- Varying demands of different crops

Harrow, ON



Summerland, BC



Agassiz, BC



Planning GH Residue Trials

What conditions are best for this trial crop?
(peppers vs strawberries)

How long will this trial take? (DFR trials vs cucumbers)

Is enough space available at this site for the proposed trial?

What spray equipment is required for this crop, and is it available?

Are there any special crop care practices to account for?

Respect Murphy's Law: grow more than you expect to need
(if you can).

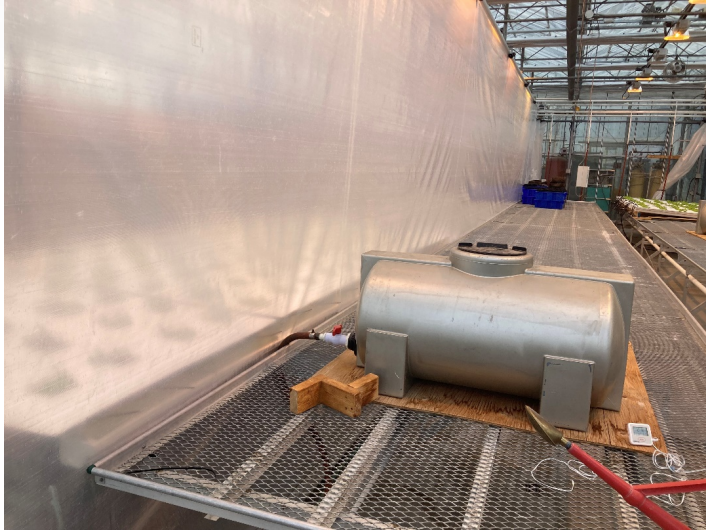
Crops also vary in their demands



How long will this crop cycle take?



Space and separation



How to spray – directed foliar



How to spray – broadcast foliar



Special crop care (e.g. pollination)



Respect Murphy's Law



Preparing for the Season's Greenhouse Magnitude of Residue Trials

May 21, 2024 IR-4
Training Webinar



Marylee Ross, University of Maryland, Lower Eastern Shore Research and Education Center, Salisbury,
Maryland

Receive Your List of Trials for the Year

This is ours for 2024

13290.24 CMD077 GF-4031 Cucumber (GH)

08037.23 MD153 Pyridaben Pepper (GH)

13289.24 MD159 GF-4031 Tomato (GH)

13545.24 MD161 GF-4031 Pepper (GH)

12609.24 MD156 Isofetamid Strawberry (GH)

Consider the Chemistries

- Do you have more than one trial with the same chemistry?
- Can they be done at different times?
- Can barriers be installed for separation?
- Anticipate maintenance pesticides

Plastic Barriers



Consider the Crops

- Do you have more than one trial with the same crop?
- How much space does each trial need?
- Does the UT and TRT plot need to be the same size?
- Is there a TRT o3?
- Is it a decline?
- Can 1 UT plot be shared with 2 trials?
- What time of year is best for each crop?
- What is the best variety for your Greenhouse?

Examples of Using Space Effectively and Efficiently



Consider the Location for each Plot in the Greenhouse

- Separation
- Can barriers be installed?
- Direction of airflow
- Vents, Fans and Heaters
- Obstacles that might interfere with application equipment
- Will the crop require supporting structure?
- Duration of trials

2024 Floor Plan, Greenhouse 2

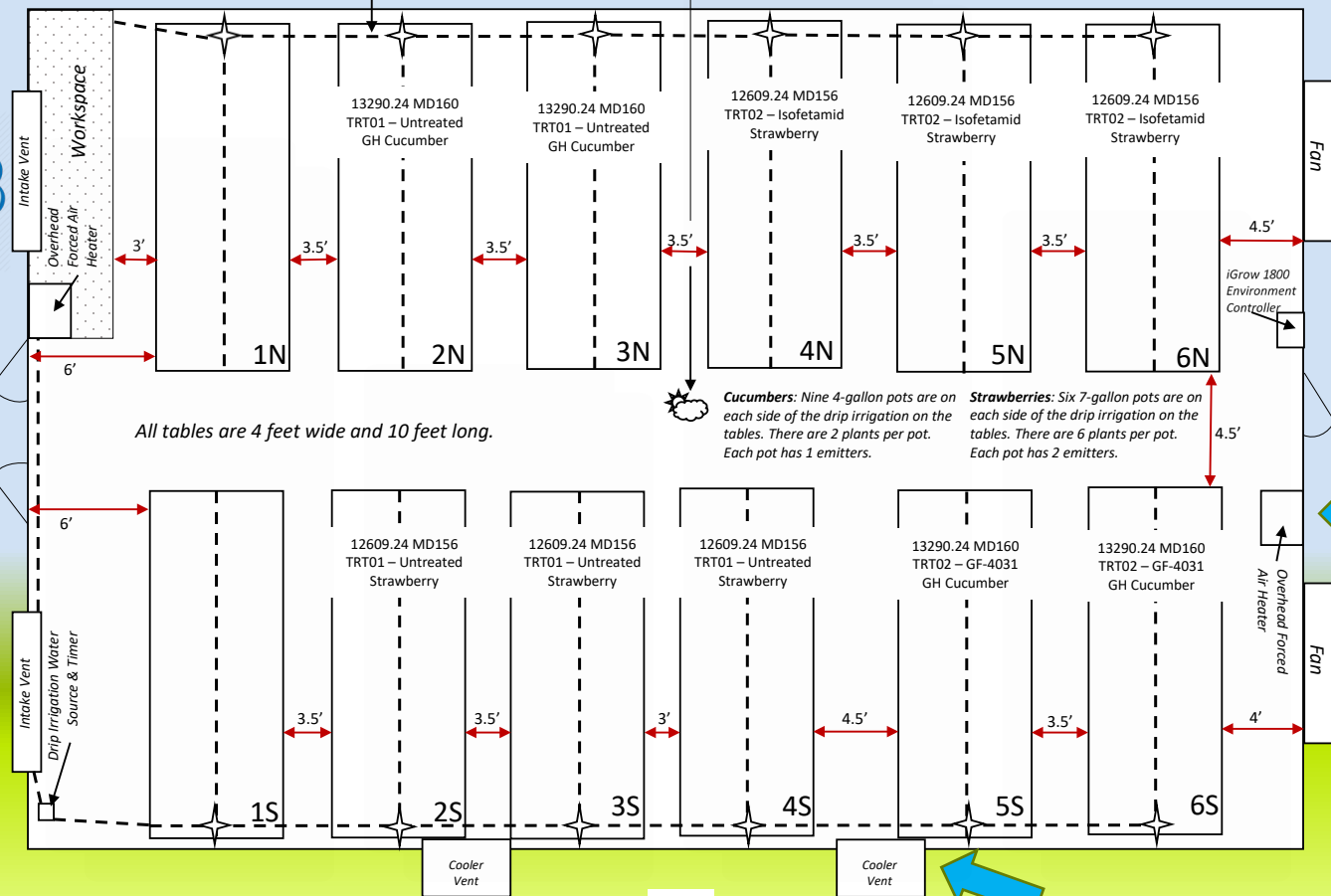
Univ. of Maryland, Lower Eastern Shore Research and Education Center, Salisbury, MD

TREATED & UNTREATED Strawberry & Cucumbers

HOBO Temperature, Humidity and Light Data Logger above.

N 0 Slope

Drip Irrigation



West

East

It can be helpful to develop a worksheet to use for planning. Here is an example of ours.

Field Trial Planning Worksheet

Field trial ID # _____

Crop _____ Variety _____

Days to Maturity _____ Seeding _____

Transplanting _____ Harvest _____

Plot Size: _____

Plot Maintenance Pesticides:

Fertilizer _____

Herbicide _____

Other _____

Notes:

Tentative Start Date _____ Tentative Finish _____

Field Trial Planning Worksheet

AAFC Study

Field trial ID # 13290-24 MD160

Crop G11 Cucumber Variety _____

Days to Maturity 50-51e (160 for planning) Seeding 04/15/24

Transplanting NA Harvest 06/14/24

Plot Size: _____

Plot Maintenance Pesticides:

Fertilizer 20-20-20 (or Miracle Gro)

Herbicide NA

Other _____

Notes:

2 apps @ 7 days (11) 1 day pH
harvest = 2 TRT01 + 2 TRT02 w/ 2 fruits

1st app
Tentative Start Date 06/10/24 Tentative Finish 06/14/24

Consider the Materials You Will Need

- PPE
- Growing medium
- Pots, twine, cages, sheet plastic
- Harvesting tools
- Data collection tools
- Anything you will need to produce a healthy crop and twice the yield needed for samples
- Items may be difficult to acquire quickly or may not be available later in the season

If You Have to Share a Greenhouse

- Make sure you understand what other researchers will be doing
- Coordinate your space and timing needs
- Make sure they understand what you are doing and the importance of GLP
- Make sure you can eliminate any opportunity for contamination ie. "don't touch my plants!"

Three Very Old 24 X 52 Greenhouses at LESREC



We are extremely fortunate to have a greenhouse dedicated to IR-4 trials. We do not have to coordinate with or worry about other researchers' activities. We can also keep it locked so no one else has access. It turns out that ripe strawberries and tomatoes are very tempting.

A photograph of a sunset or sunrise over a body of water. The sun is a bright orange orb partially obscured by dark, silhouetted mountains. The sky is filled with clouds, some of which are illuminated by the low sun, creating a mix of orange, pink, and blue hues. In the foreground, the dark, curved tops of several domed structures, possibly observatories or greenhouses, are visible. The word "THANK YOU!" is written in large, bold, yellow capital letters across the center of the image.

THANK YOU!

Test Substance Receipt and Storage

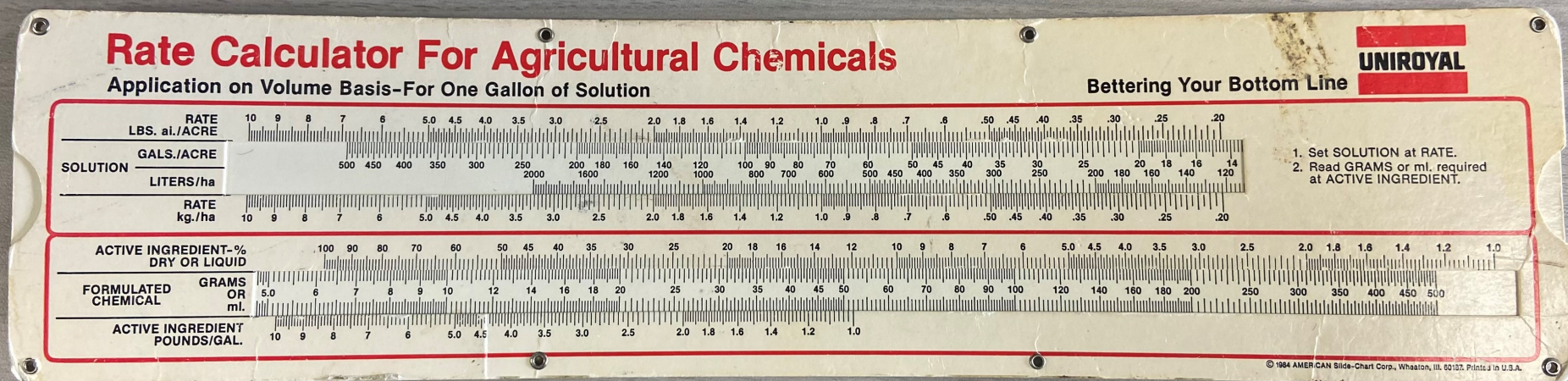


Prior to Receipt

- **SD will calculate the amount of TS needed.**
- **Usually, the TS amounts and dates needed are included in the draft protocol. Review this table (Section 23) and notify SD if this quantity or timing is not accurate.**

How to Calculate Amount Needed

Some FRDs use a slide ruler



ARM

New Protocol

Create New Protocol From...

Protocol Template

Select Protocol Template... Selected protocol template: None

-OR-

Custom Settings

New Protocol Checklist

- ✓ Study design: Randomized Complete Block (RCB)
- ✓ Replicates: 4
- ✓ Plot size: 4 x 6 meters
- ✓ Treatments: 2
- ✓ Untreated treatments: 1
- ✓ Treatment units: Metric (%)
- ✓ Study Definition: Standard (G-All7)

☐ Conduct under GLP/GEP

Settings

Default

Protocol Settings...

Create Protocol

Cancel Help

Documentation examples

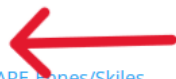
Pages from past notebooks showcasing [excellent documentation](#) by field researchers

Equipment Ideas

- [Greenhouse Sprayer](#)
- Airblast Sprayer: [Drift Demonstration](#)
- Fruit Pitters: [Cherries/Olives](#)
- Mazzei, Dosatron & Bulk [Injector Systems](#)
- CO2 Regulators for Backpack Sprayers
- Sprayer Output [Catch Jigs](#)
- Tractor Mounted [Offset Boom](#)
- How to Hit 5 GPA [Low Volume Applications](#)

Tricks of the Trade for FRDs

- [Estimating RAC Sample % moistures](#)
- Plot Mapping with [Android Phone](#) and [iPhone](#)
- GPS-Phone [Tips & Tricks Presentation](#) (PDF)
- Permanent Marker: [How Close?](#) Example:[Log](#)
- 2017-NEC: Jacuzzi GPS Verification [Demonstration](#)
- Test Substance Receipt [Comparison and Tracking](#)
- Test Substance [Check In and Out Log](#) (PDF)
- Calculating Amount of [Test Substance Needed](#)
- Field Data Notebook Checklists: [NCSU-Batts](#), [KARE-Ennes/Skiles](#)
- Adjuvant Mix [Cheat Sheet](#)
- Nozzle Choice – [GPA Calculation Sheet](#)



Test Substance Receipt

- **Make sure container is labeled appropriately**
 - TS name, Lot No., Storage Conditions, Exp. Date, CAS or code
- **Check expiration date**
- **Compare TS information between protocol, TS container, and C of A**
- **If there are any discrepancies, contact the SD**
- **Check in TS in FDB/eFDB**

WSR ir4works.org Resource



HOME FRDs ▾ PROJECTS ▾ SLRs ▾ TRAINING ▾ **RESOURCES ▾** CONTACTS ▾ 🔍



Resources for FRDs

Phytotoxicity Ratings for CA Trials

2023 [phytotoxicity rating sheet](#) (use for 2023 notebooks)

2022 [phytotoxicity rating sheet](#) (use for 2022 notebooks)

Custom Pages and Forms

[Forms and custom pages](#) created by FRDs for planning, applications, sampling and others

Documentation examples

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Tricks of the Trade for FRDs



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- Adjuvant Mix [Cheat Sheet](#)
- Nozzle Choice – [GPA Calculation Sheet](#)



Wisconsin Test Substance Storage



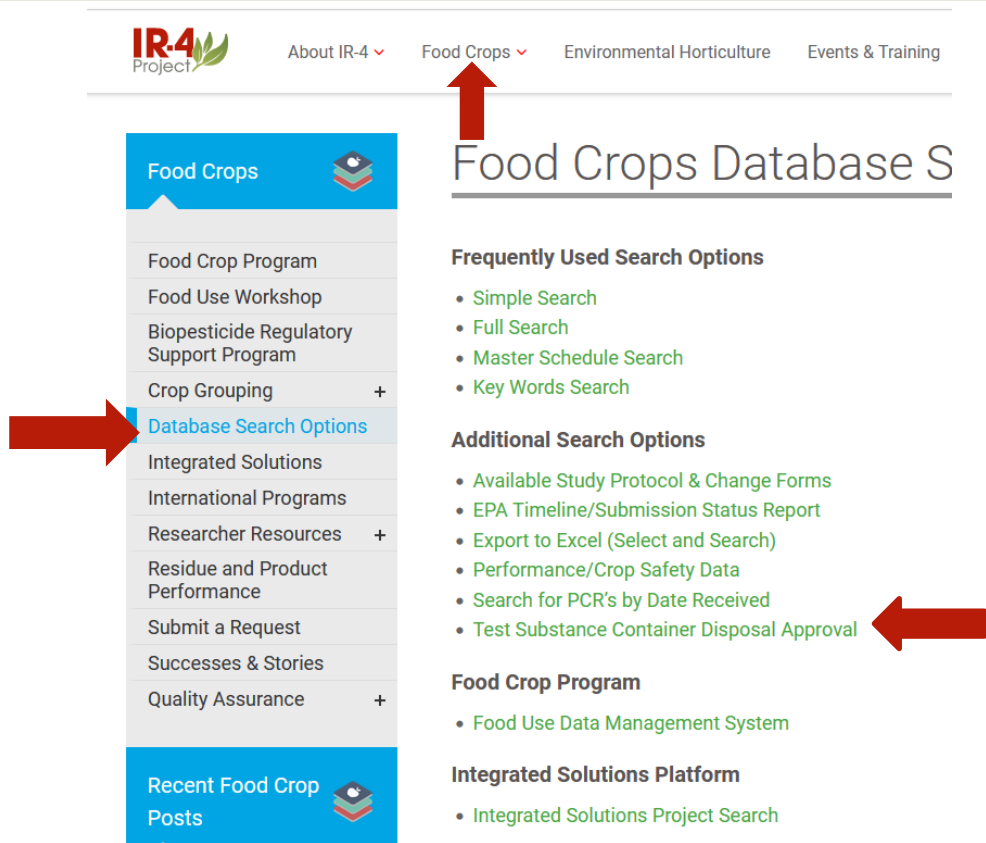
Fennville, MI Test Substance Storage



North Carolina Test Substance Storage



Disposing of Test Substance



The screenshot shows the IR-4 Project website. The top navigation bar includes the IR-4 Project logo and links for 'About IR-4', 'Food Crops', 'Environmental Horticulture', and 'Events & Training'. A red arrow points to the 'Food Crops' link. Below the navigation bar, the 'Food Crops Database Search' section is visible. On the left, a sidebar menu lists various options, with 'Database Search Options' highlighted by a red arrow. The main content area displays 'Frequently Used Search Options' and 'Additional Search Options'. A red arrow points to the 'Test Substance Container Disposal Approval' link under the 'Additional Search Options' section.

IR-4 Project

About IR-4 Food Crops Environmental Horticulture Events & Training

Food Crops

Food Crop Program

Food Use Workshop

Biopesticide Regulatory Support Program

Crop Grouping +

Database Search Options

Integrated Solutions

International Programs

Researcher Resources +

Residue and Product Performance

Submit a Request

Successes & Stories

Quality Assurance +

Recent Food Crop Posts

Food Crops Database Search

Frequently Used Search Options

- Simple Search
- Full Search
- Master Schedule Search
- Key Words Search

Additional Search Options

- Available Study Protocol & Change Forms
- EPA Timeline/Submission Status Report
- Export to Excel (Select and Search)
- Performance/Crop Safety Data
- Search for PCR's by Date Received
- Test Substance Container Disposal Approval

Food Crop Program

- Food Use Data Management System

Integrated Solutions Platform

- Integrated Solutions Project Search



Thank you!



Questions?



Stacking Plots/ Maintenance Chemicals

Rob Welker

Stacking Plots

Stacking treated plots:

- Using the same plot area for 2 or more different trials.
- Done when plant availability or space is limited.
- Not encouraged. If something goes wrong in a plot, you can lose multiple trials. It also ties multiple studies together if EPA audits one, they likely will open the other.

Stacking Plots

Stacking treated plots:

- Is a deviation from protocol section 16: “Make identical applications to the treated and untreated plots.”

Stacking Plots

Stacking treated plots:

- **Best to obtain permission to do before trial initiation so language can be written into the protocol to allow SPECIFIC trials to be stacked.**
- **Study Director will confirm with the lab that no interference with analysis of test substances could occur.**

Stacking Plots

Stacking Untreated plots:

- Can be done without protocol amendment.

For any stacking, consider sampling requirements. Less than 50% of the harvested crop FOR BOTH TRIALS is the standard; Not <50% for the first trial, then <50% of what is left for the second trial

Maintenance Chemicals

Always be aware of chemistries that are similar to, or can interfere with the analysis of the test substance.

How do you know?

Do not assume that herbicides, fungicides and insecticides do not interfere with each other.

Maintenance Chemicals

But the best method to tell if there might be a problem with analysis is to ask the Study Director before use.



LEARN MORE

ir4project.org
ir-4_project@ncsu.edu

Thank you for attending the Quarterly IR-4 Training!

- *Please send ideas for future training to your RFC or Christina Dineen*
- *Please send updated contacts for future training to Christina Dineen*
- *Next Webinar (Save the Date!): **August 20***