



IR-4 Project Management Committee Spring Meeting

March 5 - 7, 2024
Agenda and Handouts



AGENDA
Joint IR-4 Commodity Liaison Committee/Project Management Committee Spring 2024 Meeting
Hyatt Place-National Mall
400 E St SW, Washington, DC, 20024

Zoom Link: <https://ncsu.zoom.us/j/99158909390?pwd=cld6ZVZuUjVnaUxGYzQxS3VBYTlwdz09>
 Meeting ID: 991 5890 9390 | Passcode: 190563

Tuesday March 5, 2024

08:30 am	Friends of IR-4 Business Meeting (Friends of IR-4 Only)
09:30 am	Joint Project Management Committee/Commodity Liaison Committee
	<ol style="list-style-type: none"> 1) Welcome and comments from the Current Chairs: (Hengel & Scholz) 2) Approval of minutes, new agenda items (Hengel) 3) 2023 IR-4 Year End Summary (Baron) 4) CLC Report (Scholz) <ol style="list-style-type: none"> a. Membership b. Advocacy Plans (Beaudreau) 5) Priority Setting/New Research <ol style="list-style-type: none"> a. Debrief from 2023 Priority Setting Workshops (Axtell & Palmer) b. Plans for 2024 (Axtell & Palmer) c. Key dates associated with 2025 priority setting (Axtell & Palmer) d. Trends and Concerns (Baron) e. Rethinking Priority Setting (Baron) 6) Global Minor Use Summit/Minor Use Foundation (Drost & Gore) 7) USDA Assisting Specialty Crop Exports (ASCE) initiative (Baron) 8) Rethinking processes within Biopesticide Regulatory Support (Baron) 9) Enhancement of training (Baron) 10) Upcoming Meetings (Chojnacki) <ol style="list-style-type: none"> a. Summer PMC meeting: July 9-11 b. 2024 Food Program Workshop: September 10-12 c. Fall PMC meeting/NRPM: October 21-25 d. 2025 Joint CLC/PMC meeting: March 4-6
03:30 pm	<ol style="list-style-type: none"> 11) Partner Updates <ol style="list-style-type: none"> a. USDA-Office of Pest Management and Policy (Nesci) b. EPA (Messina, Smith, Fitz & others) c. USDA-NIFA (Toombs)
05:00 pm	Reception

Wednesday March 6, 2024

8:30 am	<p>Project Management Committee meeting....continued</p> <p>14) Management Reports</p> <ol style="list-style-type: none"> a. Administrative Advisors (Buhler, et.al) b. NIFA Report and other topics (Goswami & Samuel-Foo) c. Regional/ARS Reports (Zebelo, Hausbeck, Gu, Hengel, and Simmons) d. HQ Report <p>15) Program Reports - Part 1</p> <ol style="list-style-type: none"> a. Environmental Horticulture (Palmer) b. Biopesticide Regulatory Support/International Capacity Bldg (Braverman) c. Communications (Ross) d. Grant Processing (Chojnacki) e. Technology Team & E-FDB (Byrtus & Moore) <p>16) Last minute plans for Congressional Lunch and Learn (Beaudreau)</p>
10:45 am	Adjourn for Lunch & Learn Setup
Noon	<p>Lunch & Learn¹</p> <ul style="list-style-type: none"> • Welcome and Introduction of IR-4 <ul style="list-style-type: none"> ○ Mike Aerts, FFVA to MC ○ Jerry Baron, Overview of IR-4 • Speakers representing specialty crops <ul style="list-style-type: none"> ○ Rachel Roberts, American Mushroom Institute ○ Jonathan Sarager, Western Growers ○ John Walt Boatright, AFBF ○ Amy Upton, MNLA ○ Maggie Elliott, Hops • IR-4 Current and Future Issues: (Aerts) • Questions and Closing
01:30 pm	Breakdown and return to hotel
2:15 pm	<p>17) Program Reports – Part 2</p> <ol style="list-style-type: none"> a. Food Program (Carpenter) <ol style="list-style-type: none"> i. Residue Research <ol style="list-style-type: none"> 1. Field program/capacity 2. Submissions 3. Laboratory 4. QA (Mazlo) ii. Product Performance Research (Axtell) iii. Integrated Solutions Research (Axtell) iv. Education & Training Committee (Dineen) <p>18) National SOPs</p> <p>19) Test & Reference Substance issues</p>
5:00 pm	20) Other topics/Adjourn

Thursday March 7, 2024

08:30 am	Executive Session ²
11:30 am	Adjourn

¹ HC-8 on the basement level of the United States Capitol Building

² Members of Project Management Committee and invited guests only

Approval of Minutes, New Agenda Items

Presenter: Matt Hengel





MINUTES
Project Management Committee
Fall 2023 Meeting
October 23-25, 2023
Raleigh, NC

MOTIONS AND ACTION ITEMS

Motions/Consensus Items:

1. A motion to approve the minutes of the Summer 2023 PMC Meeting of July 11-12, 2023 with the correction to the spelling of Joon Park's name, was made by Todd Scholz, seconded by Alvin Simmons. **Unanimously approved.**
2. A motion to allow the National Education and Training committee to proceed with development of national SOPs using the same process as with advisories was made by Alvin Simmons; seconded by John Wise. **Unanimously approved.**
3. A motion that the PMC empowers the Executive Director to move funds to cover a deficit in Product Performance funding during the National Research Planning Meeting, if good residue field trials are not available, was made by Alvin Simmons; seconded by Simon Zebelo. **Unanimously approved.**
4. **Consensus:** To move forward with the full transition to the eField Data Notebook during the 2024 field season. Understanding the importance of the eField Data Notebook's full rollout to the future success of the IR-4 Project, and in response to the feedback and concerns that the PMC heard regarding the full transition, the PMC has decided to add trainings for the Regional Field Coordinator's and Field Research Director's to boost familiarity with the software, with the goal of full transition to this system during the 2024 field season. The PMC has full confidence in the leadership and capabilities of the RFCs, FRDs, Headquarters, and the IR-4 team as a whole, to ensure the successful rollout.
5. A motion was made to adjourn the meeting at 11:58 am by Alvin Simmons, seconded by Todd Scholz. **Unanimously approved.**

Motions/Consensus Votes Made Via Email In-Between Regular Meetings:

1. The PMC voted via email for approval of the following new members to join and fill vacancies in the IR-4 Project Education and Training Committee: Nicole Soldan, Johanna Mazlo, Kristen Searer-Jones, Chanz Robbins, and Faradeh Rehfield. **Unanimously approved by written consent.**

Action Items:

1. **Action Items:** 1) Provide eField Data Notebook training for the Regional Field Coordinators and solicit feedback for regional training and information exchange with Field Research Directors; 2) Solicit support from Field Research Directors who have already piloted the eField Data Notebook and serve as train the trainers; 3) Hold in-person National Education Trainings in California and Florida (due to the field seasons in these regions approaching more rapidly); and

- 4) Offer enhanced online training, weekly office hours and open lines of communication to provide support from Headquarters.
2. **Action Item:** Michael Braverman, by the March CLC/PMC Joint Meeting, to provide an accounting of what work has been done (successes and failures) in the past five years on the spreadsheet supplied, include what projects are in the queue to be completed as well as requests that have come in (including notes on why a project was not advanced), what criteria is used for evaluation of projects and to assess the ability of the submitter to meet the data demands, and an accounting of IR-4 FTE's spent on biopesticide projects.
3. **Action Item:** Jerry Baron to initiate a Technology Committee led by Jimmy Byrtus, that is representative of the regions, headquarters and the various fields of work of the IR-4 Project.
4. **Action Item:** Jerry Baron to add a standing agenda item to PMC meeting agenda's to review changes to regional field capacity.

Members:

Jerry Baron; IR-4 Executive Director
 Doug Buhler; Administrative Advisor-NCR
 Rubella Goswami; USDA- NIFA
 Liwei Gu; Regional Director-SOR
 Mary Hausbeck; Incoming Regional Director - NCR
 Matt Hengel; PMC Chair; Regional Director-WR
 Marcel Holyoak; Administrative Adviser – WR
 Steve Lommel; Administrative Adviser- HQ

Todd Scholz; CLC Vice- Chair
 Alvin Simmons; USDA-ARS
 John Wise; Outgoing Regional Director-NCR
 Simon Zebelo; Regional Director - NER

Presenters:

Alice Axtell, IR-4 HQ
 David Beaudreau; DCLRS
 Michael Braverman; IR-4 HQ
 Jimmy Byrtus; IR-4 HQ
 Debbie Carpenter; IR-4 HQ
 Krystal Chojnacki; IR-4 HQ
 Christina Dineen; IR-4 HQ
 Anna Gore; Minor Use Foundation

Johanna Mazlo; IR-4 HQ
 Philip Moore; IR-4 HQ
 Cristi Palmer; IR-4 HQ
 Hannah Ross; IR-4 HQ
 Amy Upton; CLC Member

Monday, October 23, 2023 1:00 pm to 5:00 pm ET

Matt Hengel called the meeting to order at 1:11 PM–

1. Welcome and comments: (Lommel)
 - Introductions
 - M. Hengel welcomed the group and initiated introductions around the room and on zoom.
 - S. Lommel welcomed the group to NC State and reported: that IR-4 Headquarters is settled at its new home here at NC State; updated on the delay in the passage of the State of North Carolina budget that included a salary increase for employees both this year (4%) and next (3%) across the board; there will be \$1 billion worth of construction projects on campus starting this year; our State Agriculture research station also received some one-time and continuous funding allocations to upgrade the research sites; updated about NC State's new research enterprise data system transition and issues; that NC State is growing (particularly STEM fields) and admissions is continuing to be competitive; and that Dr. Garey Fox has moved into the Dean position at CALS.

- A discussion was held about the student enrollment at NC State, out-of-state tuition, and J. Baron thanked Dr. Lommel and the college for all of their support.
2. Approval of minutes, new agenda items (Hengel)
- A. Simmons noted a correction needed to be made to the spelling of Joon Park's name.
 - **A motion to approve the minutes of the Summer 2023 PMC Meeting of July 11-12, 2023, with the correction to the spelling of Joon Park's name, was made by Todd Scholz, seconded by Alvin Simmons; unanimously approved.**
3. Funding Update
- Delays in distribution of 2023 funds (Chojnacki)
 - K. Chojnacki provided a timeline of events related to grant award issuance and the implementation of the new NC State RED system.
 - A discussion was held regarding impacts of delays in funding on research, personnel turnover in the awards management division at NIFA, and working toward improvement for next year.
 - Status/expectations with 2024 Appropriations (Beaudreau)
 - D. Beaudreau reported: that the US House of Representatives is currently without a Speaker; November 17 is the forthcoming government shutdown date without passage of a continuing resolution; Friends of IR-4 will schedule a meeting with OMB to provide a background of the IR-4 in early January; and a Lunch and Learn is being scheduled on the Hill in early March along with Hill visits to increase authorization for IR-4 and also work on the Farm Bill.
 - A discussion was held regarding the success of the Lunch and Learn that happened last year, that two Congressmen visited Dr. Zebelo's lab at the University of Maryland Eastern Shore, and if any of the nominees for Speaker of the House serve on the Agriculture Committee.
4. AA Update
- NRSP-4 funding and potential plans for 2024
 - D. Buhler reported that previous messaging that stated there would be a 50% cut in NRSP-4 funds was a mistake; the proposed reduction is 15%. This is not ideal so they are working to identify what they can do to avert the reduction in funding, including an educational tour.
 - A discussion was held regarding the philosophy of funding programs long term versus novel project, and two categories of NRSP: specific topic funding and long term programs funded by NRSP and historic policies.
5. Unit updates
- USDA
 - NIFA
 - R. Goswami reported: on several leadership transitions at NIFA including a new director Dr. Manjit Misra who started in May and that there is a potential to meet with him in Washington DC in March; NIFA is working to carryout Executive Orders coming down focused on DEI efforts; NIFA's climate adaptation plan was well recognized and they are now releasing accompanying climate roadmap; new rapid response program at NIFA to aid with natural disasters; the NIFA Plant Protection group is now fully staffed; RFA's will be receiving an updated look and NIFA is undertaking a grant management system upgrade.
 - A discussion was held regarding the work the IR-4 Project is undertaking to better engage minority serving institutions.

- ARS
 - A. Simmons presented on behalf of Dr. Joseph Munyaneza reporting: ARS has prepared for the potential government shutdown of offices/labs. They will be sending updates to IR-4 HQ on where they are at with trials and labs ahead of the potential shutdown; ARS continues to work within a flat budget; the new facility at the Salinas location will have a ribbon cutting ceremony; reviewed vacancies and noted that hiring challenges and delays remain but the team continues to work as best as they can to support the research.
 - J. Baron commended the efforts of the ARS staff in their work to finalize field trials prior to shut down. A discussion was held regarding spending restrictions for ARS during a shutdown.
- CLC
 - T. Scholz reported on: three pending new CLC members from Crop Life, Cover Cress, and The American Floral Endowment; Arkansas and Florida restrictions on working with Syngenta and how it might impact the grower community; an effort to prepare a new look at IPM strategy – via a whitepaper- supported by the Foundation of Food and Agriculture Research; Natural Resource Conservation Service potential funding opportunities for training for climate smart technologies; and the Endangered Species Act herbicide strategy released and forthcoming insecticides and fungicide strategies including zones.
 - A discussion was held regarding the mitigation measures proposed under the pre-determined ESA timelines and the relative ability (or not) for producers to implement the measures.

Break at 3:05 pm and reconvene at 3:22 pm.

- North Central Region (Buhler and Wise)
 - J. Wise reported: the field season was mostly good in the NCR; this year saw pests that they know exist in the mid-west but that they typically don't see; Nicole Soldan is doing a great job reaching out to new researchers and FRDs in the region and has established additional collaborative supportive relationships; and that Mary Hausback is moving into the role of Regional Director of the NCR.
 - M. Hausbeck noted that she is very committed to IR-4 and its' mission and D. Buhler thanked Mary for her willingness to step up and thanked John for all he had done from the IR-4 Project. The group welcomed Mary to the PMC.
- Northeast Region (Kairo and Zebelo) (Handout)
 - S. Zebelo thanked the RFC's in his region and reported: on the progress of field trials (food and EHC) and the associated reports submitted; funding distribution to subawards underway and processing of no cost extensions; there is excitement and commitment to the environmental horticulture research funded by the ARS Cooperative Service Agreement; NER will present on IR-4 at a regional small farm forum; and that the International Symposium on Black Entomologists is having an upcoming event that S. Zebelo will present on IR-4.
- Southern Region (Davis and Gu) (Handout)
 - L. Gu reported: on recent restrictions on Florida Public institutions of higher education collaborating with countries of concern and it was determined that Syngenta and ADAMA were impacted. Through the efforts of AA John Davis, IR-4 requested and received a waiver that removes the limits of collobration with Syngenta/ADAMA in

- Florida. L. Gu reported that he met with his new Department Chair about the IR-4 Project and expects continued support.
- L. Gu further reported: that field trials are moving along and Janine is monitoring these; the lab team is young but stable and will continue to get better; QA is moving forward well and Kathleen is auditing many books.
 - Western Region (Holyoak and Hengel)
 - M. Hengel reported: on working toward a resolution to get money out to partner universities; the need to vacate the laboratory for seismic renovation in Spring and that may impact productivity; the field data notebooks for 2022 have been submitted and 2023 is on track; working toward hiring Sherita Normington's replacement; that a new instrument has been installed in the laboratory; the final project received from the closing lab in MSU is being processed; and they have hosted and trained several international groups over the past several months.
 - A discussion was held regarding succession planning for retirements in the Region.
 - Headquarters (Lommel and Baron)
 - J. Baron reported: the status of position searches, new hires and staff transitions at HQ; that in 2023 we have broken the 1,500 new project clearance request threshold; the success of the FUW's over the years due to all of the ground work put in by the Regional Field Coordinators; that the residue and product performance programs are on track for the new season and Integrated Solutions; and that the EHC priorities were set for the next few years in spite of some challenges with the event venue.
 - A discussion was held regarding how to measure impact and deliverables with the Integrated Solutions program, as well as residue, product performance, EHC and Biopesticides, and how to leverage the successes to receive additional funding for research.

The meeting recessed for the evening at 4:29 pm.

Tuesday, October 24 9:00 am to 5:00 pm

Matt Hengel reconvened the meeting at 9:00 am.

- J. Baron continued his HQ report and provided background on the existing contract archive file storage company takeover and issues as a result.
- A discussion was held regarding: trials in archives that still may be registered; worst case scenario if boxes are lost; the future involvement of legal counsel; the length of time they have held our boxes since we could retrieve them; that this might be a file storage industry issue; how this might impact us in an audit; and how sure we are that Storr Records won't be bought out and the same thing happen.

6. Research Program Updates/Reports

- Food Program
 - Residue Research Program
 - Field (Presentation)
 - D. Carpenter reported: that there were 1,564 new uses and 207 tolerances through September; on 9 submissions through September; on the status of crop grouping; and on the status of the 2023 and 2024 residue program.
 - D. Carpenter further reported: on the need for the timely return of field data books from the regions; that this issue becomes more critical as the

analytical backlog is being addressed; that one book can hold up a whole study; that if a submission is missed, it can be years before it can be submitted; and additional internal and external regulatory challenges.

- A discussion was held regarding the delay of field data books and how it impacts QA and audits, and how violators are being notified.
- Analytical Laboratories (Presentation)
 - D. Carpenter reported on the current status of the laboratory backlog in each lab and plans of addressing the backlog at each facility (if any) and reviewed the studies currently in contract labs.
 - A discussion was held regarding the time and difficulty for developing methods for difficult chemistries (ex. Triazoles) and the progress of the contract labs in analyzing the backlogged studies.
- Quality Assurance Unit (Presentation)
 - J. Mazlo reported: on EPA compliance monitoring; updated on QA staff, work on the electronic field notebooks, and scoping out a new system to replace eQA; on the 2022 and 2023 Audit/Inspection Data; on eQA trainings conducted and audit packages managed; and eDocs Update.

Break at 10:29 am and reconvene at 10:45 am.

- Product Performance Research & Integrated Solutions Research (Presentation)
 - A. Axtell reported: on the 2024 budget allocation for the field program; the priorities for each research area that came out of the Food Use Workshop including 43 “A” Priorities, 11 “H+,” 8 upgrades, and 14 Integrated Solutions Projects; and that they have worked to identify funds to cover some carryover projects from 2023.
- Environmental Horticulture (Presentation)
 - C. Palmer reported: on outcomes and impacts on registrations for 2023 to date; reviewed historic successes since the Environmental Horticulture Program started in 1977; the results of the Grower & Extension Survey; reviewed the outcomes of the Biennial Priority Setting session in early October; and historic program funding.
 - A discussion was held regarding a forthcoming publication.
- Biopesticide Regulatory Support (Presentation)
 - M. Braverman reported: on the status of active submissions to EPA; reviewed new projects including Cucumber Green Mottled Mosaic Virus and RNAi of Red Palm Weevil; on several potential future projects; on an emerging new pest the Tropi Mite; and reported on new regulations issued from APHIS-Biotechnology Regulatory Service.
 - A discussion was held regarding PRIA fee exemptions and issues encountered with prior projects.

7. International/Minor Use Foundation (Gore) (Presentation)

- A. Gore gave an overview of the Minor Use Foundation, the work they do and problems they address, their priority setting process, and their training program. A. Gore shared information on the upcoming Global Minor Use Summit February 5-9, 2024 in Madrid, Spain.
- A discussion was held regarding whether new registrations are benefitting smallholder farmers throughout the world or just large scale farms and funding opportunities.

Break at 12:05 pm and reconvene at 12:35 pm.

8. Electronic Field Data Notebook(eFDN) (Moore and Byrtus) (Presentation)
 - P. Moore reported on: the status of the launch, that 16 applications have been conducted and 1,679 data points loaded into the system; shared early results and nuisances of the system specific to IR-4; feedback from the FRD's; limitations and downstream considerations; looking forward to 2024; and discussions with regional offices.
 - A discussion was held regarding flags for researchers shown in the system; workarounds; concerns from RFC's that researchers are not ready to fully transition into the eFDN due to the quick ramp up; the training and roll out that has taken place since the eFDN was approved; strategies to enhance comfort with use of the software including use of a "buddy system;" implementing a mock trial all together using the eFDN; and a culture shift to embrace new technology as called for in the Path Forward 2.0 Implementation plan. This item was deferred for further discussion in Executive Session.

9. Training Committee (Dineen) (Presentation)
 - C. Dineen reported: on membership updates to the committee; planning underway for the 2026 National Education Conference, including site selection; distributing National SOPs via eQA; upcoming SOPS in the queue to be written; and asked for guidance on whether or not the PMC wanted to approve work on SOPs or to manage them as we do advisories.
 - A discussion was held regarding the composition of the training committee being representative of the regions.
 - **A motion to allow the National Education and Training committee to proceed with development of national SOPs using the same process as with advisories was made by Alvin Simmons; seconded by John Wise; unanimously approved.**
 - C. Dineen further reported: on a protocol template revision draft that will be prepared by July 2024; and updated on the advisory for shipping dry ice.

10. Future workload in residue research (Baron and Carpenter) (Presentation)
 - J. Baron introduced the item, reporting: the reduction in the number of good residue studies coming through the 2022 and 2023 FUW's; adding studies in the NRPM of questionable value to fill up specific research sites as opposed to covering the deficit in performance funding; and new proposed funding models to help sustain GLP research sites.
 - A discussion as held regarding how each region manages funding at field sites; if GLP researchers can also do performance work; researchers diversifying the crops they do research on to stay competitive; the benefits of having multiple sites in a region to hedge against weather and other unforeseen issues; if there is a criteria we use to select FRDs or researchers; and whether or not the extension of funds could extend to Environmental Horticulture. This discussion were deferred for further discussion in Executive Session.
 - **A motion that the PMC empowers the Executive Director to move funds to cover a deficit in Product Performance funding during the National Research Planning Meeting, if good residue field trials are not available, was made by Alvin Simmons; seconded by Simon Zebelo; unanimously approved.**

11. Environmental Horticulture Review Update (Baron and Scholz)
 - A. Upton reported: that she and Michael Martin would co-chair the review; outlined the timeline of the review; there are 24 participants interested in serving in some capacity with 6-8 serving on the actual review panel; and the final report would be presented at the 2024 Fall PMC Meeting.

Break at 2:57 pm and reconvene at 3:15 pm.

12. Examination of IR-4's Biopesticide Regulatory Support activities (Presentation)

- J. Baron reported: that there had been some inquiries to understand if IR-4 should provide regulatory support for new biopesticide products and if they provide a good return on investment; on the focus of the biopesticide regulatory support program and work performed over the years; the increase of requests for assistance from the program over the last few years; on data waivers and the role they play in IR-4 projects ability to provide regulatory support; the need to improve transparency and the biopesticide database; that successes are not the issue but rather items that EPA has rejected; and considerations for becoming more selective with what projects we work on.
- A discussion was held regarding: prior discussions about keeping and bolstering biopesticides and reluctance to retract; the fact that EPA forwards potential registrants to IR-4 for guidance; the benefit of EPA generating a stop light analysis for biopesticide projects; and considerations (and not) for charging for services. This item was deferred for further discussion in Executive Session.

13. Workshop Debrief

- Food Program (Presentation)
 - K. Chojnacki reported: statistics of attendance and registration fees over the last few years; and reviewed the feedback from the post meeting surveys.
- EH Program (Presentation)
 - C. Palmer reported: on challenges including AV at the venue; reduced number of registrants attending due to cut travel budgets, and personnel shifts; on positives including workshop format, location, swag, support from HQ staff, and discussions; and outcomes were identified for the next two years.

14. Discussion of Path Forward 2.0 Implementation

- J. Baron reported: that performance expectations that are being drafted for Study Directors and Biologists and how to turn these into useful tools for employees; field funding reimbursements were increased and now include indirect but should be an area that is revisited to align with inflation; reviewed implementation objectives related to communications nationally and regionally; working to increase visits to the regions; new models for residue and product performance; training enhancements internal to IR-4; initiating the technology team; and the analytical backlog discussions.
- H. Ross further reported on the intranet site groundwork that has been conducted thus far.

15. Engaging a larger research/extension community (Patel)

- J. Patel reported: that the taskforce is comprised of 9 members and is meeting every month; roadblocks to engaging with scientists of 1994 tribal university stakeholders; on recruited new scientists; and a forthcoming publication in Plant Pathology News.

16. "All Hands" Meeting Preview (Baron)

- J. Baron reviewed the agenda for the "All Hands" meeting tomorrow and items that will be discussed with the larger group.

The meeting recessed for the evening at 5:11 pm.

Wednesday, October 25 9:00 am to 12:00 pm

Matt Hengel reconvened the meeting at 9:04 am and the members convened to Executive Session.

17. Executive Session

Break at 10:18 am and the members convened to Executive Session at 10:25 am.

The members reconvened from Executive Session at 11:58 am with the following motions or actions out of Executive Session:

- **Consensus:** To move forward with the full transition to the eField Data Notebook during the 2024 field season. Understanding the importance of the eField Data Notebook's full rollout to the future success of the IR-4 Project, and in response to the feedback and concerns that the PMC heard regarding the full transition, the PMC has decided to add trainings for the Regional Field Coordinator's and Field Research Director's to boost familiarity with the software, with the goal of full transition to this system during the 2024 field season. The PMC has full confidence in the leadership and capabilities of the RFCs, FRDs, Headquarters, and the IR-4 team as a whole, to ensure the successful rollout.
- **Action Items:** 1) Provide eField Data Notebook training for the Regional Field Coordinators and solicit feedback for regional training and information exchange with Field Research Directors; 2) Solicit support from Field Research Directors who have already piloted the eField Data Notebook and serve as train the trainers; 3) Hold in-person National Education Trainings in California and Florida (due to the field seasons in these regions approaching more rapidly); and 4) Offer enhanced online training, weekly office hours and open lines of communication to provide support from Headquarters.
- **Action Item:** Michael Braverman, by the March CLC/PMC Joint Meeting, to provide an accounting of what work has been done (successes and failures) in the past five years on the spreadsheet supplied, include what projects are in the queue to be completed as well as requests that have come in (including notes on why a project was not advanced), what criteria is used for evaluation of projects and to assess the ability of the submitter to meet the data demands, and an accounting of IR-4 FTE's spent on biopesticide projects.
- **Action Item:** Jerry Baron to initiate a Technology Committee led by Jimmy Byrtus, that is representative of the regions, headquarters and the various fields of work of the IR-4 Project.
- **Action Item:** Jerry Baron to add a standing agenda item to PMC meeting agenda's to review changes to regional field capacity.

18. Adjourn

A motion was made to adjourn the meeting at 11:58 am by Alvin Simmons, seconded by Todd Scholz; unanimously approved.



MINUTES
Project Management Committee
Special Meeting
January 9, 2024
Virtual

MOTIONS AND ACTION ITEMS

Action Item:

- **Action Item (Baron):** Reach out to CLC Member Mike Aerts, representative of the Florida Fruit and Vegetable Association to discuss this request for assistance.
- **Action Item (Baron):** Proceed with modifying the Biopesticide Regulatory database.

Members:

Jerry Baron; IR-4 Executive Director
Liwei Gu; Regional Director-SOR
Matt Hengel; Regional Director-WR/PMC Chair
Mary Hausbeck; Regional Director – NCR
Todd Scholz; CLC Chair
Alvin Simmons; USDA-ARS
Simon Zebelo; Regional Director – NER

Staff:

Deborah Carpenter; IR-4 HQ

Tuesday, January 9, 2024 1:00 pm EST to 2:00 pm EST

-- Dr. Matt Hengel called the meeting to order at 1:00 PM --

2) Discussion of Biopesticide Regulatory Support Program (Baron)

- Dr. Baron provided a background regarding a request from the Florida grower group – Citrus Research and Development Foundation to provide regulatory assistance to Soilcea in regards to CRISPR technologies to manage citrus greening.
- A discussion was held regarding the request, if Florida Grower groups supported this technology.
- **Action Item (Baron):** Reach out to CLC Member Mike Aerts, representative of the Florida Fruit and Vegetable Association to discuss this request for assistance.
- Dr. Baron reported that at a prior PMC meeting there was discussion about updating and making improvements to the Biopesticide Regulatory database.
- A discussion was held regarding the importance of access to that data and of maintaining it in an updated way.
- **Action Item (Baron):** Proceed with modifying the Biopesticide Regulatory database.

The meeting adjourned at 2:00 pm.



MINUTES
Project Management Committee
Special Meeting
January 24, 2024
Virtual

MOTIONS AND ACTION ITEMS

Action Item:

1. **Action Item (Baron):** Look into developing a national training for GLP field researchers starting with the first priority of basic field training (GLP), then move to research cooperators that perform biology work.

Members:

Jerry Baron; IR-4 Executive Director
Liwei Gu; Regional Director-SOR
Matt Hengel; Regional Director-WR/PMC Chair
Mary Hausbeck; Regional Director – NCR
Todd Scholz; CLC Chair
Alvin Simmons; USDA-ARS
Simon Zebelo; Regional Director – NER

Staff:

Deborah Carpenter; IR-4 HQ
Krystal Chojnacki; IR-4 HQ

Wednesday, January 24, 2024 3:00 pm EST to 4:00 pm EST

-- Dr. Matt Hengel called the meeting to order at 3:00 PM --

1) Discussion of Regional Field Coordinator Duties (Baron) (Handout)

- Dr. Baron provided a background that with the transition of Southern Region Regional Field Coordinator (RFC) Janine Spies, that it might be an opportunity to evaluate the duties of the RFC's as they have remained unchanged for many years.
- Specifically, Dr. Baron pointed to: standardizing training of the Field Research Directors; eliminating responsibilities for RFCs to distribute signed GLP residue study protocols, track research progress, and ensure quality data is submitted to HQ; and eliminating the responsibility of the RFC to review and approve SOPs for IR-4 Field Research Centers/research sites performing pesticide residue field-trials.
- An in-depth discussion was held regarding: who would perform QC; how the eFDN automated system may eliminate some RFC duties; leadership of developing uniform and centralized base training for new IR-4 researchers and hires; separate training for Chemists, Field and QA; if the model of four regions was working; and there was a general acknowledgement that the current RFCs at IR-4 were doing an excellent job.

- Dr. Baron withdrew the second item from consideration (*eliminating responsibilities for RFCs to distribute signed GLP residue study protocols, track research progress, and ensure quality data is submitted to HQ*).
- **Action Item (Baron):** Look into developing a national training for GLP field researchers starting with the first priority of basic field training (GLP), then move to research cooperators that perform biology work.

The meeting adjourned at 4:33 pm.

IR-4 2023 Annual Report

Presenter: Dr. Jerry Baron





2023 IR-4 Year End Summary

Agenda Item 3

2023 Successes

Food Program

- **211** new tolerances for **18** active ingredients that support **1613** potential new uses (RECORD Number)
- Submitted to EPA **12** tolerance petitions and **2** Final Reports to the registrant for Label Expansion or Conditional Registration - these covered **92** unique requests (PR #s)
- **23** data packages were completed but not submitted

>Syngenta



Environmental Horticulture Program-2023

- Success - **1** new registration contributing to 500 new crop uses.
- Research - **657** field and greenhouse trials (275 efficacy, 379 crop safety) that contributed to **57** projects
- Future - Priorities for the Environmental Horticulture Program were established in the 2023 biennial workshop held in Little Rock, AR.



2023 Successes

Food Program, continued

- **134** Product Performance Reports and **47** Integrated Solutions Reports were posted and provided to cooperating companies
- Biopesticide Regulatory Support: **2** registrations, AF36 Prime & FourSure



2023 Research

Food Program

- **52** new Magnitude of the Residue Studies; **384** total field trials (354 New/30 Carryover)
- **65** Product Performance projects involving **143** efficacy/crop safety trials
- **35** Integrated Solutions projects/ **72** field trials



Future Research

Food Program

- **203** new requests were received
- The IS platform received **27** new requests.
- Stakeholders assigned priorities for **42** residue studies, **11** product performance and **18** Integrated Solution projects
- PMC approved 2 Biopesticide Regulatory Support projects





20

23

ANNUAL
REPORT

Pest management solutions for
specialty crops and specialty uses



ANNUAL REPORT OF THE IR-4 PROJECT

January 1, 2023 - December 31, 2023

1. Introduction

The IR-4 Project's mission is to support the registration of safe and effective chemical and bio-based pesticides (and emerging pest management technologies) on fruits, vegetables, nuts, herbs, trees, shrubs, flowers and other specialty crops, as well as minor uses on major crops (corn, cotton, soybeans, wheat, etc.). IR-4 exists because specialty crops and minor uses often lack the economic return on investment needed for the private sector to justify spending research and development resources on these registrations. The IR-4 Project fills such voids by developing the necessary data and cooperating with many government and non-government organizations to accomplish its mission and leverage its resources (see Attachment 1: Participants in the Process). IR-4's research projects/activities include:

- Conducting U.S. Environmental Protection Agency (EPA) guideline "Magnitude of the Residue Studies." This gives EPA a realistic exposure estimate that they use to perform dietary risk assessments associated with potential product registrations.
- Product performance testing (efficacy/crop safety projects) on food and non-food specialty crops. This provides assurances that the use of a crop protection product is safe and effective.
- Submission of proposals to EPA and other regulatory authorities to expand crop groups/subgroups that allow data from a few crops to cover many crops.
- Performing Integrated Solutions research projects, which utilize all available crop protection tools (chemical pesticides, biopesticides and emerging technologies) in order to identify solutions for hard-to-manage pests; prevent or better manage pest resistance (to pesticides); and mitigate pesticide residues in the final food product. Integrated Solutions projects also address management of pests in organic crop production systems.
- Assisting with the registration of biopesticide and other emerging technologies discovered/developed by public sector scientists and small businesses.
- Facilitating harmonization of global pesticide regulations to assist domestic specialty crop growers' ability to export fruits, vegetables and other specialty crops to international markets.

2. Successes in 2023 (plus a correction for the 2021 Annual Report)

Food Program: EPA publication of actions that established **211** new tolerances for **18** active ingredients. These tolerances support **1613** potential new uses on food crops (Attachment 2). This is the highest number of new uses achieved in a calendar year.

NOTE: In May 2023 an error in the monthly report from December 2021 was discovered—tolerance actions for Bifenthrin and Cyflumetofen were inadvertently omitted. This correction adds 104 new uses and 13 new tolerances to the annual totals for 2021; thus, in 2021 EPA published 16 actions that established 128 new tolerances for 15 active ingredients, supporting 744 potential new uses on food crops.

Environmental Horticulture Program: BotryStop was registered in California, contributing to **500** new crop uses.

3. Registration Support Actions in 2023

Food Program

- IR-4 submitted to EPA **12** tolerance petitions and **2** Final Reports to the registrant for Label Expansion or Conditional Registration - these covered **92** unique requests (PR #s) for assistance and crop group tolerance updates (Attachment 3)
- **23** data packages were completed but not submitted
- **15** draft final reports were submitted to IR-4's Quality Assurance Unit for Good Laboratory Practice compliance auditing and were not finalized in 2023
- **134** Product Performance Reports and **47** Integrated Solutions Reports were posted and provided to cooperating companies
- Biopesticide registration actions and activities included:
 - **2** registrations involving **4** new active ingredients including AF36 Prime (an organic formulation of *Aspergillus flavus* AF36) and FourSure (combination of 4 atoxigenic *Aspergillus flavus* strains)
 - Responses to EPA regulatory reviews - American Chestnut distribution plans
 - Alum - resubmission of Biochemical Classification
 - **4** pre-submission meetings were held with EPA in conjunction with T3 Biosciences (*Pseudomonas soli*), Sporekill (Potassium salts of Fatty Acids) Silvec (CTV-SoD) and Lepidext (*Helicoverpa zea* nudivirus 2, HzNV2)
 - Submitted avian oral waiver for the Nudivirus of *Helicoverpa zea*
 - Participated in meeting, provided oral and written comments to support the beekeeping industry's position to maintain the jurisdiction of varroacides in EPA versus a potential shift to FDA jurisdiction
- International activities:
 - Provided technical leadership in International Priority Setting Workshops, project planning and implementation for the Minor Use Foundation
 - Conducted capacity building on biopesticide regulations and Good Laboratory Practices
 - Developed workflow plans and assisted in the structure of a new international database
 - Provided technical advice in the development of an import MRL program for mutual acceptance of tolerances to promote export of US commodities to Southeast Asia
 - Organized and hosted four Borlaug Fellows for training at North Carolina State University, UC Davis and the Global MRL Harmonization Workshop in San Diego, CA
 - Provided technical advice for study directors in GLP, protocol development and review, the decision process involving deviations in the field and Laboratory, and interpretation of results.

Environmental Horticulture Program: **22** research summaries were written to support new or update existing registrations, provided to registrants, and posted on the IR-4 website (see summaries in Attachment 6); **4,887** field and greenhouse trials contributed to these summaries; trials came from the following IR-4 Units:

- North Central Region 718 trials
- Northeast Region 601 trials
- Southern Region 1,579 trials
- Western Region 922 trials
- ARS Cooperative sites 1,071 trials

4. Research in 2023

Food Program - Summary of Research Study / Projects

- **52** new Magnitude of the Residue Studies (Attachment 4); **384** total field trials (354 New/30 Carryover)
- **65** Product Performance projects (Attachment 5) involving **143** efficacy/crop safety trials
- **72** field trials that contributed to **35** Integrated Solutions projects
- IR-4 Quality Assurance Unit performed activities to help ensure that IR-4 remained compliant with EPA’s Good Laboratory Practice Regulations; activities include:
 - 2 Protocol audits
 - 17 Facility audits
 - 151 In-life Inspections of field sites
 - 74 In-life Inspections of analytical laboratories
 - 286 Field Databook audits
 - 45 Analytical Summary Report audits
 - 32 Final Report audits
 - 6 Amended Report audit
- IR-4 also successfully completed 3 inspections by EPA, and QA audited 24 contributing scientist reports

Environmental Horticulture Program-Summary of Research Study / Projects

- **657** field and greenhouse trials (275 efficacy, 379 crop safety) that contributed to **57** projects (see research trial details in Attachment 7)

Comprehensive Summary 2023 Research Trial Distribution

Cooperating Region	Food Use Residue Trials	Food Use Product Performance Trials	Integrated Solutions Trials	Environ. Hort. Product Performance Trials
No. Central Region	81	17	7	76
Northeast Region	34	17	8	60
Southern Region	73	50	25	218
Western Region	129	59	32	165
ARS Sites	56	0	0	138
Canadian Sites	11	0	0	0
TOTAL	384	143	72	657

Analytical Laboratory Status

	Awaiting Analysis	Analysis in Progress	Analysis Complete- Preparing Report
Southern Region Lab	17	10	9
Western Region Lab	17	7	12
ARS Tifton Lab	9	5	1
ARS Wapato Lab	7	3	7
Other Labs	18	10	5
TOTAL	68	35	29

5. Impacts of IR-4 Activities

The IR-4 Project continues to provide tangible deliverables to growers of food and non-food specialty crops through the facilitation of registrations of safe and effective crop protection products. IR-4 is the only publicly funded program that develops data required for registrations. IR-4 has many positive impacts, including:

- Based on EPA actions, IR-4 data supported **1613** potential new registrations on food crops in 2023 and positively influenced **500** uses on non-food crops. These new registrations help producers grow high-quality food and ornamental crops while respecting the environment. This also has significant economic benefit¹ while helping farmers remain profitable and boost rural economies. Food processors and food retailers benefit in having a consistent supply of high-quality produce and/or raw materials to meet consumer demand and keep their processing facilities open and operational. The public benefits through having an abundant choice of healthy vegetables, fruits, nuts and other foods available at reasonable prices, as well as having ornamental horticulture plants to enhance the environment and contribute to our well-being. IR-4's actions also prevent food waste throughout the supply chain, from the farm to the consumer.
- The IR-4 Project has been a major contributor to the advancement of Integrated Pest Management (IPM) tactics through approval of crop protection tools that give producers suitable options to manage destructive pests that disrupt advanced IPM systems.
- IR-4's Integrated Solutions initiative couples bio-based products with conventional products in a system whose objectives are to reduce chemical residues in food, provide a means to break up pest resistance to pesticides, and develop lower-risk solutions for the most difficult-to-manage pests.

¹ Michigan State University's Center of Economic Analysis reported the economic impact of IR-4 Project's activities supports over 111 thousand domestic jobs with a total annual payroll of \$5.34 billion in 2021 dollars. The IR-4 Project is estimated to contribute \$8.97 billion to annual gross domestic product. Economic contributions include direct expenditures of the IR-4 Project, anticipated crop losses mitigated under each of the two IR-4 Programs, through Biopesticide Regulatory Support and through gaining EPA exemptions for pesticide use when few or no other options for pest management exists. <https://www.canr.msu.edu/resources/economic-impact-of-the-ir-4-project-and-programs-2022> for details.

- IR-4 continues to work with the EPA and the Codex Committee on Pesticide Residues (CCPR) to expand and enhance the Crop Groups/Sub-Groups. Crop groups allow the collection of residue data on a small number of representative crops and extend the use of the exposure values to a much larger number of similar crops in the crop group or subgroup. There are huge cost savings, as crop-grouping extrapolation allows IR-4 and others in the regulatory community to use resources smartly and efficiently. In 2023 no new Final Rules for US crop grouping updates were approved. Internationally, the 46th session of the Codex Alimentarius Commission adopted Class B - Primary commodities of animal origin and Class E - Processed commodities of animal origin (and corresponding Table 9 and 10 of representative commodities). Also adopted were consequential amendments to Groups 006, 023, and 12C.
- The Environmental Horticulture Program continues to support an industry valued at nearly \$19.2 billion in annual sales (Horticulture Census, 2019, NASS). This industry is quite complex because growers cover diverse markets including flowers, bulbs, houseplants, perennials, trees, shrubs and more. These plants are grown and maintained in greenhouses, nurseries, commercial/residential landscapes, interiorscapes, Christmas tree farms and sod farms.

6. Congressional Appropriations and other funding

Summary of IR-4 funding (\$19,000,000)

Source	Amount	Administration	Activities covered
USDA-Minor Crop Pest Management (IR4) grant	\$15.0 million	Competitive four-year grant to NC State	All core IR-4 research program and activities
USDA-ARS	\$3.2 million	Contribute to and supports IR-4 research priorities	Funding of USDA-ARS scientists and activities ²
National Research Support Program (NRSP-4)	\$0.5 million	Competitive five-year grant awarded to NC State	Salaries and research coordination activities of IR-4 Headquarters
Various industry contributions	\$1.2 million	Unrestricted donations to IR-4 Project	All IR-4 Project activities and expenses
USDA-Foreign Ag Service & Minor Use Foundation	\$0.2 million	Funds to NC State	Used to support IR-4 activities of global harmonization of pesticide regulations and training

² USDA-ARS allocates a small amount of its Congressional Appropriation funds to support the salary and other expenses for their personnel involved with high priority research within IR-4's Food Use and Environmental Horticulture programs. Participating ARS scientists are given research assignments that complement the on-going research of the scientists at the SAES. From these funds, USDA-ARS contributes about \$105,000 to IR-4 Headquarters that funds Environmental Horticulture research at University of Maryland Eastern Shore and travel support for IR-4 Quality Assurance Unit personnel to perform required on-site critical phase audits at ARS Field Research Centers.

In-kind contributions estimates (\$22,689,800)

Estimate	Source
\$2,774,800	SAES/land grant universities by hosting IR-4 field research centers, analytical laboratories and management offices throughout the United States ³
\$4,415,000	EPA Pesticide Registration Improvement Act fee waivers
\$15,000,000	Crop protection industry ⁴
\$500,000	The government of Canada ⁵

Expenditures supported by USDA-Minor Crop Pest Management (IR4) funds

Amount	Use
\$5,249,627	Distributed to the four IR-4 Regional offices and Headquarters for non-laboratory personnel, supplies, equipment and other core expenses
\$2,664,160	Distributed to the analytical laboratories for personnel, supplies, equipment and other expenses associated with laboratory analysis.
\$2,581,785	Allocated to field trials for residue studies
\$789,263	Allocated to field trials for product performance research
\$484,294	Allocated for field trials that develop data in IR-4 Integrated Solutions research
\$579,088	Allocated for field trials that develop product performance data in non-food crops
\$1,125,600	Kept by NIFA to help fund their operations
\$1,526,184	Provided to host institutions as indirect costs

Additional Expenditures supported by Industry Contributions

Amount	Use
\$273,556	Salary and Fringe
\$146,944	Travel

³ Based on typical indirect costs allowance minus allowable indirect costs provided

⁴ Based on 1:1 match of NIFA funds provided

⁵ Contributions in joint research projects

\$109,684	Meetings ⁶
\$319,019	Additional Research ⁷
\$86,240	Gift fee collected by NC State

7. New requests for assistance / Plans for the future

Food Program	Environmental Horticulture Program
<ul style="list-style-type: none"> ▪ 203 new requests were entered into the IR-4 food use database, of which 141 were new stakeholder requests or for international needs and 61 were created by HQ for crop group tolerance revisions, referencing old PR#s, etc. The comprehensive total at the end of 2023 was 13,797. ▪ The IS program received 27 new requests. ▪ IR-4 stakeholders prioritized “researchable” Requests for Assistance at the 2023 Food Use Workshop and identified 42 Magnitude of the Residue Studies, 11 product performance projects and 18 Integrated Solution projects as the highest priority for research in 2024. ▪ In the 2024 Food Crop Program, IR-4 will be focusing on the new research priorities, as well as some carryover projects (365 Magnitude of the Residue trials, 134 Product Performance trials, 61 Integrated Solutions trials). The regional breakdown of the trials is presented in the table below. ▪ New active ingredients approved by the PMC as Biopesticide regulatory support projects included the RNAi of red palm weevil and the attenuated strain of cucumber green mottle mosaic virus 	<ul style="list-style-type: none"> ▪ Priorities for the Environmental Horticulture Program were established in the 2023 biennial workshop held in Little Rock, AR. ▪ Ten new requests were received for EHC research projects between 2022 and 2023. Two were the European Corn Borer to be able to ship plants into California. This was added as a regional project for 2023 based on regional support but was not selected by researchers. The other request was for Vascular Streak Disease; this was added as a regional project and selected for research for 2023. Flutriafol was requested for foliar diseases. Expansion of products typically used in pest control was requested to manage <i>Atta texana</i> in young <i>Pinus taeda</i> plantings. Broadening of mesotrione into additional species for in ground production was requested as was replacement pre-emergent herbicides for Surflan in field grown peonies and gladiolus. ▪ During the Biennial Workshop, 2 high priority efficacy research projects were selected for both entomology and pathology (Phytophthora & Pythium Efficacy, Pathology – Boxwood Foliar Disease Efficacy, Thrips Efficacy, Scale Efficacy) and 2 high priority crop safety projects were selected for weed science (Pre Emergent Herbicide Crop Safety and Post Emergent Herbicide Crop Safety). Both pathology and entomology have standing crop safety screening projects for new active ingredients. ▪ In addition, 6 regional projects were established. <ul style="list-style-type: none"> ○ Botrytis Efficacy (NCR, WSR)

⁶ Includes costs associated with 2023 National Education Conference, 60 Years of IR-4 Celebrations in Washington DC and NC State

⁷ Includes additional field trials, food processing and laboratory analysis

	<ul style="list-style-type: none"> ○ Equisetum Efficacy in Christmas Trees (NCR) ○ Lygus Efficacy (WSR) ○ Nematode Efficacy (NER) ○ Pollinator Plant Herbicide Crop Safety (SOR) ○ Root Aphid/Aphid Efficacy (NER) ○ Vascular Streak Dieback Efficacy (SOR) <p>IR-4 will be focusing on the new research priorities, consisting of approx. 592 field trials</p>
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Summary of Planned 2024 Research Trial Distribution:

Cooperating Region	Food Use Residue Trials	Food Use Product Performance Trials	Integrated Solutions Trials	Environmental Horticulture Product Performance Trials
North Central Region	63	22	9	90
Northeast Region	26	19	10	58
Southern Region	74	46	22	228
Western Region	138	47	20	120
ARS Sites	52	0	0	96 ⁸
Canadian Sites	12	0	0	0
TOTAL	365	134	61	> 592

⁸ One location for USDA-ARS had not selected research options for 2024 at the time of compilation.

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- Axtell, A.** 2023. IR-4's Accomplishments for Crop Group 6-22. 2023 California Dry bean Board Meeting (virtual presentation).
- Batts, R.B., J. J. Baron, and V. K. Pedibhotla.** 2023. IR-4: Weed Science Update - Food Crops. 2023 Southeast Regional Fruit & Vegetable Conference, Savannah, GA. Abstract #24 (poster)
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- Batts, R.B., J. J. Baron, and V. K. Pedibhotla.** 2023. IR-4: Weed Science Update - Food Crops. Proceedings of the Weed Science Society of America and Northeastern Weed Science Society joint meeting, Arlington, VA. Abstract #365 (presentation)
- Batts, R.B.** 2023. Registration Support for Pest Management Tools in Specialty Crops, The IR-4 Project: Purpose, Process, and Productivity. Center of Excellence for Regulatory Science in Agriculture, Raleigh, NC (Lecture - virtual)
- Batts, R.B.** 2023. Registration Support for Pest Management Tools in Specialty Crops, The IR-4 Project: Purpose, Process, and Productivity. Southeast Vegetable Extension Workers annual meeting, Mills River, NC (Presentation)
- Batts, R., J. Spies, A. Axtell and J. Patel.** 2023. IR-4 Project 2023 sweet potato update. NCSU sweet potato field day, Clinton, NC (handout)
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- Uebbing, M.R., Hayden, Z.D., and Hausbeck, M.K.** 2023. Conventional and Biopesticide Fungicides for Cucurbit Downy Mildew Control on Cucumber in Michigan. *Plant Health Progress*, (ja).DOI: [:https://doi.org/10.1094/PHP-03-23-0024-RS](https://doi.org/10.1094/PHP-03-23-0024-RS), using data generated from IR-4 project NO. IS00344 from 2021 and 2022

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- [IR-4 HQ]. (2023, February 16). *EFDB Training at NEC 2023* [Video]. IR-4 Project. <https://youtu.be/gwrcbxo40wk>
- [IR-4 HQ]. (2023, March 1). *60 Years of IR-4* [Video]. IR-4 Project. <https://www.youtube.com/watch?v=9P42Gc5dHws>
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- [IR-4 HQ]. (2023, April 12). *IS00166: Control of Cabbage Root Maggots in Brassicas* [Video]. IR-4 Project. <https://youtu.be/xh-v04nfaRU>
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- [IR-4 HQ]. (2023, April 12). *IS00027 & PR#13137: Performance of Broflanilide and Isocycloseram against Wireworms in Sweetpotato* [Video]. IR-4 Project. <https://youtu.be/Z6F9EwPnK9M>
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- [IR-4 HQ]. (2023, April 12). *IS00383: Postemergence Broadleaf Herbicides in Sweetpotato* [Video]. IR-4 Project. <https://youtu.be/2urWrD8D4-8>
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- [IR-4 HQ]. (2023, April 12). *P12535: Performance of Fluxapyroxad + Pyraclostrobin in Stevia* [Video]. IR-4 Project. https://youtu.be/ZVYVVK_fxKg

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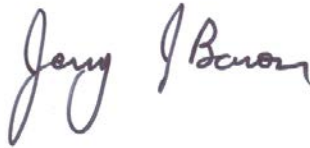
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December 31, 2023

Approved by:



**Jerry J. Baron, Executive Director
IR-4 Project, North Carolina Agriculture Research Service
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**Matt Hengel, Chair,
IR-4 Project Management Committee
University of California, Davis**



**Douglas Buhler, Chair,
IR-4 Administrative Advisers
Michigan State University**

ATTACHMENT 1 – Participants in the Process

A. Commodity Liaison Committee (CLC)—This advisory group provides input to the IR-4 Project Management Committee on overall operations and program direction. They are effective communicators to Congress on the importance of IR-4’s deliverables to specialty crop agriculture in the United States. Members include:

Michael Aerts, Florida Fruit and Vegetable Association
Mark Arney, National Watermelon Promotion Board
Zack Bagley, California Tomato Research Institute
Michael Bledsoe, Village Farms, L.P.
John Walt Boatright, American Farm Bureau Federation
Jennifer Clarke, California Leafy Greens Research Program
James R. Cranney, California Citrus Quality Council
Alan DeYoung, Van Drunen Farms
Maggie Elliot, Hops Growers of America
William Frantz, Cranberry Institute
Michele Grainger, NC Sweet Potato Commission
Bob Jones, The Chef Garden
Bob Kaldunski, Ginseng Board of Wisconsin
Kevin Kudsk, National Onion Association
Michael Martin, Horticulture Research Institute
Armando Monterroso, Brooks Tropicals
Peter Nelson, Cherry Marketing Institute
Keith Pitts, Bioceres Crop Solutions
Amy Plato-Roberts, Lallemand Plant Care
Kan Quarles, National Potato Council
Rachel Roberts, American Mushroom Institute
Steven Salisbury, Mint Industry Research Council
Todd Scholz, USA Dry Pea & Lentil Council and CLC Chair
Jonathan Sarager, Western Growers
Alan Schreiber, Agriculture Development Group, Inc.
Berry Tanner, National Watermelon Association (alternate)
Amy Upton, Michigan Nursery & Landscape Association
Herman Waguespack, American Sugar Cane League
Lee Van Wychen, Weed Science Society of America
Ryan Wysocki, Michigan Blueberry

B. Cooperating Government Departments and Agencies

- U.S. Department of Agriculture: National Institute of Food and Agriculture (NIFA); Agricultural Research Service (ARS); Foreign Agriculture Service (FAS); Animal and Plant Health Inspection Service (APHIS)
- U.S. Environmental Protection Agency (EPA)
- State of California Department of Pesticide Regulation (DPR)
- State Agricultural Experiment Stations/Land Grant Universities (SAES)
- Agriculture and Agri-Food Canada-Pest Management Centre (Canada-PMC)
- Health Canada-Pest Management Regulatory Authority (PMRA)

C. Crop Protection Industry—Companies with products involved in IR-4’s research in 2023 include:

Company	Food Residue Study	Food Crop Product Performance	Integrated Solutions	Environmental Horticulture
Adama	X	X	X	
Agbiome			X	
Agrospheres			X	
Albaugh		X		
Andermatt			X	
Ascribe BioScience			X	X
AMVAC	X	X	X	
BASF Corporation	X	X	X	X
Bayer Crop Science	X	X	X	
Bayer Environmental Sciences (Envu)				X
Belchim Crop Protection	X			
Biosafe Systems			X	
Bioworks			X	X
BlackSmith BioScience INC			X	
Ceradis			X	
Certis USA			X	
CEV			X	
Clean-Ag			X	
Corteva Agrisciences	X	X	X	X
FMC Corporation	X	X	X	X
Gowan Company	X	X	X	X
Green Seal Company			X	
Helena Agri-Enterprises			X	
Helm Agro	X			
ICL Specialty Fertilizers				X

Company	Food Residue Study	Food Crop Product Performance	Integrated Solutions	Environmental Horticulture
IsaGro-USA				X
ISK Biosciences	X	X	X	X
Jet Harvest			X	
KI-Chemical	X	X		
Kemin Crop Technologies			X	X
Landis International	X		X	X
Marrone Bioinnovations (ProFarm)		X	X	X
Momentive			X	
Nichino America	X	X	X	
Nisso	X	X	X	X
NuFarm America	X	X		X
OAT Agrio			X	X
OroAgri			X	
Petro Canada			X	
PreZero			X	
PureCrop 1			X	
Rainbow Treecare Scientific				X
SePRO Corporation			X	X
Sipcam Agro			X	
Stepan				X
Summit Agro			X	
Syngenta Crop Protection	X	X	X	X
TDA				X
Terramera			X	
TKI Novasource	X	X	X	
TLC Products				X
Ultraquimia			X	

Company	Food Residue Study	Food Crop Product Performance	Integrated Solutions	Environmental Horticulture
UPL		X	X	
Valent USA, LLC	X	X	X	X
Vestaron			X	

D. Project Management Committee

Dr. Jerry Baron*, IR-4 Project Headquarters – IR-4 Project Executive Director
Dr. Douglas Buhler, Michigan State University – Administrative Advisor, North Central Region
Dr. John Davis, University of Florida - Administrative Advisor, Southern Region
Dr. Rubella Goswami, Acting USDA-NIFA-National Program Leader for IR-4
Dr. Liwei Gu*, University of Florida – Regional Director, Southern Region.
Dr. Matt Hengel*, University of California, Davis - Regional Director, Western Region and PMC Chair
Dr. Marcel Holyoak, University of California, Davis – Administrative Advisor, Western Region
Dr. Moses Kairo, University of MD Eastern Shore - Administrative Adviser, Northeast Region
Dr. Steven Lommel, North Carolina State University – Advisor
Dr. Joseph Munyaneza, USDA-ARS - Administrative Advisor
Dr. Michele Samuel-Foo, USDA-NIFA-National Program Leader for IR-4 (away on detail)
Mr. Todd Scholz*, USA Dry Pea and Lentil-CLC Chair
Dr. Alvin Simmons*, USDA-ARS – Director Minor Use Program
Dr. John Wise*, Michigan State University – Regional Director, North Central Region
Dr. Simon Zebelo*, University of MD, Eastern Shore - Regional Director, Northeast Region
 *Voting member

E. IR-4 Project Headquarters (HQ)

Dr. Alice Axtell - Biology Team Lead and Principal Entomologist
Ms. Allison Ballantyne – Senior Operations Associate
Mr. Bill Barney – Biopesticide Regulatory Manager
Dr. Jerry Baron – Executive Director
Mr. Roger Batts - Principal Weed Scientist
Ms. Susan Bierbrunner* – Data Administrator
Ms. Donna Bouffard - Program Operations Coordinator
Dr. Michael Braverman* – Biopesticide & Organic Support Program Mgr./Int'l Capacity Building
Mr. James Byrtus – Lead Research Associate - Regulatory Sciences
Dr. Debbie Carpenter – Assoc. Director for Regulatory Sciences and National Laboratory Director
Dr. Krystal Chojnacki - National Chief of Staff
Ms. Christina Dineen – Chemist and Study Director
Ms. Jane Forder – Lead Quality Assurance Auditor - Northeast and North Central Region
Ms. Shiayi Huang - Data Applications Manager
Ms. Grace Lennon – Senior Regulatory Associate
Ms. Cristina Marconi - Registration Manager and Study Director

Dr. Johanna Mazlo - National Quality Assurance Unit Manager
Mr. Philip Moore - Study Director
Mr. Scott Muir - Lead Quality Assurance Auditor - Analytical Chemistry
Dr. Cristi Palmer* – Environmental Horticulture Program Manager
Dr. Jaimin Patel – Principal Plant Pathologist
Mr. Josh Peterson - Quality Assurance Auditor
Mr. Thomas Pike – Submission Manager and Senior Study Director
Ms. Hannah Ross – National Information and Communications Officer
Dr. Dan Rossi - Senior Management Associate
Mr. David Schnatter - Business Operations Associate
Dr. Van Starner – Senior Management Associate
Ms. Juliet Thompson – Research Specialist, Quality Assurance
Mr. Robert Welker - Study Director
*Rutgers University Employee

F. Regional/ARS Field Coordinators and Staff

Dr. Kari Arnold, Field Coordinator - Western Region
Ms. Megan James, Assistant Field Coordinator - Northeastern Region
Ms. Mika Pringle Tolson, Field Program Assistant - Western Region
Ms. Marylee Ross, Field Coordinator – Northeast Region
Ms. Kristen Searer-Jones, Assistant Field Coordinator - Southern Region
Dr. Alvin Simmons, Field Coordinator-USDA-ARS – ARS Office of Minor Use Pesticides
Ms. Nicole Soldan, Field Coordinator - North Central Region
Dr. Janine Spies, Field Coordinator – Southern Region

G. Laboratory Coordinators (Regional and ARS)

Dr. Matt Hengel, University of California, Davis – Western Region
Dr. Gail Mahnken, University of Florida – Southern Region
Ms. Tamara Snipes, USDA-ARS – Tifton, GA
Mr. T. Todd Wixson, USDA-ARS – Wapato, WA

H. Quality Assurance Unit

Dr. Martin Beran, University of California, Davis
Ms. Jane Forder, North Carolina State University
Ms. Kathleen Knight, University of Florida
Dr. Johanna Mazlo, North Carolina State University
Mr. Scott Muir, North Carolina State University
Ms. Sherita Normington, University of California, Davis
Mr. Josh Peterson, North Carolina State University
Ms. Juliet Thompson, North Carolina State University
Dr. Yavuz Yagiz, University of Florida

I. IR-4 Researcher & State Liaison Representatives ⁹

North Central Region

State	State Liaison	Research Area
IA	Vacant	D. Mueller (IS)
IL	Vacant	
IN	S. Meyers	J. Beckerman (IS) (EHC), S. Meyers (P)
KS	R. Cloyd	R. Cloyd (EHC)
MI	N. Soldan	S. Chaudhari (R), (P), M. Hausbeck (P) (IS) (EHC), T. Miles (P) (IS), M. Quintanilla (EHC), D. Saha (EHC), W. Shane (IS), N. Soldan (SLR) (R), C. Wheeler (R)
MN	Vacant	
MO	R. Smeda	
ND	B. Jenks	T. Guaderman (R), J. Quan Zai (R)
NE	A. Jhala	
OH	A. Leach	C. Herms (IS), L. Horne* (R), , H. Mathers (EHC), M. Reding* (EHC), A. Robinson (R) (P) (EHC),
SD	S. Clay	G. Reicks (R)
WI	D. Heider	S. Chapman (R), D. Heider (SLR) (R) (P)

Northeast Region

State	State Liaison	Research Area
CT	J. Aulakh	J. Aulakh (SLR), (EHC),
DE	B. Kunkel	D. Owens (P) (IS), M. VanGessel (P)
MA	S. Scheufele	
MD	M. Ross	D. Cochran (EHC), M. Hu (IS), M. Hickman (R), M. Ross, (R), K. Vollmer (P)
ME	L. Calderwood	
NH	A.Vinchesi-Vahl	A. Wallingford (P)
NJ	T. Besancon	T. Besancon (P), W. Bouchelle (R), L. Werner* (EHC), J. Fisher (R),

⁹ R= Residue Field Trials/Food Program; P= Product Performance in Food Program; IS=Integrated Solutions, EHC=Environmental Horticulture Program and *=USDA Agriculture Research Service Researcher

		C. Rodriguez-Saona (IS), A. Wyenandt (P), (IS)
NY	L. Sosnoskie	N. Catlin (EHC), D. Gilrein (P) (EHC), H. Keagan (R), T. Lessord (P), B. Nault (P), A. Senesac (EHC), L. Sosnoskie (P) (IS), A. Taylor (P)
PA	G. Krawczyk	C. Brunharo (P)
RI	H. Faubert	
VT	A. Hazelrigg	
WV	C. Quesada	

Southern Region

State	State Liaison	Research Area
AL	E. Vinson	D. Held (EHC),
AR	H. Smith	M. Bertucci (P), A. Cato (P),
FL	P. Dittmar	N. Boyd (P) (IS), D. Carrillo (P), J. Crane (R), A. Dale (EHC), D. Thomasl (R) , P. Devkota (P), P. Dittmar (P), N. Dufault (IS), M. Frost (R) , R. Gazis (P) (IS), A. Hajihassani (P), O. Liburd (IS), M. Long (R), C. Marble (EHC), D. Norman (EHC), N. Peres (P), D. Seal (P), B. Sellers (P), L. Sriyanka (P), R. Tannenbaum (R)
GA	S. Culpepper	P. Brannen (IS), S. Culpepper (P), B. Fraelich* (R) , (EHC), R. Gazis (P), D. Riley (P), A. Sial (IS), S. Villanassery (EHC), P. Yu (EHC)
KY	R. Bessin	N. Gauthier (IS), Raul (IS), J. Larson (EHC), S. Carter (IS)
LA	T. Watson	
MS	A. Henn	S. Broderick (IS),
NC	D. Monks	S. Frank (EHC), K. Jennings (P) (IS), I. Meadows (EHC), W. Mitchem (P), J. Neal (EHC), L. Quesada (IS), C. Smith (P) (R) , S. Villani (IS), J. Walgenbach (IS)
OK	C. Luper	T. Bauhman (P), G. De La Fuente (P)
PR	W. Robles Vazquez	E. Martinez (P), D. Rivera (EHC), W. Robles Vazquez (R) (P)
SC	M. Cutulle	T. Bilbo (P), P. Wade* (R) (EHC), H. Wang (IS)
TN	M. Gireesh	F. Baysal-Gurel (EHC), K. Adesso (EHC), J. Gillilan (IS), A. Witcher (EHC)
TX	M. Matocha	K. Cochran (P) (R), A. Dotray (P), T. Jones (R), R. Khan (EHC), J. Grichar (P), K. Ong (EHC), G. De La Fuente (P)
VA	D. Frank	J. Derr (EHC), M. Flessner (IS), S. Rideout (IS)

Western Region

State	State Liaison	Research Area
AK	P. Kaspari	
AZ	A. Hu	J. Palumbo (IS), M. Pena (P)
CA	K. Arnold	J. Adaskaveg (P) (IS), B. Aegerter (P),, W. Brim-DeForest (IS), S. Benson* (R), M. Bolda (P), N. Clark (P), K. Daane (P), J. Del Castillo Múnera (P), O. Daugovish (IS), A. Eskalen (EHC), D. Ennes (R), S. Fennimore (P) (IS), M. Gebiola (IS), C. Gispert (IS), B. Hanson (R)(P), D. Haviland (IS),, C. Jiang (EHC), C. Kron (IS), N. Leach (R), M. Lloyd (IS), P. Mauk (IS), T. Michilaides (P), E. Middleton (EHC), C. Nansen (EHC), K. Pearson (IS), J. Sidhu (P)(IS), K. Skiles (R), B. Tonnessen (IS), F. Trouillas (IS), B. Turner (R), B. Uber (EHC), H. Wang (P), C. Wang (P), S. Watkins (R), H. Wilson (IS), R. Wilson (P), Wang (P)
CO	B. Tonnessen	O. Clark (R), J. Klett (EHC),
GU	R. Miller	
HI	J. Coughlin	Z. Cheng (EHC), J. Coughlin (R) (P), J. Kam (R), O. Neher (IS), Z. Zhang (R)
ID	R. Hirnyck	P. Hutchinson (IS), W. Meeks (R) (P), J. Woodhall (IS), O. Neher (IS)
MT	Z. Miller	Z. Miller (P)
NM	C. Robbins	C. Robbins (EHC) (R)
NV	Vacant	
OR	D. Lightle	N. Achala (IS), P. Berry (P), K. Buckland (P), K. Galimba (IS), D. Lightle (R) (IS), M. Mattsson (R), M. Moretti (P) (EHC), C. Ocamb (P), E. Peachey (P), S. Reitz (IS), L. Santamaria (EHC), G. Shrestha (IS), V. Walton (IS), J. Weiland (EHC)
UT	C. Ransom	
WA	D. Walsh	G. Chastagner (EHC), D. Larson* (R) (EHC), W. Peng (R), L. Rui (P), D. Walsh (P), T. Waters (IS) (P)
WY	C. Beiermann	

ATTACHMENT 2 – 2023 Tolerance Successes; Permanent Tolerances Published in the Federal Register

Pest Control Agent	Registrant	Type	Date	Commodity or Crop Group	Note* *	PR#	# of Use s	# of Tolerance s
Bifenthrin**	ADAMA, AMVAC, FMC	I	12/01/20 21	Avocado		10578	1	1
				Berry, low growing, subgroup 13-07G	2	11888	8	1
				Cranberry		11000	0	0
				Brassica, leafy greens, subgroup 4-16B		8490	20	1
				Caneberry subgroup 13- 07A		11837	1	1
				Fruit, citrus, group 10-10		11836	14	1
				Fruit, pome, group 11-10, except mayhaw		11016	10	1
				Fruit, small, vine climbing, except fuzzy kiwifruit, subgroup 13-07F	2	11887	5	1
				Nut, tree, group 14-12		11838	26	1
				Peach subgroup 12-12B		11017	2	1
				Pepper/eggplant subgroup 8-10B	2	11860	6	1
				Pomegranate		11249	1	1
				Tomato subgroup 8-10A	2	11835	9	1
Cyflumetofen**	BASF	I	12/06/20 21	Hop, dried cones		12334	1	1
Rimsulfuron	CORTEVA	H	01/25/20 23	Pomegranate		10606	1	1
				Tropical and subtropical, small fruit, edible peel, subgroup 23A		10184	56	1
Fluopyram	BAYER	N	02/01/20 23	Brassica, leafy greens, subgroup 4-16B		13250	13	1
				Celtuce	4	13254	0	1
				Coffee, green bean		12758	1	1
				Fennel, Florence, fresh leaves and stalk	4	13255	0	1
				Kohlrabi	4	13249	0	1

				Leafy greens subgroup 4-16A		13252	18	1
				Leaf petiole vegetable subgroup 22B		13253	3	1
				Papaya		10765	1	1
				Peppermint, dried leaves		11971	1	1
				Peppermint, fresh leaves		11971	0	1
				Spearmint, dried leaves		11971	1	1
				Spearmint, fresh leaves		11971	0	1
				Spice group 26	2	13251	204	1
				Vegetable, brassica, head and stem, group 5-16		13248	0	1
				Edible podded bean subgroup 6-22A		13243	17	1
				Edible podded pea subgroup 6-22B		13244	3	1
				Succulent shelled bean subgroup 6-22C		13245	17	1
				Succulent shelled pea subgroup 6-22D		13246	2	1
				Pulses, dried shelled bean, except soybean, subgroup 6-22E		13247	25	1
Pydiflumetofen	SYNGEN	F	02/15/2023	Caneberry subgroup 13-07A		11794	5	1
				Greenhouse Pepper		11879	2	1
				Greenhouse Lettuce		11880	2	0
Penthiopyrad	CORTEVA	F	02/17/2023	Banana		11307	2	1
				Greenhouse lettuce		11444	1	0
Mandestrobin	VALENT	F	03/09/2023	Vegetable, tuberous and corm, except potato, subgroup 1D		12522	16	1
Trinexapac-ethyl	SYNGEN	P	03/29/2023	Clover, forage		11526	1	1
				Clover, hay		11526	0	1
Ethalfuralin	GOWAN, LOVLND	H	04/10/2023	Hemp, seed		12910	1	1
				Stevia, dried leaves		09871	1	1

				Vegetable, tuberous and corm, subgroup 1C	2	13174	16	1
				Individual crops of Proposed Crop Subgroup 6-22E	2	13175	25	25
				Individual crops of Proposed Crop Subgroup 6-22F	2	13176	6	6
Fluazifop-p-butyl	SYNGEN	H	04/27/2023	Berry, low growing, subgroup 13-07G	2	13198	8	1
				Brassica, leafy greens, subgroup 4-16B		02076	20	1
				Chive, dried leaves		02087	0	1
				Fruit, citrus, group 10-10		11363	14	1
				Fruit, stone, group 12-12		11364	11	1
				Leaf petiole vegetable subgroup 22B		02336	6	1
				Onion, green, subgroup 3-07B	2	02087	14	1
				Papaya		11265	1	1
				Vegetable, brassica, head and stem, group 5-16		11861 , 11862	5	1
				Arugula		03399	0	0
				Broccoli, Chinese		03246	0	0
				Cabbage, Chinese (bok choy)		03027	0	0
				Cabbage, Chinese (napa)		02338	0	0
				Cauliflower		02327	0	0
				Collard		02334	0	0
				Kale		02332	0	0
				Mustard, Chinese		03245	0	0
Fomesafen	SYNGEN	H	05/09/2023	Vegetable, bulb, group 3-07		11620	26	1
				Vegetable, cucurbit, group 9	2	13300	8	1
				Vegetable, foliage of legume, except soybean, subgroup 7A		12467	2	1
				Vegetable, fruiting, group	2	13299	18	1

				8-10		12785		
Trifloxystrobin	BAYER	F	06/20/2023	Brassica, leafy greens, subgroup 4-16B		13227	13	1
				Celtuce	4	13238	0	1
				Fennel, Florence, fresh leaves and stalks	4	13239	0	1
				Fruit, citrus, group 10-10		13229	14	1
				Fruit, pome, group 11-10		13230	5	1
				Fruit, stone, group 12-12		13231	11	1
				Kohlrabi	4	13240	0	1
				Leafy greens subgroup 4-16A		13233	18	1
				Leaf petiole vegetable subgroup 22B		13232	3	1
				Nut, tree, group 14-12		13234	26	1
				Onion, bulb, subgroup 3-07A		07049	11	1
				Onion, green, subgroup 3-07B		07049	15	1
				Spice group 26	2	13228	204	1
				Vegetable, Brassica, head and stem, group 5-16		13226	5	1
				Vegetable, fruiting, group 8-10		13237	12	1
				Individual crops of proposed subgroup 6-22A: Edible podded bean legume vegetable subgroup		09916	25	25
				Individual crops of proposed subgroup 6-22E: Dried shelled bean, except soybean, subgroup		13235	25	50
				Individual crops of proposed subgroup 6-22F: Dried shelled pea subgroup		13236	6	8
Glufosinate	BASF, UPL NA	H	06/20/2023	Tropical and subtropical, medium to large fruit,		10242	43	1

				edible peel, subgroup 23B				
				Tropical and subtropical, medium to large fruit, smooth, inedible peel, subgroup 24B		12050	40	1
				Tropical and subtropical, small fruit, inedible peel, subgroup 24A		10239	19	1
				Grass, forage		12109	1	1
				Grass, hay		12109	0	1
Acifluorfen	UPL NA	H	07/27/2023	Berry, low growing, subgroup 13-07G	2	13412	9	1
				Soybean, vegetable, edible podded		10958	1	1
				Soybean, vegetable, succulent shelled		10958	1	1
Fluxapyroxad	BASF	F	08/16/2023	Stevia, dried leaves		12535	1	1
				Stevia, fresh leaves		12535	0	1
				Coffee, green bean		13186	1	1
Pyraclostrobin	BASF	F	08/16/2023	Stevia, dried leaves		12535	1	1
				Stevia, fresh leaves		12535	0	1
				Coffee, green bean		13186	1	1
Spinosad	CORTEVA	I	08/28/2023	Stalk and Stem Vegetable Subgroup 22A		13265	12	1
				Spice Group 26		13266	175	1
				Greenhouse cucumber		11926	1	0
				Greenhouse lettuce		12292	1	0
				Greenhouse pepper		11944	1	0
				Greenhouse tomato		11919	1	0
Spinetoram	CORTEVA	I	09/5/2023	Stalk and stem vegetable subgroup 22A		11830	12	1
				Spice group 26	2	13257	175	1
				Greenhouse cucumber		11926	1	0
				Greenhouse lettuce		12292	1	0
				Greenhouse pepper		11944	1	0
				Greenhouse tomato		11919	1	0
Fonicamid	FMC, ISK	I	09/20/2023	Bushberry crop subgroup 13-07B		11969	19	1

				Caneberry crop subgroup 13-07A		08585	5	1
				Cherry subgroup 12-12A	2	08558	0	1
				Corn, sweet, kernel plus cob with husks removed		11970	1	1
				Corn, sweet, forage		11970	0	1
				Corn, sweet, stover		11970	0	1
				Peach crop subgroup 12-12B		08558	0	1
				Plum subgroup 12-12C	2	08558	0	1
				Pomegranate		12283	1	1
				Prickly pear, fruit		11966	1	1
				Prickly pear, pads		11966	0	1
				Edible podded bean subgroup 6-22A	2	13432	17	1
				Edible podded pea subgroup 6-22B	2	13433	3	1
				Succulent shelled bean subgroup 6-22C	2	13434	17	1
Flonicamid (continued)	FMC, ISK	I	09/20/2023	Pulses, dried shelled bean (except soybean) subgroup 6-22E	2	13436	25	1
				Pulses, dried shelled pea subgroup 6-22F	2	13437	6	1
Dodine	UPL NA	F	12/13/2023	Fruit, pome, group 11-10	2	13268	10	1
				Fruit, stone, group 12-12		13269	11	1
				Nut, tree, group 14-12		13270	27	1
				Olive, with pit		13126	1	1
2023 Totals¹⁰							161	211
*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, N=nematicide, P=plant growth regulator								

¹⁰ In May 2023 an error in the monthly report from December 2021 was discovered - tolerance actions for Bifenthrin and Cyflumetofen were inadvertently omitted; this correction adds 104 new uses and 13 new tolerances to the annual totals for 2021; thus, in 2021 EPA published 16 actions that established 128 new tolerances for 15 active ingredients, supporting 744 potential new uses on food crops (replacing the 14 actions establishing 115 new tolerances for 13 active ingredients supporting 640 new uses, as reported in the 2021 "Annual Report of the IR-4 Project"); these Bifenthrin and Cyflumetofen data are reported here, but the tolerances and uses are not added to the 2023 totals

** Note Code

1=Update of established tolerance on old crop group or subgroup

2=Conversion of established tolerance(s) on representative commodities to a crop group or subgroup tolerance

3=Conversion of established tolerance(s) on representative commodities to a crop group or subgroup tolerance **and** submission of new data to complete the requirements for a crop group or subgroup

4=Individual commodity tolerance established in response to crop group revision

5=Response to EPA request for Codex harmonization

6=Revised tolerance

7=Tolerance for indirect or inadvertent residues

ATTACHMENT 3 – 2023 Submissions to EPA, unless otherwise noted as submitted to Registrants, Codex or State Departments of Agriculture

Pest Control Agent	Registrant	Type*	Date	Commodity, Subgroup or Crop Group	PR#
Ethaboxam	VALENT	F	02/02/2023	Leaf petiole vegetable subgroup 22B	12075
Flutriafol	FMC	F	03/16/2023	Brassica, leafy greens, subgroup 4-16B Celtuce Cottonseed subgroup 20C Fennel, Florence, fresh leaves and stalk Fruit, pome, group 11-10 Fruit, stone, group 12-12 Kohlrabi Leafy greens subgroup 4-16A, except head lettuce and radicchio Leaf petiole vegetable subgroup 22B Tropical and subtropical, small fruit, edible peel, subgroup 23A Vegetable, Brassica, head and stem, group 5-16	13602 13606 13603 13607 13609 13610 13608 13604 13605 11935 13601
Cyazofamid	ISK	F	04/10/2023	Chickpea, edible podded Chickpea, succulent shelled Edible podded bean subgroup 6-22A Parsnip, root Pulses, dried shelled bean, except soybean, subgroup 6-22E Succulent shelled bean subgroup 6-22C	13616 13619 13617 13018 09533 13618
Pyridate	BELCHIM	H	07/05/2023	Vegetable, brassica, head and stem, group 5-16 Field corn subgroup 15-22C Kohlrabi Mint, dried leaves Mint, fresh leaves	13645 13646 13647 12477 12477
Picarbutrazox	NISSO	F	07/17/2023	GH lettuce	12291
Bifenthrin	ADAMA, AMVAC, FMC	I	07/26/2023	Celtuce Citrus, oil Coffee, green bean Cottonseed subgroup 20C 13651	13659 11166 11527 13651

				Edible podded bean subgroup 6-22A Edible podded pea subgroup 6-22B Fennel, Florence, fresh leaves and stalks Kiwifruit, fuzzy Kohlrabi Leaf petiole vegetable subgroup 22B Pulses, dried shelled bean, except soybean, subgroup 6-22E Pulses, dried shelled pea subgroup 6-22F Rapeseed subgroup 20A Safflower Succulent shelled bean subgroup 6-22C Succulent shelled pea subgroup 6-22D Swiss chard Tropical and subtropical, palm fruit, edible peel, subgroup 23C Vegetable, brassica, head and stem, group 5-16, except cabbage Clover, forage Clover, hay Citrus fruit group 10-10	13652 13654 13660 12627 13658 13649 13656 13657 13662 11068 13653 13655 13661 12649 13650 11297 11297 11164, 11165, 11166
Dimethenamid-p	BASF	H	07/31/2023	Bulb vegetable group 3-07 Field corn subgroup 15-22C Grain sorghum and millet subgroup 15-22E Pomegranate Sweet corn subgroup 15-22D	13669 13670 13671 13081 13672
Inpyrfluxam	VALENT	F	08/31/2023	Vegetable, cucurbit, group 9	13350, 13351, 13352
Azoxystrobin + Fludioxonil	SYNGEN	F	09/11/2023	Sweet potato (post harvest)	12118
Famoxadone	CORTEVA	F	09/29/2023	Arugula Brassica, leafy greens, subgroup 4-16B Celtuce	12234 08759 12237 12236

				Cress, garden Cress, upland Fennel, Florence Leaf petiole vegetable subgroup 22B Leafy greens subgroup 4-16A, except spinach Mango Pepper/eggplant subgroup 8-10B Tomato subgroup 8-10A Vegetable, root, except sugar beet, subgroup 1B Vegetable, tuberous and corm, subgroup 1C Succulent shelled bean subgroup 6- 22C	12235 12238 12231 12230 10677 13782 13781 08875, 10812, 08757, 12415 12232 07262
Cymoxanil	CORTEVA	F	09/29/2023	Arugula Brassica, leafy greens, subgroup 4- 16B Celtuce Cress, garden Cress, upland Fennel, Florence Leaf petiole vegetable subgroup 22B Leafy greens subgroup 4-16A, except spinach Mango Vegetable, fruiting, group 8-10 Vegetable, root, except sugar beet, subgroup 1B Vegetable, tuberous and corm, subgroup 1C Succulent shelled bean subgroup 6- 22C	12234 08759 12237 12236 12235 12238 12231 12230 10677 12233 08875, 10812, 08757, 12415 12232 07262
Afidopyropen	BASF	I	12/15/2023	Greenhouse lettuce	11695
Permethrin	ADAMA, AMVAC, FMC, UPL NA	I	12/18/2023	Arugula Cress, garden Cress, upland Dragon fruit (pitaya) Field corn subgroup 15-22C Leafy greens subgroup 4-16A Sweet corn subgroup 15-22D	12305 12306 12307 10630 13796 12303 13797

Methoxyfenozide	CORTEVA	I	12/18/2023	Edible podded bean subgroup 6- 22A	13785
				Edible podded pea subgroup 6- 22B	13786
				Field corn subgroup 15-22C	13787
				Grain sorghum and millet subgroup 15-22E	13788
				Pulses, dried shelled bean, except soybean, subgroup 6-22E, except pea, blackeyed, bean/ pea, southern	13789
				Pulses, dried shelled pea subgroup 6-22F	13790
				Succulent shelled bean subgroup 6-22C	13792
				Succulent shelled pea subgroup 6-22D	13793
				Sweet corn subgroup 15-22D	13794
				Tropical and subtropical, medium to large fruit, edible peel, subgroup 23B	12898,
				Rice subgroup 15-22F	13795
					13791

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, N=nematicide, P=plant growth regulator

ATTACHMENT 4 – 2023 Food Use Research Projects, New Residue Studies¹¹

Chemical	Crop	PR #
Acequinocyl	Hops	13539*
Afidopyropen	Sunflower	13537
Azoxystrobin	Mint (GH transplants)	13108
BCS-CW64991	Cucumber (GH)	13088*
BCS-CW64991	Tomato (GH)	13087*
Benzovindiflupyr + Difenoconazole	Coffee	13179
Bifenthrin	Onion (bulb and green)	13485
Clethodim	Avocado	13533
Clethodim	Olive	13451
Clethodim	Rice	13184
Cyclaniliprole	Hemp	13035
Cyflumetofen	Caneberry	11808
Ethaboxam	Cherry	13286
Ethephon	Hazelnut (Filbert)	13450
Fenpyroximate	Hemp	13033
Fenpyroximate	Lychee	13390
Fluazifop-P-Butyl	Pea (succulent shelled)	13541
Fluazifop-P-Butyl	Squash (summer)	13540
Fluazinam	Avocado	08284
Fludioxonil + Pydiflumetofen	Asparagus (fern)	13489
Fludioxonil + Pydiflumetofen	Basil	13078
Fludioxonil + Pydiflumetofen	Mint	13293

¹¹ PR # followed by "*" indicate that the study is no longer active

Chemical	Crop	PR #
Fluroxypyr	Mint	13142
Flutianil	Basil	13542
Flutolanil	Strawberry	09102
GF-4031	Cherry	13295
Glufosinate	Peanut	13463
Glufosinate	Strawberry	13455
Indaziflam	Asparagus	13026
Inpyrfluxam	Coffee	13449
Inpyrfluxam	Tomato	13511
Isocycloseram (ISM-555)	Pepper (GH)	13405
Isocycloseram (ISM-555)	Pomegranate	13504
Isocycloseram (ISM-555)	Strawberry (GH)	13407
Isocycloseram (ISM-555)	Sunflower	13538
Isocycloseram (ISM-555)	Tomato (GH)	13403
Mefentrifluconazole	Hops	13505
Novaluron	Caneberry	13502
Propiconazole	Guava	13045*
Pyridaben	Miracle fruit	12562
Pyridate	Sweet corn	07883
Pyriofenone	Lettuce (GH)	11473
Quizalofop	Hops	13495
Rimsulfuron	Avocado	13484
S-metolachlor/metolachlor	Perennial peanuts	13165
Tiafenacil	Blueberry	13487

Chemical	Crop	PR #
Tiafenacil	Cucumber	13498
Tiafenacil	Mint	13274
Tiafenacil	Pepper (bell and nonbell)	13501
Tiafenacil	Tomato	13500
Uniconazole-P	Basil (GH transplants)	12028
Uniconazole-P	Mint (GH transplants)	13530

ATTACHMENT 5 – 2023 Food Use Product Performance Research Program¹²

Chemical	Crop	PR#	Research Trial location
2,4-D Choline	Caneberry	13332	AR, CA, NC, OR
2,4-D Choline	Strawberry	13304	CA, CA, NC
Acetamiprid	Dragon fruit	13057	FL, PR
Afidopyropen	Safflower	13459	CA
Azoxystrobin	Cabbage (GH transplants)	13112	MI
Azoxystrobin	Mint (GH transplants)	13108	NJ
Bifenthrin	Onion (bulb and green)	13485	NY, WA
Cyantraniliprole	Dragon fruit	13306	FL
Cyantraniliprole	Strawberry (GH)	11679	FL, SC
Cyazofamid	Hemp	13058	KY, OR
Cyazofamid	Parsnip	13018	MI, OR
Cyazofamid	Turnip (roots)	13015	OR
Cyflumetofen	Caneberry	11808	AR, CA
Cymoxanil	Strawberry	13256	CA, FL
Dimethomorph + Ametoctradin	Basil	13242	CA, CA
Fenpyroximate	Lychee	13390	FL
Flazasulfuron	Peach	13323	CA, CA, MI, NC, NC, WA
Florpyrauxifen-benzyl	Coffee	13262	HI, HI, PR, PR
Florpyrauxifen-benzyl	Hazelnut	13486	OR, OR
Florpyrauxifen-benzyl	Papaya	13263	HI, HI, PR, PR
Fluazaindolizine	Onion (dry bulb)	12770	FL
Fluazinam	Avocado	08284	FL
Fludioxonil + Pydiflumetofen	Basil	13078	TX
Fludioxonil + Pydiflumetofen	GH cucumber	12673	CA
Fludioxonil + Pydiflumetofen	Mint	13293	ID
Flumiclorac	Sesame	13503	OK, TX, TX, TX
Flutolanil	Strawberry	09102	MI, WV
Fluxapyroxad + Pyraclostrobin	Asparagus (fern)	13493	MI, MI

¹² PR # followed by "*" indicate that the study is no longer active

Chemical	Crop	PR#	Research Trial location
GF-4031	Strawberry	13355	MI
Glufosinate	Asparagus	13499	IN, NJ, WA, WI
Glufosinate	Caneberry	12051	AR, NC, OR, OR
Glufosinate	Dragon fruit	13330	FL, PR
Glufosinate	Mango	13296	N/A
Glufosinate	Passionfruit	10241	FL, PR, PR
Glufosinate	Sesame	11148	OK, TX
Glufosinate	Spinach	13453	AZ, CA, FL, GA, OH
Glufosinate	Strawberry	13455	FL, WA
Indaziflam	Asparagus	13026	CA, MI, NJ, OR
Inpyrfluxam	Tomato	13511	CA
Isocycloseram (ISM-555)	Pepper (GH)	13405	FL, GA
Isocycloseram (ISM-555)	Pomegranate	13504	CA, CA
Isocycloseram (ISM-555)	Tomato (GH)	13403	NH
Isofetamid	Hemp	13007	VT
MBI-015	Hops	13512	NY, OR
Mefenoxam	Lettuce (head and leaf)	13194	CA
Mefenoxam	Passionfruit	13046*	FL
Mefentrifluconazole	Hops	13505	OR
Metribuzin	Snap bean	13362	DE, GA, MD
NAA	Hazelnut	13065	OR, OR
Penthiopyrad	Avocado	13075	CA
Penthiopyrad	Pomegranate	13514	CA, CA
Pyraziflumid	Lettuce (GH)	12975	MI
Pyroxasulfone	Asparagus	12935	CA, ID, MI, MI, NJ, OR
Pyroxasulfone	Sesame	11951	OK, TX
Quinclorac	Peach	12572	CA, CA, MI, NC, NC, PA
Quinclorac	Strawberry	11611	NY
Quizalofop	Hops	13495	MI, NY, OR
S-metolachlor	Perennial peanuts	13165	FL, FL

Chemical	Crop	PR#	Research Trial location
S-metolachlor	Camelina	12867	MT
Spinosad	Pea (succulent shelled)	13103	DE, NY
Sulfur Dioxide	Sweet potato	12521*	NC
Tiafenacil	Blueberry	13487	NJ, OR
Tiafenacil	Hops	13282	ID, MI, NY, OR, WA
Tiafenacil	Mint	13274	CA, OR, WI
Tiafenacil	Tomato	13500	CA, FL
		Total	143

ATTACHMENT 6 - 2023 Environmental Horticulture Program Research Summaries

Abamectin Crop Safety

Abamectin has been registered since 1987 for environmental horticulture crops, initially for leafminers and spider mites on annuals and herbaceous perennials. Then in 2000, woody ornamentals plus aphids, thrips, whiteflies and other mite groups were added to the Avid 1.5 EC label. Since 1984, IR-4 has included Avid 0.15EC in 113 crop safety trials and 48 efficacy experiments, with it being viewed as a standard commercially available tool in the more recent research activities.

Borers, Beetles, and White Grub Efficacy

Collectively, managing coleopteran insects can be challenging because the adult and larval stages may both cause damage and sometimes occur on different hosts or on different plant parts. While organophosphates, pyrethroids, and neonicotinoids can provide good to excellent control of coleopteran insects, not all products work equally well in all situations. Treatments for borers are very different from treatments targeting white grubs. Developing newer classes of chemistry are important to reduce the environmental consequences and to minimize the development of resistance. Starting with the 2004 Annual Workshop, screening a number of products to manage coleopteran insects became one of the high priority projects for entomology. From 2005 through 2022, 91 products representing 58 different active ingredients were tested for management of adult and larval stages of coleopteran insects. In addition, 10 products representing 10 active ingredients were evaluated for lepidopteran clearwing borers in 2008 and 2009. These products represented both biological and chemical tools. Some products were already registered but more data were needed, or they were considered standards to measure the level of efficacy achieved with other materials. Other products were in development but have not yet been registered with the EPA. While a number of coleopteran and lepidopteran species were tested, only enough experiments were able to be completed on the coleopteran species black vine weevil, Japanese beetle, oriental beetle, red headed flea beetle, Sri Lankan weevil, and viburnum leaf beetles to recommend actions to register or amend labels for these pests.

Botrytis Efficacy

At the IR-4 Environmental Horticulture Program Workshop in 2011, Botrytis Efficacy was selected as a high priority project to expand the knowledge and list of fungicides available to growers for these diseases. In addition to research collected through the IR-4 Program, this summary includes a review of experiments conducted from 1998 to 2022 on environmental horticulture crops. During this time period, numerous products representing 56 active ingredients were tested as foliar applications against several *Botrytis* species causing blight and gray mold on multiple environmental horticulture crops. Most products are now registered and commercially used. Almost all trials were conducted on *Botrytis cinerea*; however, other species tested were *B. elliptica*, and *B. tulipae*. For *B. cinerea*, across all crops and rates screened, Affirm, Picatina Flora, Astun, Spirato/Medallion, Mural, Tourney, Pageant Intrinsic, Decree, and Postiva provided good to excellent efficacy routinely as did two not-yet-registered tools for Botrytis management: XDE-659 and Trinity. Orkestra Intrinsic, PreStop, S2200, Broadform, and Regalia generally provided good reduction in disease; however, some variability was seen among experiments. S2200 also was variable in performance but could be registered and be part of an overall management program. For *Botrytis elliptica*, fewer experiments have been conducted. The best performing tools with at least 3 trials are Orchestra Intrinsic, Mural, and S2200. ZeroTol, and the copper products (Badge X2, Camelot, Phytan 27, STBX-304) generally performed poorly under the conditions of these experiments.

Dimethenamid-p Crop Safety

From 2007 to 2023, IR-4 completed 594 trials on Tower EC (dimethenamid-p). The data contained in this report was generated to register uses of dimethenamid-p on and around environmental horticulture plants with over-

the-top applications. The dimethenamid-p rates in the testing program were 0.97, 1.94 and 3.88 pounds active ingredient per acre (lb ai per A) as the 1X, 2X and 4X rates. Tower EC had been applied to 154 plant genera or species. Of these, 74 plant species exhibited no or minimal transient injury after application at all three rates. Thirty (30) crops exhibited no phytotoxicity at 0.97 lb ai per acre but did have some injury at 1.94 and 3.88 lb ai per acre. Fifteen crops – *Aquilegia* sp, *Catharanthus roseus*, *Cladrastis* sp., *Crassula ovata*, *Crassula* sp., *Echeveria* sp., *Echinacea purpurea*, *Echinacea* sp, *Epilobium canum*, *Helianthus annuus*, *Muhlenbergia dubia*, *Rudbeckia fulgida*, *Rudbeckia hirta*, *Teucrium chamaedrys*, and *Viburnum opulus*– exhibited significant phytotoxicity at even the lowest rate.

Dimethenamid-p + Pendimethalin Crop Safety

From 2007 to 2023, IR-4 completed 726 trials on Freehand 1.75G (BAS 659 G; dimethenamid-p + pendimethalin). The data contained in this report was generated to register uses of dimethenamid-p + pendimethalin on and around environmental horticulture plants with broadcast applications, including over the top of established plants. The Freehand rates in this testing program were 2.65, 5.3, and 10.6 pounds active ingredient per acre (lb ai per A) as the 1X, 2X and 4X rates. Freehand 1.75G had been applied to 211 plant genera or species. Of these genera and species, 120 exhibited no or minimal transient injury after application at all three rates. Fourteen (14) crops exhibited little or no phytotoxicity at 2.65 lb ai per acre but did have some injury at 5.3 and/or 10.6 lb ai per acre or showed injury after the second application. Twenty (20) genera or species exhibited damage at the lowest rate sufficient to recommend growers not utilize Freehand 1.75G as an over-the-top treatment for pre-emergent weed control. Thirteen (13) crops exhibited variable responses sufficient to recommend further testing of specific species or cultivars. Of the 47 crops which IR-4 has screened in under 3 trials, BASF has sufficient information to include 18 crops on the Freehand 1.75G label. Additional trials are indicated to establish species or cultivar sensitivities for the remaining crops.

Flutianil Crop Safety

Flutianil is a new fungicide being developed by OAT Agrico for the control of powdery mildew on environmental horticulture crops. The IR-4 Project completed 36 crop safety trials on 15 environmental horticulture plant species or genera during 2018 to 2021. Seven species (*Begonia* sp., *Coreopsis* sp., *Gerbera* sp., *Hydrangea* sp., *Rosa* sp., *Syringa* sp., *Viola x wittrockiana*) exhibited minimal or no injury in 3 trials and six species or genera exhibited minimal or no injury in the limited number of trials (one or two) for each crop. One species, *Saintpaulia ionantha*, showed no phytotoxicity on foliage but some phytotoxicity on open blooms. Zinnia in 2 trials exhibited no injury, but in a third trial injury was observed after the second application. Additional trials are warranted for both crops.

Isoxaben + Dithiopyr Crop Safety

Fortress (isoxaben + dithiopyr) was registered in 2018 for environmental horticulture crop uses. Between 2018 and 2022, IR-4 examined 27 crop species / genera to expand this label to other crops. Of these, 7 crop species exhibited no or transient injury. One species exhibited significant injury from isoxaben + dithiopyr at the 1X rate (*Digitalis grandiflora*).

Liverwort Efficacy

Liverworts (*Marchantia* sp.) are difficult to manage during the production of perennial environmental horticulture crops grown in containers. Liverworts are among the most serious weeds of container grown ornamentals. During the 2004 and 2009 IR-4 Environmental Horticulture Workshops, a project was prioritized to screen for products to manage post-emergent liverwort in container grown ornamentals grown primarily under cover in greenhouses or hoop houses, use sites with very few registered herbicides. Since then, liverwort has been selected as a regional research priority. Between 1976 and 2021, IR-4 sponsored 302 research trials on 37 products or product formulations with 29 actives to manage liverwort. Most research was conducted

with post-emergent applications, but active ingredients typically known for pre-emergent activity were included in some post-emergent experiments along with three experiments designed to screen for pre-emergent liverwort management.

The most effective options across these studies include Avenger Ag, baking soda, Byrophyter, Racer, Scythe, SureGuard, Tower (pre-emergent), V-10233, and WeedPharm. However, Marengo when applied pre-emergently when no liverworts were initially present did provide excellent prevention. Ronstar, Neudorff's Granular Moss Killer, Terracyte and Xeroton had variable efficacy as post emergent applications, but many of these contact products may need more frequent applications for optimal efficacy. The results from this project have successfully identified several options for pre and postemergent control of liverwort.

Mealybug Efficacy

Managing mealybugs and scale insects presents unique challenges. Products with contact modes of action must be applied at specific timings in order to reach the most susceptible crawler stages often targeting stems or leaf petioles not readily accessible due to dense foliage. Products with systemic modes of action may work well for certain species and not others based on application timing and whether the insect feeds within phloem or xylem. In 2003, IR-4 initiated a high priority project to determine efficacy of insecticides for mealybugs to add additional species to existing registrations and screen new active ingredients. Over time, mealybug efficacy has been re-established as high priority at subsequent workshops (2019, 2021). This research was conducted between 2004 and 2022. This summary contains outcomes from 32 experiments established to screen new active ingredients for impact on mealybugs.

Across crop and mealybug species, the products with the most impact on populations include ISM-555, TriStar, Orthene, Pradia, Safari, Talus, Flagship, Rycar, A169018, Aria, Kontos, and Ventigra. MBI 205, TetraCURB Concentrate, and SP3014 also provided acceptable reductions in populations. Seven different mode of action groups are represented. There is the opportunity to include mealybugs on active ingredients that are not yet registered for mealybugs and expand currently registered labels with additional mealybug species.

Mefentrifluconazole Crop Safety

Avelyo (mefentrifluconazole) is a fungicide developed by BASF that has been registered for use since May 2020. It is used for the control of diseases such as anthracnose, powdery mildew, leaf spot, scab, rust, and blight of environmental horticulture crops. The IR-4 Project has completed 90 crop safety trials on 26 environmental horticulture plant species or genera during 2019 to 2022. This summary contains data across all reports available through IR-4 since 2019.

Twenty-six species or genera exhibited no or minimal injury after drench or foliar treatments of Mefentrifluconazole. Eighteen of the tested plants exhibited no injury across multiple trials, while the remaining eight plants showed the same with less than 3 trials. All twenty-six species or genera could be added to the label based on this data, provided that BASF has similar results.

Nutsedge and Sedge Efficacy

Nutsedges and sedges (*Cyperus sp.*) are difficult to manage during the production of perennial environmental horticulture crops grown in containers or in the field. During the 2006 IR-4 Environmental Horticulture Workshop, a project was prioritized to screen for efficacious products to manage sedge and nutsedge in container or field grown environmental horticulture crops. Between 2007 and 2023, IR-4 evaluated a diverse group of products for pre- and post-emergent control of several sedges and nutsedges. During this time, IR-4 sponsored 84 research trials on 28 products or product formulations with 20 actives to manage sedges and nutsedge. Most research was conducted with pre-emergent herbicides.

The most effective options across these studies where IR-4 has at least 3 experiments include Pennant Magnum, SedgeHammer, Tower, and V-10142 for yellow nutsedge management. However, the IR-4 dataset is

limited, and several products tested show promise for managing annual sedges, rice flatsedge, purple nutsedge or compressed sedge.

Oxathiapiprolin Crop Safety

Oxathiapiprolin was registered as Segovis in the United States in 2017 for disease control on ornamental horticulture plants in greenhouse and nurseries. The commercial label contains a general list of 17 crop groups that cover virtually all environmental horticulture crops. From 2015 through 2019, the IR-4 Project completed 33 trials on 19 plant species or genera examining phytotoxicity related to drench applications of Segovis. In these trials, all species or genera exhibited minimal or no injury after drench applications. These results confirm Segovis may be used effectively for disease control across multiple crops with minimal impact on plant growth or quality.

Picarbutrazox Crop Safety

Picarbutrazox is a novel fungicide with a new mode of action being developed by Nisso America for the control of oomycete diseases such as *Bremia*, *Peronospora*, *Pseudoperonospora*, *Phytophthora*, *Pythium* and *Phytopythium*. The IR-4 Project completed 85 crop safety trials on 16 environmental horticulture plant species or genera between 2018 and 2023. In these trials, 15 of 16 species or genera exhibited no or minimal injury. Twelve species or genera exhibited no injury in at least 3 trials. One genera, *Rosa sp.*, exhibited moderate injury in one trial after two consecutive biweekly foliar applications of Picarbutrazox SC. The remaining three species or genera exhibited no or minimal injury in the limited number of trials (one or two) for each crop.

Powdery Mildew Efficacy

Powdery mildew is a highly recognizable disease with pronounced colonies of white on foliage and, for some species, on petals. Due to the high number of spores produced, powdery mildews often develop resistance quickly to fungicides. Starting in 2012, IR-4 initiated a series of regional projects to examine new fungicides and biofungicides for powdery mildew management. In addition, we performed a literature review. Contained in the project summary are outcomes from 96 experiments conducted in greenhouses and or outdoors. Specific powdery mildew pathogens included: *Erysiphe azaleae*, *Erysiphe knautiae*, *Erysiphe lagerstroemia*, *Erysiphe lonicerae* var. *lonicerae*, *Erysiphe monardae*, *Erysiphe polygoni*, *Erysiphe pulchra*, *Golovinomyces cichoracearum*, *Golovinomyces orontii*, *Oidium* spp., *Podosphaera pannosa*, and *Podosphaera xanthii*. Across species, the best performing products and actives included Aveylo, Bayleton, Broadform, Gatten, Heritage. Magus. Mural, NF-149 (cyflufenamid), SP2478, and XDE-659.

Prodiamine + Isoxaben Crop Safety

Prodiamine + Isoxaben (Gemini G) is a herbicide combination developed by ICL Specialty Fertilizers for pre-emergent control of grasses and broadleaf weeds on environmental horticulture crops. The IR-4 Project completed 85 crop safety trials on 29 environmental horticulture plant species or genera between 2017 and 2023. In these trials, five species (*Campanula sp.*, *Euonymus alatus*, *Nepeta x fassiana*, *Quercus virginiana*, *Rosa sp.*) exhibited no injury after over-the-top applications in a minimum of 3 trials; *E. alatus* and *N. fassiana* can be added to a list of tolerant plants in the new label for this product. Three species (*Phlox paniculata*, *Sedum acre*, *Sedum rupestre*) exhibited damage at the 1X rate sufficient to recommend growers not utilize Gemini G as an over-the-top treatment for pre-emergent weed control.

Pydiflumetofen + Difenconazole Crop Safety

Postiva (pydiflumetofen + difenoconazole) is a new fungicide registered by Syngenta for the control of foliar diseases of environmental horticulture crops. The IR-4 Project completed 43 crop safety trials on 18 environmental horticulture plant species or genera during 2019 to 2022. In addition, crop safety data were collected during efficacy experiments. Across all crops tested, Pydiflumetofen + difenoconazole generally

exhibited no or minimal negative impact. Seven crops were not injured after drench or foliar applications; while *Begonia semperflorens* did not display visible chlorosis or necrosis, but plants at the 4x rate were significantly shorter in one trial. For three crops, more information will be needed to determine response because outcomes have been variable from no impact to significant injury, six crops have been screened in less than three trials.

Rhizoctonia Efficacy

From 1999 to 2023, 44 products or active ingredients were evaluated for *Rhizoctonia solani* management in greenhouse experiments as soil drench, soil incorporation, foliar or soak application, and in field experiments as soil drenches. Experiments were conducted on begonia, boxwood, chrysanthemum, dianthus, garden impatiens, juniper, maple, marigold, petunia, poinsettia, rhododendron, snapdragon, viburnum, vinca, and zinnia. The relatively new registered products Affirm/Endorse/Veranda O (polyoxin D), Empress Intrinsic (pyraclostrobin), Heritage (azoxystrobin), Medallion (fludioxonil), Mural (azoxystrobin + benzovindiflupyr) and Pageant Intrinsic (pyraclostrobin + boscalid) showed excellent efficacy. For those not yet registered for this disease, sufficient efficacy was observed with Astun, Avelyo, BAS 673, MBI-121, and SP2478 to recommend adding *R. solani* to target pathogens. SP2700 shows promise as part of an overall resistance and disease management plan.

S-Metolachlor Crop Safety

From 2004 to 2022, IR-4 completed 231 trials on Pennant Magnum (s-metolachlor). The data contained in this report was generated to register uses of s-metolachlor on and around environmental horticulture plants with over-the-top applications. The s-metolachlor rates in the testing program were 2.5, 5.0, and 10.0 pounds active ingredient per acre (lb ai per A) as the 1X, 2X and 4X rates with 4, 6, or 8 week intervals between applications. Pennant Magnus has been applied to 97 plant genera or species. Of these, 12 plant species exhibited no or minimal transient injury after application at all three rates. Ten (10) crops exhibited no phytotoxicity at 2.5 lb ai per acre but did have some injury at 5.0 and/or 10.0 lb ai per acre. Twenty-five (25) crops exhibited significant phytotoxicity at even the lowest rate. For nine crops, the response among sites was variable, and 41 crops have less than three trials completed.

Scale Efficacy

Managing scale insects presents unique challenges. Products with contact modes of action must be applied at specific timings in order to reach the most susceptible crawler stages. Products with systemic modes of action may work well for certain species and not others based on application timing and whether the insect feeds within phloem. In 2003, IR-4 initiated a high priority project to determine efficacy of several insecticides on several scale and mealybug species so data can be obtained to add appropriate species to existing registrations. This research was conducted between 2004 and 2022, and this summary contains outcomes from 85 experiments received through the IR-4 Environmental Horticulture Program. Across the 24 scale species screened, the most efficacious products included ISM-555, RTSA-721, XXpire, horticultural oils, Talus, Rycar, Distance, Safari, Ventigra, dimethoate. Kontos, Tristar, Altus, Flagship, Mainspring, and Marathon also reduced populations. However, sensitivities across species varied by product and application method.

SP1770 Crop Safety

SP1770 was a new herbicide being developed by SePro. The IR-4 Project completed 41 crop safety trials on 29 environmental horticulture plant species or genera during 2016 to 2019. In these trials, 16 of the 29 species or genera tested exhibited significant injury in the limited number of trials (one or two) for each crop.

SP2478 Crop Safety

SP2478 is a new fungicide being developed by SePro for the control of diseases on environmental horticulture crops such as powdery mildew and other diseases. The IR-4 Project completed 21 crop safety trials on 9

environmental horticulture plant species or genera from 2020 through 2022. SP2478 was applied either as a foliar spray or as a drench into soilless media. In these trials, all eight species or genera treated with foliar sprays exhibited minimal or no injury in the limited number of trials (one or two) for each crop. When SP2478 was applied as a drench application in seven species or genera, all of these seven species or genera exhibited minimal or no injury in one or two trials for each crop.

Triticonazole Crop Safety

Triticonazole was registered as Trinity 2SC in the United States in 2007 as a turf fungicide. Trinity SC was expanded to environmental horticulture diseases in 2013. Because triticonazole is in the triazole class, it could cause symptoms similar to plant growth regulators and testing was warranted on additional herbaceous and woody perennial species. Between 2010 and 2017, the IR-4 Project completed 187 trials on 42 plant genera or species examining phytotoxicity related to foliar applications of Trinity 2SC. In this report, 32 species or genera exhibited minimal or no injury after foliar treatments of Trinity 2SC (triticonazole) at 6, 12 and 24 fl oz per 100gal; 20 of these are already on the label. We recommend that the following 12 species or genera be added to the current label: *Alyssum sp.*, *Buxus sp.*, *Chaemerops humilis*, *Cornus sp.*, *Dahlia sp.*, *Gaillardia x grandiflora*, *Hedera helix*, *Ilex sp.*, *Lantana sp.*, *Pseudotsuga menziesii*, *Osteospermum sp.* and *Salvia officinalis*.

ATTACHMENT 7 - 2023 Environmental Horticulture Program Research Activities

<u>Discipline</u>	<u>Project</u>	<u>Researchers</u>	<u>Crops</u>	<u>Products</u>	<u>Trials</u>
Entomology	Borer & Beetle Efficacy	2	2	7	15
	BW280 Crop Safety	3	3	1	4
	BW400 Crop Safety	7	6	1	14
	Cyclaniliprole/Flonicamid	4	5	1	5
	Cyclaniliprole Crop Safety	5	4	1	7
	ISM-555 Crop Safety	5	7	1	7
	Mealybug Efficacy	4	3	9	42
	Mite (not spider mites) Efficacy	1	1	13	13
	Neem oil + Azadiractin Crop Safety	2	2	1	2
	Peppermint oil, clove oil, and sodium lauryl sulfate (NI02ES-1) Crop Safety	4	6	1	9
	Rosemary Oil Crop Safety	4	5	1	8
	Scale Efficacy	3	2	8	29
	SP3014 Crop Safety	1	1	1	1
	Thrips Efficacy	2	2	6	12
	V-10433 Crop Safety	2	2	1	2
Pathology	Botrytis Efficacy	3	2	13	36
	BW159 Crop Safety	3	6	1	13
	F6123 Crop Safety	3	4	1	10
	Florypicoxamid (XDE-659) Crop Safety	5	9	1	12
	Fluazaindolizine Crop Safety	1	1	1	1
	Fluopyram + Trifloxystrobin Crop Safety	2	3	1	4
	Flutianil Crop Safety	3	4	1	4

	Fusarium Efficacy	2	1	7	14
	Mandestrobin Crop Safety	2	4	1	4
	Mefentrifluconazole (BAS 750) Crop Safety	5	7	1	17
	Myrothecium Efficacy	1	1	13	13
	Nematode Efficacy	1	2	5	5
	Phytophthora Efficacy	3	3	8	20
	Picarbutrazox Crop Safety	7	7	2	12
	Pyriofenone (IKF-309) Crop Safety	8	9	1	12
	Pythium Efficacy	2	2	7	14
	Rhizoctonia Efficacy	2	2	10	18
	SP2478 Crop Safety	5	6	1	11
	SP2700 Crop Safety	2	5	1	11
	TDA01 Crop Safety	3	3	1	3
	Thyme Oil Crop Safety	4	4	1	8
Weed Science	Dimethenamid-p + Pendimethalin Crop Safety	9	21	1	26
	Dimethenamid-p Crop Safety	6	15	1	20
	Dithiopyr Crop Safety	3	3	1	3
	Fatty Acid Herbicide Use Directions	1	1	2	2
	Flumioxazin + Prodiamine Crop Safety	3	8	1	8
	Flumioxazin Crop Safety	7	7	1	10
	General Weed Efficacy	3	1	12	21

Isoxaben + Dithiopyr Crop Safety	7	10	1	14
Isoxaben Crop Safety	1	1	1	1
Nostoc Efficacy	2	1	8	16
Nutsedge & Sedge Efficacy	1	1	3	3
Oxyfluorfen + Pendimethalin Crop Safety	10	8	1	24
Pendimethalin Crop Safety	7	14	1	20
Prodiamine + Isoxaben Crop Safety	9	12	1	18
Prodiamine Crop Safety	1	1	1	1
S-Metolachlor Crop Safety	8	16	1	21
SP1182/SP1190 Crop Safety	2	3	1	3
Spurge Efficacy	1	1	5	5
Trifluralin + Isoxaben Crop Safety	1	2	1	2

For a detailed list of Environmental Horticulture research activities, visit <https://www.ir4project.org/ehc/>



20
23

YEAR-END
SUMMARY



Pest management solutions for
specialty crops and specialty uses



Dear Friends,

The year 2023 was a celebratory one, marking 60 years of The IR-4 Project. True to our legacy, it was also a year of meaningful results, when we took important strides towards modernizing processes and engaging new stakeholders. While regulatory challenges abound, IR-4 keeps evolving—thanks to our purpose-driven community.

To commemorate IR-4's 60th year, we launched a communications campaign focused on IR-4's impacts. Thanks to our social network for amplifying our message, the content generated thousands of impressions and video views. We also celebrated together at events; from near and far, many of you helped make this milestone memorable.

We kicked off the 60th year at the National Education Conference in San Juan, Puerto Rico, where teammates from IR-4's nationwide research network gathered. Along with two days of training and networking, we toured the Corozal Agricultural Experiment Station. The spirit and hospitality of our Puerto Rican colleagues was unmatched as they guided us through pineapple fields and starfruit orchards, connecting us with a delicious slice of the specialty crops we serve.

This year, we took on new projects with progress and longevity in mind. We created a Network Expansion Task Force to engage more researchers from minority-serving institutions and Cooperative Extension in IR-4's research. New instructional videos were made to guide newcomers through our project request and nomination processes. Continuing to implement the Path Forward 2.0, we launched a pilot program to test IR-4's new electronic Field Data Notebook (eFDB). As eFDB training continues, we look forward to seeing our teams benefit from digitized data collection in 2024.

In the fall, we came together in Raleigh, NC for the Food Use Workshop and in Little Rock, AR for the Environmental Horticulture Workshop. Finally, Headquarters hosted the National Research Planning Meeting. These events helped chart our next research cycle and served as bookends to the 60th year campaign.

It has been said that "it takes a village." Behind this year's results are the people who conduct and manage IR-4's research, including: Field Research Directors, Regional Field Coordinators, analytical laboratory chemists, Study Directors, the Quality Assurance Unit, biologists, and numerous support teams. The dedication and skills of these teams make IR-4 successful.

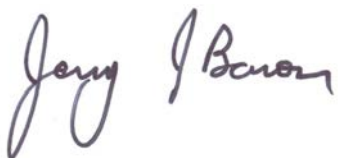
Many thanks to the IR-4 Project Management Committee for guiding the project forward, and to the Commodity Liaison Committee/Friends of IR-4 who help connect IR-4 to the crops we serve while advocating for appropriate federal funding. IR-4 could not facilitate new registrations without the collaboration of our crop protection industry partners. Thanks also to the Canadian Pest Management Centre, the Minor Use Foundation and other international partners. Finally, we appreciate the multifaceted support IR-4 receives from federal partners, including the U.S. Department of Agriculture (NIFA, ARS, FAS and APHIS) and the U.S. Environmental Protection Agency.

While successful and celebratory, this year has presented unique challenges. Complex regulatory issues—such as compliance with the Endangered Species Act and the continuing reassessment of traditional pesticides—are leading IR-4 to transition towards emerging pest management options. Now more than ever, the specialty crop community needs the services of the IR-4 Project. Unfortunately, government funding remains an ongoing concern.

It is clear that IR-4 has the expertise and vision to continue delivering on our mission—even if new tools and approaches are needed. Because we have a 60-year track record of results guided by the needs of growers, we are confident that we can evolve and respond as needs change.

As I reflect on the accomplishments of our 60th year, I applaud the community that makes it possible. Milestones like these matter because they remind us of our shared purpose, bring us together, and inspire us to look thoughtfully towards the future. While complex challenges lie ahead, I am optimistic about the next 60 years of IR-4.

Cheers to 60 Years,



Jerry Baron
Executive Director
The IR-4 Project

2023 At a Glance

FOOD USE PROGRAM

Successes

- **211** new tolerances for **18** active ingredients were established by U.S. Environmental Protection Agency (EPA) resulting in **1613** potential new product uses on food crops.

Regulatory Actions

- **12** tolerance petitions were submitted to EPA and **2** Final Reports to the registrant for Label Expansion or Conditional Registration. These covered **92** unique requests for assistance and crop group tolerance updates.

Research

- **384** residue trials contributing to **52** Magnitude of the Residue studies
- **143** efficacy/crop safety trials contributing to **65** Product Performance projects
- **72** field trials contributing to **35** Integrated Solutions projects

ENVIRONMENTAL HORTICULTURE PROGRAM

Successes

- BotryStop was registered in California, contributing to **500** new crop uses.

Regulatory Actions

- **22** research summaries were written to support new or update existing registrations.

Research

- **657** field and greenhouse trials (**275** efficacy, **379** crop safety) that contributed to **57** projects



INTERNATIONAL ACTIVITIES

- Technical leadership and project collaboration with the Minor Use Foundation
- Capacity building on biopesticide regulations and Good Laboratory Practices
- Assisted with a new international database
- Advised development of an import MRL program promoting export of U.S. commodities to Southeast Asia
- Hosted four USDA FAS Borlaug Fellows for training

Find the full Annual Report at ir4project.org.





Contact the IR-4 Project

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CONNECT WITH US

IR4project.org



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Commodity Liaison Committee (CLC) Update

Presenter: Todd Scholz





Commodity Liaison Committee Update

Joint Meeting CLC/PMC, Washington, D.C., March 5, 2024

Pest Management Solutions for Specialty Crops and Specialty Uses

CLC Update



Todd Scholz

**Chair, Commodity Liaison
Committee, IR-4**

Vice President for Research & Member Services

USA Dry Pea & Lentil Council

2780 W Pullman Road

Moscow, ID 83843

toddscholz@usapulses.org

Cell 208-596-5025

Work 208-882-3023



CLC Update

- **Don't Forget, IR-4 is 60 years old!**
- **Commodity Liaison Committee**
- **Activities**
- **Friends of IR-4**



CLC Update

- Created 1963



IR-4 is 60 years old!

- Wheat Harvest-1940's



- Chickpea Harvest 2024



IR-4 is 60 years old!

- Aerial Application 1960's



- Precision applications 2024



Pest Management Solutions for Specialty Crops and Specialty Uses



IR-4 is 60 years old!

- International Harvester Freezer



- New Walk-in Freezer



IR-4 is 60 years old!

- **1965**

- One Director and Secretary

- **2024**

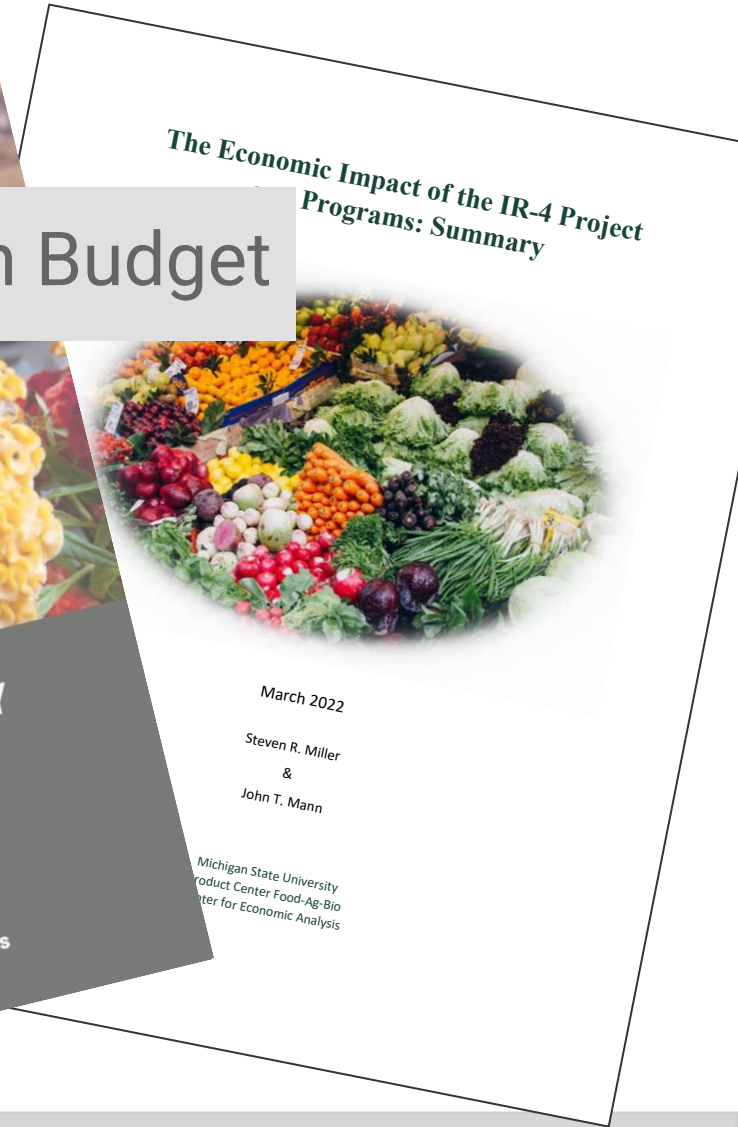
- Headquarters and 4 Regions
- Partnerships including ARS, Land Grant Universities, Registrants, Regulators and Producers
- Reputation is International and National

IR-4 is 60 years old

- \$25,000 Budget



- \$15.0 Million Budget



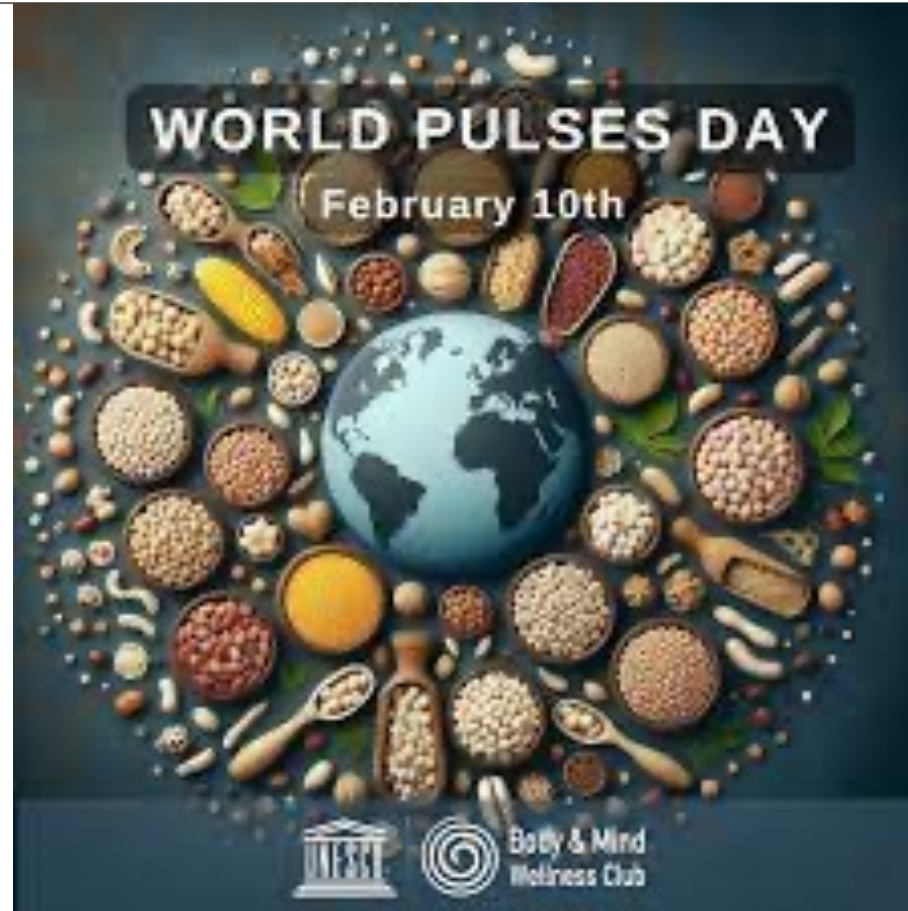
IR-4 is 60 years old!

- **CODEX Committee on Pesticide Residues met 1969**
- **EPA Created on December 2, 1970**
- **Endangered Species Act signed into law, 1973**
- **Food Quality Protection Act approved 1996**
- **Dr. Jerry Baron joins IR-4 in 1986**



International Year of Pulses-2016

- Keep the Celebration Going!



One thing has not changed

- **Mission:**
To facilitate regulatory approval of sustainable pest management technology for specialty crops and specialty uses to promote public well-being.



Commodity Liaison Committee (CLC) Update

Purpose: CLC Charter

- The CLC is the **link between IR-4 and those who grow specialty food and ornamental commodities** or their representatives.
- Therefore, the primary purpose of the CLC is to **provide guidance and advice to the IR-4 Project Management Committee** in ways in which the program can best serve the needs of producers of specialty crops.
- The CLC serves an important role in **communicating the mission of the IR-4 Project to the agricultural community and provides visibility at the grower level.**
- The CLC also **supports federal funding initiatives** for the IR-4 Program and advocates for funding to maintain viable food and ornamentals research and registration programs.



CLC DC Mission Team, March 2023



Commodity Liaison Committee (CLC) Update



- *IR-4 sees stakeholders as equals.*
- *Not just an advisory committee.*
 - *Position on Board of Directors*
 - *Weekly communication*
 - *Involved in hiring and evaluations.*



CLC Membership

- **Larry Elworth**, Executive Director, Pennsylvania Apple Commission
- **Jere Downing**, Executive Director, Cranberry Institute
- **Rocky Lundy**, Executive Director Mint Industry Research Council
- **Rich Bonano**, Owner, Pleasant Valley Gardens, MA (Present Director of Extension, NC State)
- **Michael Bledsoe**, VP Food Safety and Regulatory Affairs, Village Farms

CLC Membership

- Appointments of Members: Appointment to the CLC will be recommended by the Commodity Liaison Committee and approved by the IR-4 Project Management Committee. Members will serve a four-year term and may be reappointed by the Commodity Liaison Committee and IR-4 Project Management Committee.

CLC Membership

Last	First	Group	Tenure	Expires	Track
Aerts	Michael	FFVA	2001-	2024	A
Bledsoe	Michael	Village Farms	2008-	2024	A
Clarke	Jennifer	California Leafy Greens	2020-	2024	A
Kalendaski	Bob	WI Ginseng	2008	2024	A
Tanner	Berry	National Watermelon Board	2006 -	2024	A
Wysocki	Ryan	Michigan Blueberry	2022	2024	A
Nelson	Peter	Michigan Cherry	2023-	2024	A

Pest Management Solutions for Specialty Crops and Specialty Uses



CLC Membership

Last	First	Group	Tenure	Expires	Track
Arney	Mark	National Watermelon Board	2005 -	2025	B
Cranney	James	California Citrus Quality	2009-	2025	B
Frantz	William	Cranberry Institute	2013 -	2025	B
Roberts	Rachel	American Mushroom Institute	2019 -	2025	B
Roberts	Amy	Lallemand Plant Care	2021 -	2025	B
Scholz	Todd	USA Dry Pea & Lentil	2005-	2025	B
Schreiber	Alan	Agriculture Development Group	2009	2025	B
VanWychen	Lee	Weed Science Society of America	2021	2025	B

CLC Membership

Last	First	Group	Tenure	Expires	Track
Monterraso	Armando	Brooks Tropicals	2013	2026	C
Sarager	Jonathan	Western Growers	2022	2026	C
Elliot	Maggie	US Hops	2022-	2026	C
Quarles	Kam	National Potato Council	2020-	2026	C
Grainger	Michelle	NC Sweetpotato Commission	2021	2026	C
Bagley	Zach	California Tomato Research Institute	2022	2026	C
Martin	Michael	AmericanHort/HRI	2020-	2026	C

CLC Membership

Last	First	Group	Tenure	Expires	Track
Boatright	John Walt	American Farm Bureau	2019-	2027	D
DeYoung	Alan	Van Drunen Farms	2015	2027	D
Jones	Bob	The Chef's Garden	2019-	2027	D
Pitts	Keith	Biopesticide Industry Alliance	2015-	2027	D
Salisbury	Steven	Mint Industry Research Council	2014-	2027	D
Kudsk	Kevin	National Onion	2022-	2027	D
Upton	Amy	MI Nursery Growers Assoc	2019	2027	D
Waguespack	Herman	LA Sugar Cane League	2019	2027	D

Officer Elections

- Electing the Chair and Vice Chair. In even years (2014, 2016, 2018, etc.) the CLC general membership will elect the CLC Chair and Vice Chair at the Annual CLC Meeting. Prior to the Annual CLC meeting, a nomination committee should be appointed by the sitting CLC Chair to make nominations.



Officer Elections

- Chair and Vice Chair
- 2 Year Terms
- Elections in the Even Years



Officer Elections

2022-2024		2024-2026	
Office	Name	Office	Name
Chair	Todd Scholz	Chair	
Vice Chair	Keith Pitts	Vice Chair	

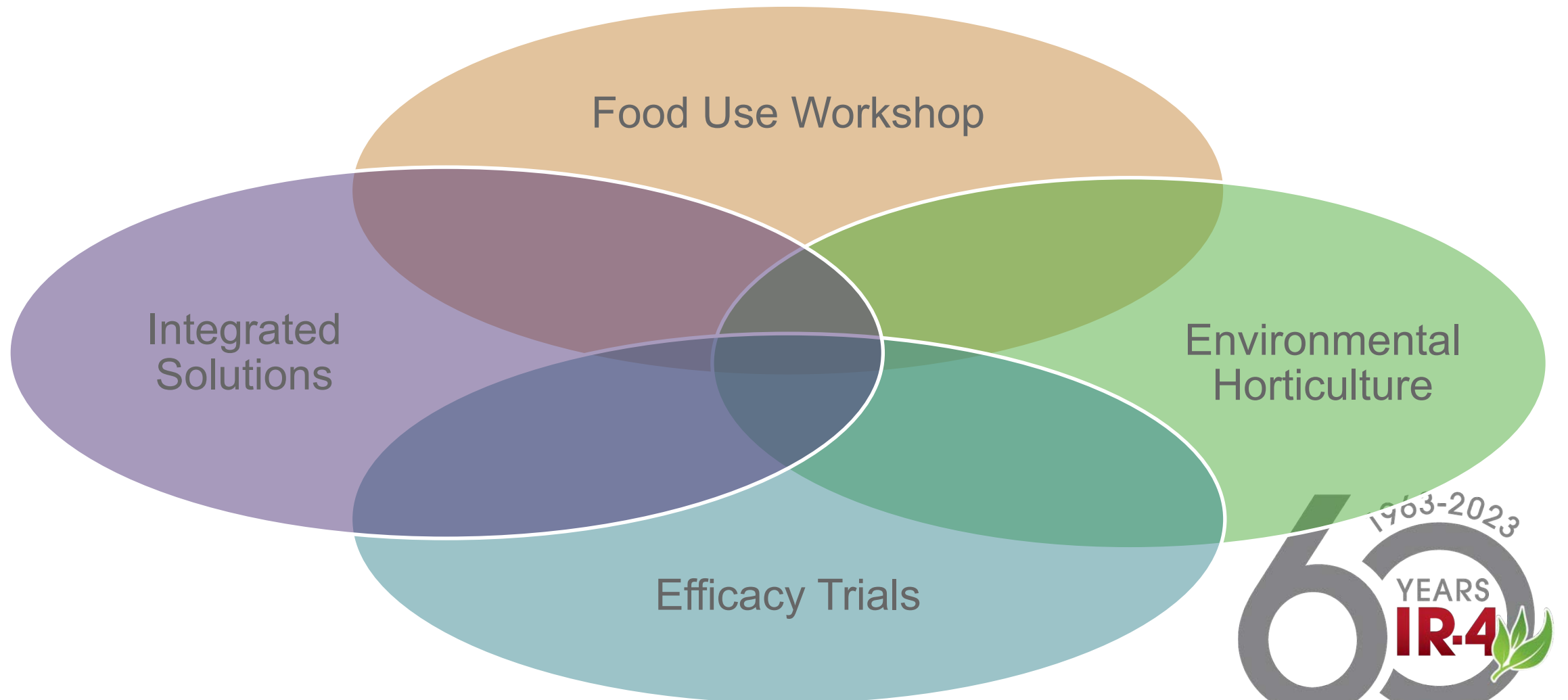


Activities

- Tell the IR-4 Story
- Work on Government Education
- Government Affairs Sub-Committee
- Friends of IR-4



IR-4 Story



IR-4 Story

- **History of Innovation and Leadership**
 - Crop Groups
 - International Harmonization
 - Minor Crop Foundation
 - Bio-Pesticides and Integrated Solutions



IR-4 Story

- **Economics**

- Specialty Crops—healthy, sustainable, underfunded
- Valued at \$65 Billion
- IR-4 supports 111,470 jobs, worth \$5.34 Billion
- Contributes \$8.97 Billion to Annual GDP



IR-4 Story

- **Incentives**
 - Waive registration fees
 - Develop residue data
 - Extend data protection
 - Reduced impact pesticides



IR-4 Story

- **Challenges for Future**
 - Need for Integrated Pest Management Solutions
 - Appearance of new pests or new crops
 - ESA Considerations
 - Looking for new solutions to old problems
 - Sustainability/Climate Smart Ag
 - Funding for ARS Partner



CLC Government Education



CLC Government Education

- **Annual Appropriations Process-
(Completed Oct 1) CR**
- **Farm Bill 2023?**
 - **Extended 2024**



CLC GASC

Zoom Meeting

hortsystems

Bob Kaldunski

Bob Kaldunski connected to audio ✓

Unmute Stop Video Participants Chat Share Screen Record Show Captions Reactions Apps Whiteboards Notes Leave



CLC GASC

- **Government Affairs Sub-Committee (GASC)**
 - Jonathan Sarager, Chair
 - Meet every two months
 - Keeps the CLC Connected and working together
 - All CLC Members are invited



CLC --Friends of IR-4

- **Friends of IR-4**
 - DC Legislative and Regulatory Services (DCLRS)
 - David Beaudreau
 - Prepare outreach tools
 - Coordinate Legislative Meetings
 - Coordinate meetings with OMB
 - Coordinate Lunch & Learn
 - Work with Champions to generate letters
 - Work to submit Appropriations requests



2023 IR-4 Lunch & Learn



CLC --Friends of IR-4

Board Member	Term Expires
Mike Bledsoe	March 31, 2026
Todd Scholz	March 31, 2027
Keith Pitts	March 31, 2027
Amy Upton	March 31, 2025
Maggie Elliot	March 31, 2025



CLC Update-Summary

- We have a good story--60 years of success
- IR-4 is about healthy food and representing the needs of stakeholders.
- Future challenges need future funding, and the ag sector supports those increases.
- We have a great team in the CLC and we are representing a great organization.





#60YearsofIR4

Aerts	Michael	FFVA	2001-	2024	A
Bledsoe	Michael	Village Farms	2008-	2024	A
Clarke	Jennifer	California Leafy Greens	2020-	2024	A
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Kudsk	Kevin	National Onion	2022-	2027	D
Upton	Amy	MI Nursury Growers Assoc	2019	2027	D
Waguespack	Herman	LA Sugar Cane League	2019	2027	D

Past members

Ahrens	Don	Twin Gardens Farms	1992 - 1995
Alberts	Tim	Kemin Industries	2017-2018
Allman	George	Mint Industry Research Council	1991 - 1992
Balling	Steve	Del Monte	1993 - 2000
Bardenbagen	Chris	Michigan Cherry	2022-2023
Berger	Lori	AgBusiness Resources	2008-2020
Bischoff	Joe	AmericanHort	2013 -2015
Bonanno	Rich	Pleasant Valley Gardens	1992 - 2016
Botts	Dan	FFVA	1991 - 2000
Buurma	Bruce	Grower	2005 -2019
Calabro	Jill	AmericanHort	2013-2020
Davenport	Thomas	National Grape Cooperative	2006 - 2010
DeLucia	Aline	NASDA	2017-2022
Downing	Jere	Cranberry Institute	1991 - 1998
Elworth	Larry	PA Apple Marketing	1991 - 1994
Ewart	Wally	CA Citrus	1991 - 2009
Flood	Brian	Del Monte	2001 - 2016
Gandhi	Amy	Kemin Industries	2016-2017

George	Ann	US Hops	1991 -2022
Giclas	Hank	Western Growers	2005 -2019
Grey	Jennifer	HRI	2020-2021
Humfeld	Terry	Cranberry Institute	2013 -2019
Jewett	Valerie	United Fresh Fruit & Vegetable	1993 - 1996
Kesner	Chuck	Cherry Marketing Institute	1993 - 1995
Keeling	John	National Potato Council	2006-2019
Kodet	Todd	Bruce Church	1991 - 1996
Korson	Phil	Cherry Marketing Institute	1995-2019
Kurtz	Ed	CA Lettuce	1992 - 2005
Lister	Art	MI Cherry Committee	1991 - 1993
Lundy	Rocky	Mint Industry Research Council	1992 - 2014
McCloud	Susan	Almond Board	1991
Melban	Ken	CA Pepper	2005 - 2007
Mize	Allen	Del Monte	2016 -2018
Montoian	Richard	CA Grape & Tree Fruit	1991
Murphy	Linda	Society of America Florists	1991 - 1993
Nuxoll	Dennis	Western Growers	2014-2022
Obenauf	Gary	CA Prune, Raisin, Walnut	1991 - 1995
Olszack	Reed	Grower	1991 - 2010
Phelps	Laura	American Mushroom Institute	2009 - 2019
Pitts	Matt	Cranberry Institute	2002 - 2004
Prewett	Ray	TX Vegetable Assoc.	1994 - 2015
Ratto	Ray	Grower	1993 -2018
Rawlins	Scott	Farm Bureau	1992 - 2001
Regelbrugge	Craig	ANLA	1992 - 2004
Romang	Ron		
Sharp	Janice	CA Strawberry	2001 - 2003
Schlegel	Paul	American Farm Bureau	2013-2019
Schmale	Lin	Society of America Florists	1993 -2020
Seetin	Mark	US Apple	2017-2020
Simerly	Bob	National Onion	2015-2022
Spencer	Bill	AZ Citrus	1999 - 2002
Teffeau	Mark	ANLA	2005 - 2013
Traino	Phil	NJ Vegetable	1991 - 1998
Trinka	Dave	MBG Marketing	1997 - 2022
Tristao	Dennis	JG Boswell	2015-2018
Wegmeyer	Tyler	American Farm Bureau	2010- 2013
Williams	Ron	Coca-Cola	2017-2018
Zellers	Richard	MI Vegetable	1991 - 1996
Zuleger	Dean	WI Potato & Vegetable Assoc.	1995 - 2002

Priority Setting Plans- Data and Processes

Presenter: Dr. Jerry Baron, Dr. Alice Axtell, and Dr.
Cristi Palmer





Priority Setting

Agenda Item 5

Priority Setting

Trends and Concerns

- ESA/Registration Review/Europe
- Chemicals (Pipelines, Company restrictions, EPA process changes)
- Biopesticides
- Emerging Technologies

Priority Setting

Rethinking Priority Setting

- Workshop pays huge dividends
- Timing of process
- Need to be nimble
- Prioritize pest vs. product



2024 Research Plan: Product Performance & Integrated Solutions

A. Axtell, R. Batts, J. Patel, D. Carpenter

Product Performance

Total Number of Priorities & Trials

- Total No. of 2024 Priorities: 37
- Total N. of PUPs¹ / RUs²: 8
- Total No. of (2023) Carryover Projects: 28
- Total No. of (2023) Delayed Projects: 11
- Total No. of trials (as of 2/26/2024): 147

¹PUP: Priority Upgrade Proposal

²RU Regional Upgrade



Resource Allocation

Total 2024 NIFA allocated budget (w/ IDC¹): \$1,116,655

- Current field trial cost as of 2/26/2024:
 - **NIFA** allocated budget (w/IDC): \$1,053,945 (\$62,710 left to allocate)²
 - **CDFA** allocated budget (w/IDC): \$ 23,310
 - **Third Party** allocated budget (w/IDC): \$ 98,235
 - TOTAL= \$1,175,490
 - Average cost per trial = ~\$8000

¹IDC= Indirect cost (11.0%)

²Trial allocation is still in progress





Integrated Solutions

Total Number of Priorities & Trials

- Total No. of 2024 Priorities: 19
- Total No. of (2023) Carryover Projects: 16
- Total No. of (2023) Delayed Projects: 0
 - Total No. of trials (as of 2/26/2024): 64

Resource Allocation

Total 2024 NIFA allocated budget (w/ IDC¹): \$550,000

- Current field trial cost as of 2/26/2024:
 - **NIFA** allocated budget (w/IDC): \$559,440 (-\$9,440 in debit)
 - **CDFA** allocated budget (w/IDC): \$131,535
 - **Third Party** allocated budget (w/IDC): \$0
 - TOTAL= \$690,975
 - Average cost per trial = ~\$10,800

¹IDC= Indirect cost (11.0%)





2024 Projects by Discipline: Plant Pathology

Product Performance (Cont...)

PROJECT	PR#	Priority	Commodity	Chemical	Pest
Delayed	13505	A	Hops	Mefentrifluconazole	Powdery mildew
Carryover	13511	A	Tomato (Processing)	Inpyrfluxam	Southern blight
Carryover	12770	A	Onion (Dry bulb)	Fluzaindolizine	Stuby root nematode
Carryover	13046	A	Passion fruit	Mefenoxam	Root rot
Carryover	12673	A	Cucumber (GH)	Fludioxonil +Pydiflumetofen	Fusarium
Carryover	13018	A	Parsnip	Cyazofamid	Pythium spp.
Carryover	13355	A	Strawberry	GF-4031	Powdery mildew
Carryover	13489	A	Asparagus (Fern)	Fludioxonil +Pydiflumetofen	S. VESICARIUM
Carryover	13514	H+	Pomegranate	Penthiopyrad	Black heart/Alternaria sp.
Carryover	13112	A	Cabbage (GH Transplant)	Azoxystrobin	Root rot/ Pythium sp.
Carryover	13222	H+	Banana	Fluazaindolizine	Reniforme Nematodes
Carryover	8284	A	Avocado	Fluazinam	Anthracnose
Carryover	12975	A	Lettuce (GH)	Pyraziflumid	Alternaria
Carryover	13078	A	Basil	Fludioxonil + Pydiflumetofen	Fusarium wilt
Carryover	13108	A	Mint (GH transplant)	Azoxystrobin	Pythium root rot
Carryover	13242	A	Basil	DIMETHOMORPH + AMETOCTRADIN	Downy mildew
Carryover	13293	A	Mint	Fludioxonil + Pydiflumetofen	Powdery mildew
Carryover	13075	A	Avocado	Penthiopyrad	Anthracnose

Product Performance

PROJECT	PR#	Priority	Commodity	Chemical	Pest
New	13109	A	Lettuce (GH transplant)	Azoxystrobin	Pythium sp.
New	13741	A	Broccoli	Mefentrifluconazole	Alternaria leaf spot
New	13289	A	Tomato (GH)	GF-4031	Powdery mildew
New	13545	A	Pepper (GH)	GF-4031	Powdery mildew
New	13290	A	Cucumber (GH)	GF-4031	Powdery mildew
New	13633	A	Peach	Oxathiapiprolin	Phytophthora root rot
New	13632	A	Plum or French prunes	Oxathiapiprolin	Phytophthora root rot
New	13706	A	Blueberry	Flutriafol	Stem blight
New	13716	A	Strawberry (GH transplant)	Mefenoxam	Phytophthora root rot
New	13664	A	Pistachio	Flutriafol	Cotton Root Rot
New	13744	A	Fig	Fluopyram	Root-knot
New	12557	A	Avocado	Propiconazole	Anthracoze
New	13665	A	Pineapple	Fluazaindolizine	Reniform nematodes
New	13635	A	Cacao bean	Oxathiapiprolin + Mandipropamid	Black rot
New	13736	A	Hops	Propamocarb-HCL	Downy mildew
New	13281	A	Cherry	Fluopicolide	Phytophthora root & crown rot
New	13755	H+	Sweet Potato	PHC68949	Guava root knot nematode
PUP	13776	A	Guava	Pydiflumetofen +fludioxonil	Colletotrichum
PUP	13779	A	Cabbage	Mefentrifluconazole	Alternaria Leaf Spot
RU	13756	H+	Strawberry	AC203	Botrytis fruit rot
RU	13756	H+	Strawberry	AC203	Botrytis fruit rot

TOTAL = 38

Integrated Solutions

PROJECT	IS#	Commodity	Pest
Carryover	IS00332	Caneberry	Botrytis
Carryover	IS00439	Organic grape	Sour rot complex
Carryover	IS00035	Avocado	Laurel wilt
Carryover	IS00432	Muskmelon	Crinivirus, mosaic virus
New	IS00030	Fruiting vegetables (Tomato)	Timber rot
New	IS00460	Tomato	Root knot nematode
New	IS00021	Peppers	Phytophthora capcisi
New	IS00449	Apple	Bitter rot
New	IS00444	Pecan	leaf dieback
New	IS00445	Dragon Fruit	Stem & fruit canker
New	IS00463	Tomato (processing)	Fusarium
New	IS00355	Strawberry	Botrytis

TOTAL = 12



2024 Projects by Discipline: Weed Science

Product Performance (Cont...)

PROJECT	PR#	Priority	Commodity	Chemical	Pest
Delayed	13530	A	GH Mint	Uniconazole	Growth suppression
Delayed	12028	A	GH Basil	Uniconazole	Growth suppression
Delayed	13522	A	Pennycress	Saflufenacil	Harvest aid
Delayed	13331	H+	Pomegranate	Florpyrauxifen	Weeds
Delayed	12579	H+	Strawberry	Pyroxasulfone + Flumioxazin	Weeds
Delayed	11128	H+	Caneberry	Terbacil	Weeds
Delayed	13498	A	Cucumber	Tiafenacil	Weeds
Carryover	13282	A	Hops	Tiafenacil	Weeds
Carryover	13500	A	Tomato (and pepper)	Tiafenacil	Weeds
Carryover	13323	H+	Peach (Stone Fruits)	Flazasulfuron	Weeds
Carryover	11611	H+	Strawberry	Quinclorac	Weeds
Carryover	11951	H+	Sesame	Pyroxasulfone	Weeds
Carryover	13499	H+	Asparagus	Glufosinate	Weeds
Carryover	13455	A	Strawberry	Glufosinate	Weeds

Product Performance

PROJECT	PR#	Priority	Commodity	Chemical	Pest
New	12613	A	Ginseng	Ethephon	Bud thinning
New	13682	A	Blueberry	Tolpyralate	Weeds
New	13679	A	Hazelnut	Tolpyralate	Weeds
New	13631	A	Carinata	s-Metolachlor	Weeds
New	13750	A	Sesame	Mesotrione	Weeds
New	13723	H+	Carrot	Pyroxasulfone	Weeds
New	13642	H+	Dry Bulb Onion	Pyraflufen	Weeds
New	13382	H+	Lima bean	Pyroxasulfone	Reduce rot. interval
New	5295	H+	Pea	Pyridate	Weeds
New	9025	H+	Pepper	Sulfentrazone	Weeds
New	13334	H+	Cherry	ACC	Fruit thinning
New	13709	H+	Blueberry	Fluroxypyr	Weeds
New	13322	H+	Strawberry	Flazasulfuron	Weeds
RU	12714	A	Swiss Chard	Ethofumesate	Weeds

TOTAL = 28

Integrated Solutions

PROJECT	IS#	Commodity	Pest / Problem
Carryover	IS00426	Quinoa	Weeds
Carryover	IS00410	Stevia	Weeds
Carryover	IS00393	Date palm	Weeds
New	IS00446	Pumpkin	Weeds
New	IS00454	Camelina	Desiccation
New	IS00459	Hemp	Weeds
New	IS00468	Agave	Weeds

TOTAL = 7

2024 Projects by Discipline: Entomology

Product Performance

PROJECT	PR#	Priority	Commodity	Chemical	Pest
Delayed (PUP)	13532	H+	Blueberry	Novaluron	Chilli thrips / flower thrips
Delayed	13502	A	Caneberry	Novaluron	SWD
Delayed	12562	A	Miracle Fruit	Pyridaben	Mites
Carryover	13485	A	Dry Bulb onion	Bifenthrin	Seedcorn maggots
Carryover	13459	A	Safflower	Afidopyropen	Western Tarnished plant bugs
Carryover	13496	A	Safflower	Isocycloseram	
Carryover	11808	A	Raspberry + Blackberry	Cyflumetofen	Two-spotted spider mites
New	12800	H+	Snap beans	Isocycloseram	Seedcorn maggots
New	12802	H+	Cantaloupe	Isocycloseram	Seedcorn maggots
New	13648	A	Beet Greens (Garden)	Zeta-cypermethrin	Aphids OR thrips
New	13305	A	Dragon Fruit	Zeta-cypermethrin	Chilli thrips & Mealy Bugs
New	13000	A	Hemp	Chlorantraniliprole	Leps
New	13011	A	Hemp	Zeta-cypermethrin	Leps
New	8037	A	Pepper	Pyridaben	Mites
New	8266	A	Lychee	Pyridaben	Lychee rust mites
New	13718	A	Clover (Seed crop)	Indoxacarb	Clover seed weevil
PUP	13595	A	Onion (green / bulb)	Cyclaniliprole	Thrips
PUP	13614	H+	Celery	Novaluron	Weevils

TOTAL = 18

Integrated Solutions

PROJECT	IS#	Commodity	Pest
Carryover	IS00423	Olive	Olive Fruit Fly
Carryover	IS00386	Hemp	Root aphids
Carryover	IS00435	Dry Bulb Onion	Bulb Mites
Carryover	IS00431	Lettuce	Thrips
Carryover	IS00438	Tomato	Thrips
Carryover	IS00406	Fig	Black Fig Fly
Carryover	IS00376	Grape	Leafhoppers
New	IS00424	Brassica Head and Stem Vegetables	Diamondback Moth
New	IS00427	Cabbage (ORG)	Crucifer Flea Beetle
New	IS00394	Tomato (Field & GH)	Tomato Russet Mites
New	IS00458	Corn (Sweet)	Corn Earworm
New	IS00462	Tomato (Processing)	Leaf Hopper
New	IS00443	Grape	Grape root borer
New	IS00448	Almond (ORG)	Plant Bug, Leaf Bug (Miridae)

TOTAL = 14



2024 Important Deadlines & FUW Details

A. Axtell, D. Carpenter, J. Baron

Important Deadlines

- **April 9:** Research Symposium: Food Crops
- **Late April - July:** Annual company meetings (~20)
- **July 8:** Most recent project requests are given to the EPA for stoplight analysis
- **Jul 18:** Industry Technology Session
- **NEW! July 31:** Deadline to submit new project requests (Food Use Program)
- **Aug 9:** EPA stoplight analysis is due
- **Aug 15-29:** Project requests are eligible for nomination on-line
- **Aug 30 - Sep 7:** Nominated project requests are made available to RFCs and HQs for review
- **Sep 8:** The list of nominated project requests is posted on the public website
- **Sep 10-12:** Food Use Workshop



FUW

Venue

- **When?** September 10-12
- **Where?** Milwaukee, Wisconsin
- **Meeting type?** In-person with an on-line access
- **Save the date e-mail?** Going out early March



Draft Agenda

Day 1 (Sept 10)- Tuesday Morning

- Introduction (TBD)
- Kick-off (Jerry Baron)
- Guest Speakers (TBD)
- CLC Update (Todd Schulz)

Day 1 (Sept 10) – Tuesday Afternoon

- In-person participant introduction
- EPA Update (Nancy Fitz)
- Weed Science priority setting
- Reception

Day 2 (Sept 11)- Wednesday Morning

- Plant pathology priority setting
- Entomology priority setting

Day 2 (sept 11) - Wednesday Afternoon

- Entomology Priority setting

Day 3 (Sept 12)- Thursday Morning

- Finalize priorities
- Adjourn- Noon

USDA ASCE Initiative

Presenter: Dr. Jerry Baron





USDA's Specialty Crop Exports Initiative

Agenda Item 7

Assisting Specialty Crop Exports (ASCE)

USDA launched ASCE initiative to help specialty crop agriculture address non-tariff trade barriers.

- Help U.S. exporters better understand foreign food safety systems and requirements;
- Help importing countries adopt international standards;
- Assist industry in meeting export requirements;
- Help develop solutions to meet other countries' packaging requirements
- Support the maximum residue levels (MRL) database



Rethinking Processes Within Biopesticide Regulatory Support

Presenter: Dr. Jerry Baron





Rethinking IR-4's Biopesticide Regulatory Support

Agenda Item 8

Background

- IR-4 support has been instrumental in getting some exciting technology to market
 - Some projects start with IR-4 funded efficacy data
- Apparent concerns:
 - IR-4 does not have tools available to track information on the projects→working on new DB
 - Limited transparency in efforts
 - Involvement is not free

Perceptions

- Biopesticide industry
 - Introduction of products is rapidly increasing
 - Many well funded → Resources to license and develop the most promising technology
 - Developing data to meet requirements is now the standard; data waivers are difficult
- More initial contacts to IR-4 are coming from small business via EPA referral

Problem

IR-4 wants to help bring this biopesticide technology to market, however.....

- Path towards registration is not always clear or clean
- Without funds for to develop data to meet guideline data requirements, IR-4 ability to help is limited

Challenge

How does IR-4 assist in the support of registration of new pest management technology while ensuring resources are used in an appropriate manner?

Improve the status quo

- Develop a comprehensive tracking database to document all requests for assistance IR-4 receives for Regulatory Support
- Enhance the project vetting process. Assess on:
 - Efficacy/Pest importance
 - Potential path towards registration, including resources to perform required studies
- Align projects accepted with resources to support

Alternative

Phase out Biopesticide Regulatory Support Platform

- Finish up on-going approved projects; do not accept any new projects
- Transition resources to new **IR-4 Regulatory Consultant Services Platform** as part of the IR-4 Food Program.
 - Technology supported should include chemicals biopesticides, biotechnology, and emerging tech.

IR-4 Regulatory Consultant Services Platform

- Provide limited regulatory advice at no cost to public sector stakeholders.
 - Assess what data/information are needed to get their product through EPA and other regulatory agencies.
 - Facilitate meetings with EPA and potential commercial partners to assist in development and registration of the technology.

Thank You!



Enhancement of IR-4 Training

Presenter: Dr. Jerry Baron





Enhancement of IR-4 Training

Agenda Item 9

Employee Training

Current State

- Active Training and Education Committee
 - >Focus on National Education Conference
 - >National SOPs
- Regional Field Coordinators/Quality Assurance Unit
 - >Variable programs
 - >Western Region Webinars
- Until recently; no coordination of training
 - >Recognized gaps



Enhanced Employee Training

- IR-4 needs to do more..... Recommendation of Path Forward 2.0 Committee and IR-4 Response to Path Forward 2.0 recommendations
- Recent PMC discussions of responsibilities of Regional Field Coordinator



Enhanced Employee Training Plans

- Establish a “canned” new employee orientation program
- Develop a Leadership Development Program
- Facilitate min-sabbaticals to support cross training of employees
- IR-4 Headquarters takes leadership in developing standardized training program for Field Research Directors
- Rob Welker will work with Education and Training Committee to provide deliverables in the above



Enhanced Employee Training - Lab

- Training needs are different-handled within the lab network
 - >Quarterly Webinars
 - >Goal→ Analysts equipped with a basic skill sets
 - >IR-4 Best Practices
- Western Region (Matt) to take initial leadership



Upcoming Meetings

Presenter: Dr. Krystal Chojnacki



Upcoming Meetings

Summer PMC Meeting

- Tuesday, July 9 - Thursday, July 11
- *Virtual Meeting*

2024 Food Use Workshop

- Tuesday, September 10 - Thursday, September 12

Fall PMC Meeting (Held in conjunction with the NRPM)

- Monday, October 21 - Friday, October 25
- Raleigh at IR-4 Headquarters

2025 Joint CLC/PMC Meeting

- Tuesday, March 4 - Thursday, March 6

NIFA Report

Presenter: Dr. Dionne Toombs





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FEEDING PEOPLE, FUELING PROGRESS

USDA NIFA

**Joint IR-4 Commodity Liaison
Committee/Project Management
Committee Spring 2024 Meeting**

Dr. Dionne Toombs,

Associate Director for Programs, USDA NIFA

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*In Fiscal Year 2021, IR-4 funding totaled **\$11.9 million**. The following year saw a nearly **22% increase to \$14.5 million**. In Fiscal Year 2023, IR-4 appropriations totaled **\$15 million**.*



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Our mission focuses on solving our most pressing societal challenges across food, agriculture, natural resources and human sciences through investments in research, education, and Extension outreach programs.





USDA Priorities



Addressing climate change through climate-smart agriculture, forestry and clean energy



Creating more and better market opportunities



Tackling food and nutrition insecurity



Advancing racial justice, equity, opportunity and rural prosperity



Crop Protection and Pest Management/Extension Implementation Program

National Plant Diagnostic Network

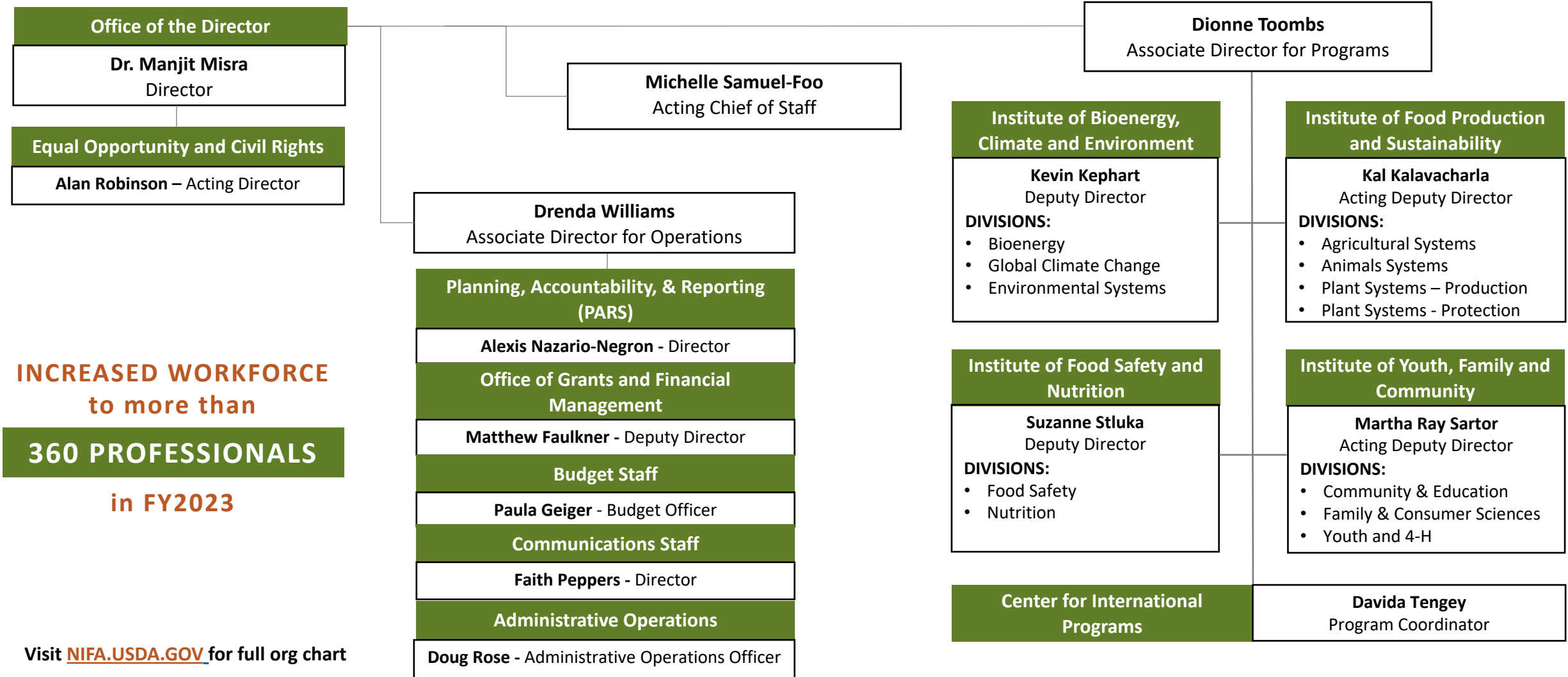
Regional IPM Centers

Sustainable Agriculture Research and Education

Agriculture and Food Research Initiative



HOW IS NIFA STRUCTURED & REBUILDING?



INCREASED WORKFORCE
to more than
360 PROFESSIONALS
in FY2023

IN FISCAL YEAR 2023,

*NIFA awarded **\$2.5 BILLION** in research, Extension and education funding with research funding alone totaling to **\$1.2 BILLION**.*



\$455 MILLION *in* **AFRI funding**

\$396 MILLION *in Capacity Funding for* **LGU research**

\$397 MILLION *in Capacity Funding for* **Extension**

\$51.4 MILLION *awarded to* **1994 tribal colleges
and universities**



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The **\$262.5 MILLION** NextGen investment will provide training and support to more than 20,000 future food and agricultural leaders through 33 project partners.





The NIFA Food and Nutrition Security Team made significant contributions to a variety of White House and USDA initiatives.

- ◇ *President Biden's Cancer Moonshot*
- ◇ *USDA Agricultural Science Center of Excellence for Nutrition and Diet (ASCEND) for Better Health*
- ◇ *White House Conference on Hunger, Nutrition and Health*
- ◇ *Farmer and Rancher Stress Assistance*





- ◇ *Staff of nearly 400 experts located throughout the U.S.*
- ◇ *A diverse group of talented, creative, motivated professionals who are invested in shaping the future of food and agricultural science.*



*IR-4 and NIFA will continue to **guide the specialty crop community forward** with innovative and sustainable solutions.*



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Thank you



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Northeast Region Report

Presenters: Dr. Simon Zebelo and Dr. Moses Kairo



**NORTHEAST
REGION**



2023 Annual Report

Contributors: Marylee Ross, Megan James Hickman, Simon Zebelo, Jane Forder

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This report is compiled by the
IR-4 Northeast Region Field Coordinator’s Office

Sponsor Acknowledgements

Recognizing The IR-4 Project's primary sponsor:



United States Department of Agriculture
National Institute of Food and Agriculture

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The Personnel section outlines further involvement and contributions made by land grant institutions and cooperators.

Program Summary

2023 Trials At-A-Glance

Food Use MOR Trials	2022	2023	2024
Trials Placed	29	31	26
Canceled Trials	6	3	0
Completed Trials	23	28	0
FDB's Received at RFC Office	23	24	0
Completed QC Reviews	23	11	0

Food Use Performance Trials	2022	2023	2024
# of Trials	10	20	17
Completed Trials	10	18	0
Reports Submitted	10	8	0

Env. Horticulture – Efficacy	2022	2023	2024
# of Protocols	6	4	5
Projects Placed	6	4	5
Canceled Projects	0	0	0
Reports Submitted	4	0	0

Env. Horticulture – Crop Safety	2022	2023	2024
# of Protocols	1	4	3
Trials Placed	21	31	19
Canceled Trials	0	0	0
Reports Submitted	21	12	0

Integrated Solutions Trials	2022	2023	2024
# of Trials	10	8	7
Completed Trials	10	7	0
Reports Submitted	10	6	0

Overview of the Northeast Region

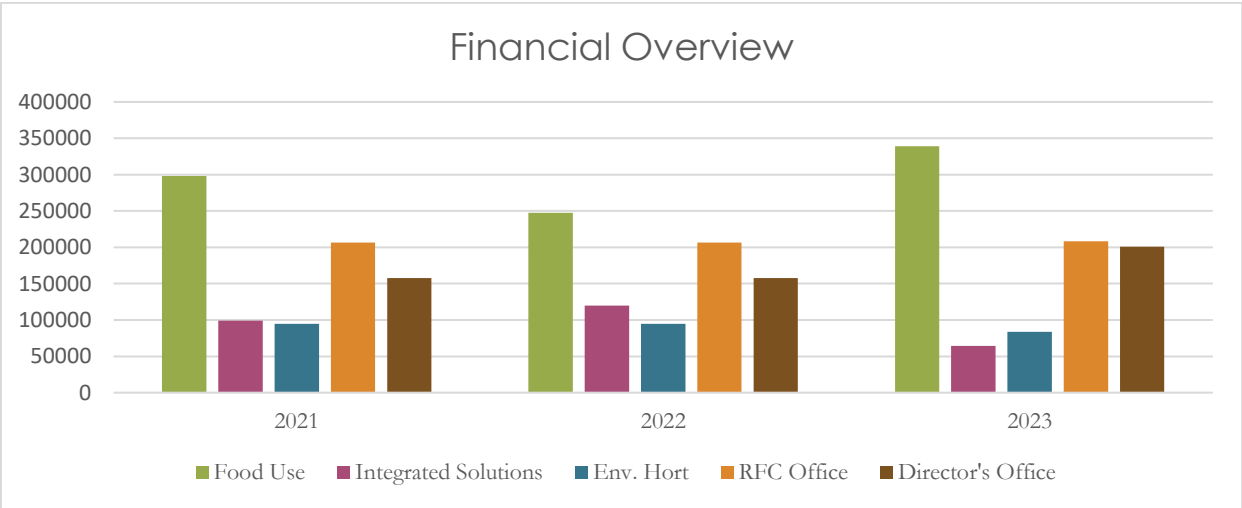
The Northeast Region of the IR-4 Project is a collaboration between the University of Maryland College Park (UMCP/UMD), University of Maryland Eastern Shore (UMES), and North Carolina State University (NC State).

The Regional Field Coordinator’s (RFC) office is at the University of Maryland’s Lower Eastern Shore Research and Education Center (LESREC) in Salisbury, MD. The Regional Director’s office is located at UMES in Princess Anne, MD. The IR-4 Project Headquarters (HQ) is located at NC State in Raleigh, NC. Following is a summary of Northeast Region (NER) activities from January 1, 2023 through December 31, 2023.

Budget

In 2023, Food Use allocated \$339,000, Environmental Horticulture allocated \$83,700 and Integrated Solutions allocated \$64,500 to field trials. The Regional Director’s office received \$200,940 to support the administration of the region. The RFC office received \$208,139 to support operations and outreach. All of these figures do not include indirect cost.

Depicted below is an overview of the Northeast Region's financial infrastructure and a comparison of funds specific to our region throughout the past three years.



Update from the Regional Director's Office

The details of NER 2022-2024 sub-subaward contract processing are presented in the following table.

Activities	2022-2023(Year 2)	2023-2024(Year 3)	Number of SLRs
Subawards completed	22	25	11
Number of Subawards Signed	22	9	11
PR completed	20 (plus 2 for UMD)*	0	9 (plus 1 for UMD)*
PO processed	20 (plus 2 for UMD)*	0	8 (plus 1 for UMD)*
Invoices received	21	0	5
Checks issued	19	0	4
NCE Requested	6	0	4

* The University of Maryland's budget has been transferred internally through our financial system. Purchase Requisitions (PR), Purchase Order (PO), No Cost Extension (NCE).

Six researchers requested a no-cost extension (NCE) for the 2022-2023 FY budget, and UMES approved the NCE requests. We started sending the Northeast Region SLRs travel budget and approved the NCE requested by some SLRs (See the table above). The 2023-2024 FY (Year 3) sub-subaward release is progressing well, and for those serving as FRDs and SLRs, we are processing the subaward and SLR travel budget together.

UMES received and signed USDA-ARS funding documents from NC State to implement and complete crop safety and efficacy Environmental Horticulture (EH) trials. We are in the process of establishing a new account number. Despite the delay, UMES ran two EH trials on crop safety, and we are writing the report. Moreover, UMES- School of Agricultural and Natural Sciences (SANS) is renovating a hoop house with a cooling and heating system dedicated to IR-4 crop safety and efficacy trials. The renovation is progressing well and is expected to be ready in spring.

UMES purchased and distributed residue bags and boxes to all regional offices, USDA-ARS, and Canada. Moreover, we have stocked our residue bags inventory at UMES in case any region needs urgent sample bags.

We represented the IR-4 Project at the UMES small farm conference, and Marylee Ross presented about the IR-4 Project activities and services to over 28 stakeholders who attended the IPM session.

Moreover, we had a booth to display some of the IR-4 flyers and brochures, and my students had a chance to learn about IR-4, and they were explaining about the IR-4 Project to the visitors.

The IR-4 NER team had several regular virtual meetings. Thanks to the hard-working colleagues Marylee, Megan, Jane, John, Josh (UMES research office), SLRs, and the researchers, things are progressing well in the NER.

Regards,

Simon Zebelo

Update from the Regional Field Coordinator's Office

Wow! Another year has passed. And what a busy year it was. There were many changes to navigate and new technologies to learn. I'll briefly summarize our year in the Northeast.

In January, I was pleased to be invited to Tampa, Florida by the North American Raspberry and Blackberry Association. There I presented an overview of IR-4 and, tag teaming with Janine Spies, we offered information about new technologies in the pipeline.

In February, Megan and I attended The Mid-Atlantic Fruit and Vegetable Convention in Hershey, Pennsylvania. This is always a great venue to meet active and potential cooperators while learning what agricultural researchers have been working on.

Shortly after that we took off for Puerto Rico for the IR-4 National Education Conference. Megan Hickman is on the Education & Training Committee and put many hours into the planning of this incredible conference. We were introduced to the iAdvantage electronic field data book. It was an intense, introduction to the entire eBook and how to use it. This launched our attempts to be ready for implementing the use of this technology across all GLP trials in IR-4. We also learned many wonderful things on a tour of research plots at the beautiful University of Puerto Rico Mayaguez, Agricultural Experiment Station. Kudos to all involved!

At the end of March, at Jerry Baron's request, I helped Venkat Pedibhotla start planning our first in-person IR-4 EPA/USDA Educational tour since COVID. It was exciting to see the return of this very important event. In April it was announced that Venkat was leaving IR-4. Van Starner was

brought back into his previous role of EPA tour organizer. We continued with the plans that were in motion.

In May, I made several research site visits. Two new Field Research Directors, Wesley Bouchelle (NJ) and Keagan Handley (NY), had recently become part of our team. I was there for the QA Facility Audits and Field in Life Audits of their first applications. We had a few Field in Life Audits of our own at LESREC.

June 21st was EPA/USDA Tour day. We hosted a well-rounded tour including researchers in Delaware and Maryland as well as a farmer's market that grows and sells their own produce. We heard from the farmers what some of their challenges were. This was a tour to remember because on that day there was torrential rain and winds gusting to 40 miles per hour. The show went on though with lots of scrambling to keep participants relatively comfortable and dry. It is regrettable that many of the activities had to be replaced with indoor presentations. Nevertheless, plenty of educational material was offered to personnel of EPA and USDA.

In July we had a daylong meeting with University of Maryland Research Centers Director, Alan Leslie. Alan took on the role of Center Director for all but one of UMD's Research and Education Centers at the beginning of the year. He learned about IR-4 and our program, toured our IR-4 Research Center and gained an understanding and appreciation for IR-4. This was a day well spent!

At the end of July, we hosted our Northeast Region Priority Setting meetings. I am grateful to the biology leads who helped facilitate the meetings with their knowledge of requests and registrants' perspective in their respective disciplines.

It was good to see everyone at the Food Use Workshop in Raleigh, NC in September. The Northeast Region did well with achieving our top priorities.

October found us at the Environmental Horticulture Biennial Workshop in Little Rock, Arkansas. Again, we accomplished prioritizing some of the top concerns in our region. We also enjoyed a tour of local horticulture. A highlight of this meeting was presenting Dan Gilrein with the prestigious IR-4 SOAR Award. Dan is an Entomologist and Associate Ag Program Director for Cornell University at the Long Island Horticultural Research and Extension Center in Riverhead, NY. SOAR stands for Service, Outreach, Altruism and Research. No one could be more qualified for this award.

Also, in October we attended the National Research Planning Meeting at IR-4 HQ. This was a good start to finding the right fit for all the trials that would need to be conducted in 2024. We have established research sites for all trials that will be conducted in 2024.

In November, I was invited by Simon Zebelo to speak at the UMES Small Farm Conference in Princess Anne, MD. I gave an overview of IR-4 and explained the opportunities available to growers and researchers. Working with Simon and his team at UMES has led to a cohesive and effective relationship between UMD and UMES. It is rewarding to be part of a positive and productive team.

November also gave me the delight of being able to deliver a Special Recognition Award to Dr. Kenneth Trammel, owner of ACDS Trucking in Phelps, NY. It meant a lot to me that IR-4 agreed Ken deserved this award for over 40 years of handling our frozen samples with utmost care. But, I believe it meant a great deal more to Ken. Much of his service is behind the scenes. The trucks arrive and go at many locations across the US and into Canada and we have come to accept and expect that. So much more is going on there! I got to meet the family that runs the business. It is truly a dedicated team. As an important bonus, the owners of Lange Research that have purchased ACDS were there. They saw firsthand how much the service means to IR-4 and how important we are to ACDS. The Lange family is committed to continuing the legacy of excellence. We had a wonderful time and some invaluable conversation.

December was a busy month wrapping up field trials and preparing for a much needed a winter break.

There were countless Zoom calls and emails. Throughout the year we organized numerous RFC meetings. We collaborated on how to handle regional meetings, daily interaction with stakeholders, and informing FRDs about the changes in the way GLP data will be handled in the upcoming year. We are trying to be ready, but recognize this will be a challenge.

It seems 2023 was brimming with activity and adjustment. We will bring forth our tenacity for 2024!

'Til next time,

marylee

Notable Meetings

The RFC office participated in over 220 hours of virtual meetings throughout 2023. The list below represents some notable meetings that the RFC Office actively participated in and captures the highlights of in person and virtual meetings.

- Delaware Ag Week, January 9-11, 2023 in Harrington, DE
- NARBA (North American Raspberry & Blackberry Association) Convention, January 23-24, 2023 in Tampa, FL
- Mid-Atlantic Fruit and Vegetable Convention (MAFVC), January 31- February 1, 2023 in Hershey, PA
- IR-4 National Education Conference (NEC), February 7-9, 2023 in San Juan, PR
- Preliminary Run of IR-4/EPA/USDA Crop Tour with Venkat Pedibhotla, February 23, 2023 on Eastern Shore, MD
- IR-4 Town Hall Meeting, March 15, 2023 via Zoom
- IR-4 Research Symposium, April 11, 2023 via Zoom
- IR-4 NER Annual Meeting, April 12, 2023 via Zoom
- IPM Guest Lecture at Delaware Valley University, April 14, 2023 in Doylestown, PA
- Visit with Clayton Farms for IR-4/EPA/USDA Crop Tour Planning, April 18, 2023 in Denton, MD
- Wesley Bouchelle Facility Audit, May 3, 2023 in Chatsworth, NJ
- Visit to Lange Research for Application Audit, May 16-18, 2023 in North Rose, NY
- 2nd Preliminary Run of IR-4/EPA/USDA Crop Tour, May 25, 2023 on Eastern Shore, MD
- A Look at Delmarva Agriculture IR-4/EPA/USDA Crop Tour, June 21, 2023 hosted at LESREC in Salisbury, MD
- Meeting with UMD Center Director (Alan Leslie), July 11, 2023 at LESREC in Salisbury, MD
- IR-4 Town Hall Meeting, July 19, 2023 via Zoom
- IR-4 Industry Technology Session, July 20, 2023 via Zoom
- IR-4 NER Entomology Priority Setting Meeting, July 25, 2023 via Zoom
- IR-4 NER Pathology Priority Setting Meeting, July 26, 2023 via Zoom
- IR-4 NER Weed Science Priority Setting Meeting, August 1, 2023 via Zoom
- IR-4 HQ/RFC Meeting, August 17, 2023 via Zoom
- IR-4 Food Use Workshop, September 11-14, 2023 in Raleigh, NC
- IR-4 Environmental Horticulture Workshop and Tour, October 9-12, 2023 in Little Rock, AR
- IR-4 National Research Planning Meeting (NRPM), October 25-27, 2023 in Raleigh, NC
- IR-4 Town Hall Meeting, November 1, 2023 via Zoom

- Introduction to IR-4 Talk at UMES Small Farm Conference, November 4, 2023 in Princess Anne, MD
- Presentation of IR-4 Special Recognition Award to Ken Trammell at ACDS Trucking, November 13, 2023 in Phelps, NY
- Mid-Atlantic Crop School, November 14-16, 2023 in Ocean City, MD

Program Report

Food Use Program

Magnitude of the Residue

In 2023, thirty-one magnitude of residue (MOR) trials were conducted in the Northeast Region. Of the Food Use funding in the Northeast Region, \$210,000 went to residue work. Activities involved 18 chemical/crop combinations.

MOR field trials were conducted in four locations, including:

- Lower Eastern Shore Research and Education Center, Salisbury, MD (University of Maryland)
- Rutgers Snyder Research and Extension Farm, Pittstown, NJ (Rutgers University)
- Philip E. Marucci Center for Blueberry & Cranberry Research, Chatsworth, NJ (Rutgers University)
- Lange Research and Consulting Inc. (North Rose Facility) North Rose, NY (Contract Research Facility)

Overall, three trials were cancelled. Two of which were cancelled on behalf of the registrant for undisclosed reasons. The other cancellation was for Mefenoxam/Lettuce in the spring but it was completed in the fall under a new trial number.

Samples from twenty-eight completed trials have been shipped. Twenty-four Field Data Books (FDBs) have been received at the RFC office. Eleven Quality Control (QC) reviews have been completed and the FDBs sent to Quality Assurance (QA).

Quality Assurance (QA)

During the period of this report, Jane Forder conducted a total of 32 field in-life inspections, 15 in the Northeast and 14 in the North Central Regions and 3 in Texas. She performed 19 audits of field data books and 12 final report audits. She audited 2 contributing scientist reports. She performed a second review on 13 final reports and conducted 19 closing report checks. She conducted 1 facility inspection in the New Jersey. She worked with the TNRC (Michigan State University) FRD intensively on critical SOPs.

Performance

In 2023, twenty performance trials were conducted in the Northeast Region. Of the Food Use funding in the Northeast Region, \$129,000 went to performance work. The Efficacy and Crop Safety trials were conducted at six locations.

Efficacy and Crop Safety trials were conducted at:

- Carvel Research and Education Center, Georgetown, DE (University of Delaware)
- The New York State Agricultural Experiment Station, Geneva, NY (Cornell University)
- Philip E. Marucci Center for Blueberry & Cranberry Research, Chatsworth, NJ (Rutgers University)
- Lange Research and Consulting, Inc., (North Rose Facility) North Rose, NY (Contract Research Facility)
- Kingman Research Farm, Madbury, NH (University of New Hampshire)
- Agronomy Research, Education and Outreach Center, Morgantown, WV (West Virginia University)
- Rutgers Agricultural Research and Education Center, Bridgeton, NJ (Rutgers University)
- Wye Research and Education Center, Wye Mills, MD (University of Maryland)
- UVM Extension Northwest Crops and Soils Program, St. Albans, VT (University of Vermont)
- Long Island Horticultural Research Lab, Riverhead, NY (Cornell University)
- Russell E. Larson Agricultural Research Center, University Park, PA (Pennsylvania State University)

Eighteen of the trials are complete and eight reports have been submitted.

Environmental Horticulture

In 2023, the Environmental Horticulture program funded \$83,700 of research in the Northeast Region. There were four efficacy protocols and four crop safety protocols. Under these protocols, we placed four efficacy projects and thirty-one crop safety trials. This work was done by four different researchers at three locations.

The four efficacy projects were conducted at:

- Long Island Horticultural Research Lab, Riverhead, NY (Cornell University)

The thirty-one crop safety trials were conducted at:

- Long Island Horticultural Research Lab, Riverhead, NY (Cornell University)

- University of Maryland College Park, College Park, MD (University of Maryland)
- Connecticut Agricultural Experiment Station, New Haven, CT (University of Connecticut)

There are four outstanding reports for the efficacy projects and 19 outstanding reports among the crop safety trials.

Integrated Solutions

In 2023, the Integrated Solutions program funded \$64,500 of research with eight trials placed in the Northeast Region.

The trials are being conducted at six locations, including:

- The New York State Agricultural Experiment Station, Geneva, NY (Cornell University)
- Carvel Research & Education Center, Georgetown, DE (University of Delaware)
- Rutgers Agriculture Research and Education Center, Bridgeton, NJ (Rutgers University)
- Long Island Horticultural Research Lab, Riverhead, NY (Cornell University)
- Philip E. Marucci Center for Blueberry & Cranberry Research, Chatsworth, NJ (Rutgers University)
- University of Maryland Research and Education Centers, College Park, MD (University of Maryland)

Seven trials were completed and six reports have been submitted.

Personnel

Administration

	Title	Location	Email
Simon Zebelo	Regional Director	University of Maryland Eastern Shore	sazebelo@umes.edu
Marylee Ross	Regional Field Coordinator	University of Maryland	mross@umd.edu
John Ellis	Program Coordinator	University of Maryland Eastern Shore	jellis@umes.edu
Jane Forder	Regional Quality Assurance	North Carolina State University	jforder@ncsu.edu
Megan James Hickman	Assistant Regional Field Coordinator	University of Maryland	mjames14@umd.edu

Field Personnel by State

Connecticut	Title	Location	Email	Area of Involvement
Jatinder Aulakh	FRD & SLR	University of Connecticut	jatinder.aulakh@ct.gov	Environmental Hort

DELAWARE	Title	Location	Email	Area of Involvement
David Owens	FRD & SLR	University of Delaware	owensd@udel.edu	Food Use & Integrated Solutions
Mark VanGessel	FRD	University of Delaware	mjv@udel.edu	Integrated Solutions

MARYLAND	Title	Location	Email	Area of Involvement
Diana Cochran	FRD	University of Maryland College Park	cochrand@umd.edu	Environmental Hort
Megan James Hickman	FRD	University of Maryland – LESREC	mjames14@umd.edu	Food Use
Mengjun Hu	FRD	University of Maryland College Park	mjhu@umd.edu	Integrated Solutions

Marylee Ross	FRD & RFC	University of Maryland-LESREC	mross@umd.edu	Food Use
Kurt Vollmer	FRD	University of Maryland College Park	kvollmer@umd.edu	Food Use

NEW HAMPSHIRE	Title	Location	Email	Area of Involvement
Anna Wallingford	FRD & SLR	University of New Hampshire	anna.wallingford@unh.edu	Food Use

NEW JERSEY	Title	Location	Email	Area of Involvement
Thierry Besancon	FRD & SLR	Rutgers – Marucci	thierry.besancon@rutgers.edu	Food Use & Integrated Solutions
Wesley Bouchelle	FRD	Rutgers – Marucci	wmb59@njaes.rutgers.edu	Food Use
Jennifer Fisher	FRD	Rutgers – Snyder R&E Farm	jlf229@njaes.rutgers.edu	Food Use
Cesar Rodriguez-Saona	FRD	Rutgers – Marucci	crodriguez@njaes.rutgers.edu	Integrated Solutions
Andrew Wyenandt	FRD	Rutgers - RAREC	wyenandt@njaes.rutgers.edu	Food Use & Integrated Solutions

NEW YORK	Title	Location	Email	Area of Involvement
Nora Catlin	FRD	Cornell – Suffolk County	njc23@cornell.edu	Environmental Hort
Daniel Gilrein	FRD	Cornell – Suffolk County	dog1@cornell.edu	Integrated Solutions & Environmental Hort
Keagan Handley	FRD	Lange Research & Consultants Inc.	keagan@langerc.com	Food Use
Tessa Lessord	FRD	ACDS Research Inc.	tlessord@acdsresearch.com	Food Use
Brian Nault	FRD	Cornell	ban6@cornell.edu	Food Use
Lynn Sosnoskie	FRD & SLR	Cornell	lms438@cornell.edu	Food Use & Integrated Solutions

PENNSYLVANIA	Title	Location	Email	Area of Involvement
Kathy Demchak	FRD	Penn State University	efz@psu.edu	Food Use
Caio Brunharo	FRD	Penn State University	brunharo@psu.edu	Food Use

VERMONT	Title	Location	Email	Area of Involvement
Heather Darby	FRD	University of Vermont	heather.darby@uvm.edu	Food Use

WEST VIRGINIA	Title	Location	Email	Area of Involvement
Mahfuz Rahman	FRD	West Virginia University	mm.rahman@mail.wvu.edu	Food Use

State Liaison Representatives (SLRs)

Name	State	Email
Jatinder Aulakh	CT	jatinder.aulakh@ct.gov
David Owens	DE	owensd@udel.edu
Susan Scheufele	MA	sscheufele@umext.umass.edu
Andrew Kness	MD	akness@umd.edu
Lily Calderwood	ME	lily.calderwood@maine.edu
Anna Wallingford	NH	anna.wallingford@unh.edu
Thierry Besancon	NJ	thierry.besancon@rutgers.edu
Lynn Sosnoskie	NY	lms438@cornell.edu
Greg Krawczyk	PA	gzk13@psu.edu
Vacant	RI	
Ann Hazelrigg	VT	ann.hazelrigg@uvm.edu
Carlos Quesada	WV	carlos.quesada@mail.wvu.edu

North Central Region Report

Presenters: Dr. Mary Hausbeck and
Dr. Douglas Buhler





**IR-4 NORTH
CENTRAL REGION
RESEARCH CENTER**

MICHIGAN STATE UNIVERSITY

J. Wise
N. Soldan



2023 ANNUAL REPORT
(January 1 – December 31, 2023)

A. Mission and Goals of the North Central Region IR-4 Program

The mission of the NC Region IR-4 program is to ensure that safe and effective pest management tools are available for growers of specialty crops, including ornamental crops, and for minor uses on major crops through the generation of high quality field and laboratory data.

The goals of the program are to identify pest management needs for these crops in the region, to participate in the prioritization of these needs at the national level, to conduct field research and analytical studies that develop the information to obtain clearances and label additions from USEPA to meet these needs, and, finally, to make information available on the status and progress of these studies and their final outcome to growers and other interested parties.

B. Background and Justification

The IR-4 Minor/Specialty Crop Pest Management Project (IR-4 Project) is a comprehensive, national program that consists of six units working together on a common mission to meet the nationally defined goals and objectives presented above. The national program is currently comprised of: IR-4 National Headquarters (IR-4 HQ), four Regional IR-4 Centers (Northeast, North Central, Southern and Western), and the USDA Agricultural Research Service (USDA-ARS) Office of Minor Uses. The North Central Region (NCR) program is responsible for the operations of the program in the 12 states of the region (IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD and WI) and has been located at Michigan State University (MSU) since the inception of the regional programs in 1967. The NCR program, while located at MSU, has developed multiple field research centers in the region, and works with other field research cooperators, , and, in response to the Good Laboratory Practice (GLP) requirements of EPA, has access to Quality Assurance personnel to serve the region. The NC program also works co-operatively with the USDA-ARS IR-4 field research unit located at Wooster, OH. The NC Region strives to maintain one or more State Liaison Representatives per state to help identify research needs and transmit back the activities of the program to interested parties.

In the NCR program, needs are identified and prioritized by research and extension personnel, farmers, grower organizations and others at a regional meeting, and prioritized at a National Food Use Workshop. Field trials in which pest management chemicals are applied to food crops are conducted and crop samples are collected and analyzed for the magnitude of residues. All residue food use research is conducted under the requirements for Good Laboratory Practice issued by the USEPA. The analytical reports, after Quality Assurance checks, are forwarded to USEPA as petitions for the development of clearances for these materials. Efficacy (performance) studies on key pests that are currently difficult to control are also funded

where this is deemed necessary to obtain later clearances for these pests. Like food uses, ornamental projects are prioritized at a specific workshop and assigned to collaborators in the NCR. The ornamentals projects focus on efficacy and crop safety (phytotoxicity) with primary emphasis on pests for which no satisfactory controls currently exist. The reports are sent to the registrants of the chemicals to assist in obtaining label amendments to include new crops and pests. Projects to conduct research and efficacy demonstrations with biopesticides are also solicited and prioritized nationally at the annual Biopesticide Workshop.

The plant protection industry has limited economic incentive to conduct the research necessary to obtain registrations for most specialty crops. To fill this pest management gap, IR-4 develops the data that provide legal, effective, safe and IPM-compatible pest control agents. Without this program, many specialty crops could no longer be produced in the USA with severe economic implications for American agriculture, food processors, and consumers. Specialty crop growers and food processors are the primary beneficiary of the IR-4 Project by having legal access to effective pest management products, but the general public also benefits by having a safe, healthy, and reasonably priced food supply.

C. Budget

Funding for the NCR IR-4 program comes primarily from USDA/NIFA as an annual competitive research grant. We received \$1,376,280 for FY23. The starting date for the FY23 funding was August 15, 2023.

D. Overview of Productivity in 2023

This was a productive year for the IR-4 North Central Region. Field Research Directors (FRD) effectively worked around weather-related events, such as frosts and flooding, to carry out field trials to completion. Outputs and positive impacts of IR-4 continue to be highly valued by US specialty crop growers.

E. Challenges

NIFA's shift of IR-4 from a "special research grant" (not allowing IDC) to a "cooperative agreement" model (allowing up to 10% IDC) now provides overhead to host institutions. After 12 years of flat funding by NIFA, the 2023 grant continued from 2022 to include a modest increase, which will help cover the portion of overall grant funds (IDC) that will go to host institutions. Following the 2022 shut-down of the NC Regional lab at MSU and regional QA unit, IR-4 HQ is providing QA personnel to NC Regional GLP trials for in-season audits. Challenges for the IR-4 program going forward include efforts to increase funding to keep pace with rising costs to conduct field trials. In addition, following a legal settlement, the US EPA is required to further integrate the Endangered Species Act into its pesticide regulatory process to "ensure the actions they authorize are not likely to jeopardize federally listed species or adversely modify designated critical habitat for listed species". The implications of this on IR-4 efforts to register new products for specialty crop growers is not clear. Similarly, the EPA announced that new efforts will be made to "better assess human endocrine effects of pesticides" in their registration and review processes.

F. Personnel Changes/Additions in 2023

Following the announcement that the NC Regional Director, Dr. John Wise, will retire from MSU at the end of 2023, Dr. Mary Hausbeck agrees to serve in this important leadership role from January 1, 2024 going forward. Also, Dr. Doug Doohan of The Ohio State University retired, and Dr. Ashley Leach will take over as IR-4 state liaison for Ohio. Lastly, Dr. Sushila Chaudhari left MSU, and efforts are underway to secure a replacement.

G. Regional IR-4 Activities:

Field Research

(Ms. Nicole Soldan)

Food Uses: As a result of the 202 NC Regional IR-4 Advisory Committee Meeting in East Lansing, MI, the subsequent IR-4 Food Use Workshop, and the National Research Planning Meeting, the NC Region conducted 57 food crop field residue trials, 22 product performance trials, and 6 Integrated Solutions projects.

Table 1. 2023 NCR FOOD USE (GLP) RESIDUE AND EFFICACY/CROP SAFETY PROJECTS

2023 Studies	FRD
21 GLP	Chapman, Scott (WI)
19 GLP	Robinson, A. (OH)
1 E/CS	Robinson, A. (OH)
5 E/CS	Hausbeck, Dr. Mary (MI)
23 GLP	Heider, Daniel J. (WI)
1 E/CS	Heider, Daniel J. (WI)
3 GLP	Reicks, Graig (SD)
1 E/CS	Meyers, Stephen L. (IN)
4 GLP	Wheeler, Celeste (MI)
6 GLP	Chaudhari, Dr. Sushila (MI)
7 E/CS	Chaudhari, Dr. Sushila (MI)
2 E/CS	Miles, Dr. Timothy (MI)

Environmental Horticulture: As a result of the 2021 Environmental Horticulture Prioritization workshop, in 2023 NCR conducted 9 trials to assess the safety of pesticides on ornamental crops and 5 efficacy studies. The outcomes of these projects will help to deliver new pesticide registrations in ornamentals, expand registrant labeling through positive performance data, and enhance their adoption through demonstration of their effectiveness in controlling pests. See the Table 2 for details.

Table 2. 2023 NCR ENVIRONMENTAL HORTICULTURE PROJECTS

Project Title	Protocol	State	Cooperator
-Non-Oomycete Root & Crown Rot Efficacy - Rhizoctonia	23-013	IN	Beckerman
New Disease Products Crop Safety	23-014	IN	Beckerman
New Disease Products Crop Safety - Soil	23-015	IN	Beckerman
Phytophthora Efficacy	23-010	IN	Beckerman
Phytophthora Efficacy	23-010	MI	Hausbeck
New Disease Products Crop Safety	23-014	MI	Hausbeck
-NCR/WSR Regional Botrytis Efficacy	23-023	MI	Hausbeck
WSR Regional Preemergent Herbicide Crop Safety for Field Production of Cutflowers and Propagative Bulbs and Ornamental Grasses	23-028	OH	Mathers
Preemergent Herbicide Crop Safety (in season)	23-017	OH	Mathers
NCR Regional Nematode Efficacy	23-030	MI	Quintanilla

Preemergent Herbicide Crop Safety (in season)	23-017	OH	Robinson
New Pest Products Crop Safety - Soil	23-017	MI	Saha
New Pest Products Crop Safety – Foliar	23-007	MI	Saha
New Disease Products Crop Safety	23-014	MI	Saha

Integrated Solutions: As a result of the 2022 Integrated Solutions Prioritization Workshop, in 2023 NCR cooperators conducted 7 Integrated Solutions projects. With the outcomes of these projects we expect to better service the needs of the IR-4 stakeholders by integrating products. It will take advantage of the considerable increase in development of efficacious biopesticides that are increasingly playing a more significant role in both conventional and organic agricultural production systems.

Table 4: Integrated Solutions Projects in the NC Region in 2023

Title	Principal Investigator
Thrips/ Lettuce	Cathy Herms, Ohio State University
Cabbage Aphid/Head & Stem Brassica	Cathy Herms, Ohio State University
Aphid/Hemp	Cathy Herms, Ohio State University
Phytophthora/Summer Squash	Mary Hausbeck, Michigan State University
Bacteria Spot/Peach	William Shane, Michigan State University
Sour Rot/ Organic Grape	Timothy Miles, Michigan State University
Root Rot /Mung Bean	Daren Mueller, Iowa State University

Outreach and Collaborative Activities:

Extension and outreach activities included increasing awareness of IR-4 to stakeholders through zoom calls, phone calls, email, and in person meetings and events. We gained several new IR-4 stakeholders that want to be involved for the North Central Region.

NCR State Researchers Participating in the IR-4 Program for 2023

(* indicates State Liaison Representative)

<u>MICHIGAN</u>	<u>OHIO</u>	<u>WISCONSIN</u>	<u>INDIANA</u>	<u>SOUTH DAKOTA</u>	<u>NORTH DAKOTA</u>
J. Wise	A. Robinson	D. Heider*	S. Meyers*	G. Reicks	B.Jenks*
M. Hausbeck	C. Herms	S. Chapman	F. Hand	S. Clay*	
N. Soldan*	Ashley Leach*				
T. Miles	H. Mathers				
C. Wheeler					
W. Shane	<u>KANSAS</u>	<u>MISSOURI</u>	<u>NEBRASKA</u>	<u>IOWA</u>	

D. Saha	R. Cloyd*	R. Smeda*	A. Jhala*	D. Mueller	
M. Quintanilla					

States with current State Liaison Representative vacancies: Minnesota, Iowa, Illinois

NC Region Administrative Advisor

D. Buhler - Administrative Advisor

MSU Leader Lab

J. Wise - NC Region Director

N. Soldan - Regional Field Coordinator

Field Research Center Directors

MI: C. Wheeler

WI: S. Chapman and D. Heider

Southern Region Report

Presenter: Dr. Liwei Gu and Dr. John Mark Davis



Southern Region Report for CLC and PMC

Liwei Gu, Gail Mahnken, Kristen Searer-Jones, and Kathleen Knight

February 26, 2024

1. Field programs and QC

Southern Region Research Field Coordinator: Janine Spies took a different position at Rutgers University after six years with IR-4. Kristen Searer-Jones will be the interim Research Field Coordinator starting March 1st, 2024. The job description for a replacement was revised according to comments from Jerron Baron and Matt Hengel. We are working with the department to announce this position.

QC of FDBs:

2021 trials – As of mid-February, all 2021 FDBs have been through QC review and sent to QA.

2022 trials – As of mid-February, 80 of the 91 2022 FDBs have been received. Three 2022 FDBs are pending QC review including one sesame FDB from Uvalde and two FDBs from Homestead to include Lychee & Dragon Fruit. Outstanding FDBs were from trials conducted in 2023, including 6 ethaboxam/citrus trials in Florida (4 in Citra, 2 with CRO), 1 ethaboxam/grapefruit trial in TX, 1 miracle fruit trial, and 3 in PR (1 lychee trial, 1 pineapple, and 1 dragon fruit).

2023 trials – As of mid-February, 40 of the 76 FDBs have been received, including three tomato and cucumber trials canceled by the manufacturer (BCS-CW64991).

SOP review: SOP revisions for the IR-4 facility at North Carolina State University will be reviewed by the end of February. SOPs will be reviewed, and revisions will be submitted, if necessary, from the Plant Science Research & Education Center in Citra, FL, Tropical Education & Research Center in Homestead, FL, Agricultural Experiment Station in Corozal, PR & Texas A&M University in Uvalde, Texas. Between the 2024 and 2025 seasons, field sites will be working to update SOPs to reflect the new use of the electronic field data books.

2024 GLP assignments:

Seventy-three GLP trials were assigned to SOR for 2024. Four trials were negotiated and awarded to contract researchers: one citrus trial in Florida, 2 sweet potato trials in Cheneyville, LA, and 1

pepper trial in Cypress, TX. Residue trial assignments at SOR IR-4 centers are as follows: TAMU Uvalde = 9, Homestead = 8, Puerto Rico = 8, NCSU = 25, and Citra = 19. Two discarded 2023 Puerto Rico trials will be conducted again in 2024 to include coffee and pineapple. Four miracle fruit trials will be conducted at Homestead this season: two delayed trials from 2023 and 2 additional 2024 trials. Rebecca Tannenbaum from Homestead retired at the end of 2023. Vladimir Seregin, who has been training with Rebecca since October 2023, has assumed the role of Field Research Director at Homestead.

Food Crop Product Performance Trials: As of mid-February, 11 of 47 Food Crop Performance trials assigned to the Southern Region in 2023 have been received. Many trials are ongoing or completed with reports expected in 2024. One cyflumetofen/blackberry trial in AR and one acetamiprid/dragon fruit trial in PR were delayed until 2024 due to lack of pest pressure. Two sesame trials were cancelled in Oklahoma due to issues with site availability. Forty-eight Food Crop Performance trials have been assigned to SOR researchers in 2024.

Integrated Solutions (IS) trials: Reports have been received from ten of the twenty-one 2023 Integrated Solutions trials. Several trials are ongoing or completed and reports are expected in 2024. Two projects were delayed: the root aphid rearing protocol for the IS hemp project took additional time to develop, and the timing for dormancy in FL for the weed control/stevia was not known and plants did not reach marketable height. These trials will be conducted in 2024. Twenty-two IS trials were assigned to SOR researchers in 2024.

Environmental Horticulture Trials: Seventeen reports out of the twenty-seven projects assigned in 2023 have been received. Several projects are ongoing and will be completed in early 2024. The ambrosia beetle project in Alabama will start next month. In 2024, thirty-seven projects were assigned across the region: seventeen weed science, nine plant pathology, and ten entomology projects.

2024 SOR Priority Setting: The priority meeting for the SOR Food Use Program will be virtual and conducted *via* a series of discipline-specific webinars to identify the region's priority needs for 2024. These meetings will likely take place in the second week of June, and a final call will be scheduled for early August. The stakeholders invited to attend include an extensive list of university extension scientists, research faculty, and State Liaison Representatives, as well as representatives from the growers and commodity groups, and lead biologists from IR-4.

Training: Janine Spies visited Homestead, FL in 2023 to provide GLP training and support to new FRD Vladimir Seregin. All SOR field research directors (FRDs) and technicians are being continuously trained on using the iAdvantage electronic field data book (eFDB). The southern region hosted an in-person training with a virtual component on February 20-22, 2024, for QA/QC and field

personnel. Training topics include the QC and QA process, a full walk-through of using the eFDB, and a field portion to take place in Citra, FL. About 18 participated in the in-person training and 4 participated *via* Zoom.

Extension: See below for a summary of recent extension activities.

- Attended the National Research Planning Meeting in Raleigh, NC October 25-27, 2023.
- Participated in the Southern IPM Center Advisory Council meeting November 13-14, 2023.
- Visited GLP Research Center at Homestead, FL to see ongoing trials, meet with researchers, and provide training to the new FRD December 13-15, 2023.
- Attended a Field Critical Point Inspection in Citra, FL for eFDB trial flutolanil/strawberry with Southern Region QA, December 18, 2023.
- Presented a poster and attended talks at the Southeast Fruit & Vegetable Conference in Savannah, GA January 11-13, 2024.

2. Analytical Lab

Equipment: A Thermo Scientific high-resolution UHPLC-Orbitrap MS/MS was installed in April. A walk-in freezer was replaced.

Personnel: Stephanie Long and Moriah Murrin were hired as analysts June 2023 and January 2024, respectively. Both have years of experience in HPLC-MS/MS. A chemist with data issues was let go in November 2023.

Projects and reports finished: For 2023, 14 analytical summary reports (ASR) were submitted. #8 and #13 were backlogged at the time of submission.

#	Submission Date	PR No	Pesticide	Commodity	Trial	
					Year	Number
1	04/20/23	13084	Spidoxamat	Pepper (GH)	2021	4
2	05/08/23	13352	Inpyrfluxam	Squash	2022	6
3	05/22/23	13351	Inpyrfluxam	Cucumber	2022	8
4	06/02/23	13350	Inpyrfluxam	Cantaloupe	2022	8
5	06/08/23	13083	Spidoxamat	Cucumber (GH)	2021	4
6	06/12/23	13082	Spidoxamat	Tomato (GH)	2021	4
7	08/22/23	13062	Flumetsulam	Clover (seed crop)	2022	5
8	08/29/23	13076	Pyraziflumid	Tomato	2021	18
9	09/25/23	13157	Fluoxapiprolin	Ginseng	2022	4
10	11/17/23	12673	Fludioxonil	Cucumber (GH)	2022	4
11	11/28/23	11881	Fludioxonil	Strawberry (GH)	2022	5
12	11/28/23	13132	Spinetoram	Sesame	2021	5

13	12/06/23	13195	Prothioconazole	Grasses	2021	5
14	12/11/23	13288	Fludioxonil	Cherry	2022	14

Transferred Projects: The following projects were transferred out of the lab for analysis. A Contributing Laboratory Report was submitted for each project.

#	Contributing report	PR No	Pesticide	Commodity	Trial	
					Year	Number
1	01/31/23	12811	Linuron	Stevia	2020	4
2	02/13/23	13167	Broflanilide	Sugarcane	2021	6
3	02/16/23	11772	Linuron	Bean (succulent)	2020	13
4	03/08/23	10558	Glufosinate	Sweet Potato	2020	9
5	03/08/23	13178	Glufosinate	Sunflower	2021	8
6	03/28/23	11195	Flutolanil	Pepper (bell)	2020	10
7	04/20/23	12605	2,4-D	Ginseng	2020	4
8	04/20/23	09498	2,4-D	Coffee	2020	5

Ongoing Projects and Goals: The following projects are currently in progress in the laboratory. The goal of Florida Lab is to complete 17 ASRs in 2024.

#	Project Number	Chemical	Crop	Last Sample Receipt Date	Status	Anticipated Date ASR to HQ
1	12673	Pydiflumetofen	Cucumber		ASR in HQ	01/2024
2	11881	Pydiflumetofen	Strawberry		ASR in HQ	01/2024
3	12752	Fluazaindolazine	Mint	10/07/22	Trial analysis	03/2025
4	13169	Fluazaindolazine	Radish	02/20/23	Trial analysis	06/2026
5	08560	Zeta-cypermethrin	Lychee	11/14/23	ASR in preparation	04/2024
6	13242	Dimethomorph + Ametoctradin	Basil	09/27/22	ASR in preparation	05/2024
7	13333	Pydiflumetofen	Cranberry	11/07/22	ASR ready for QA	04/2024
8	12975	Pyraziflumid	Lettuce	03/21/23	ASR in QA	03/2024
9	13304	2,4-D choline	Strawberry	01/09/24	Pending trial analysis	07/2024
10	13259	Picoxystrobin	Coffee	03/08/23	Trial analysis	05/2024
11	13511	Inpyrfluxam	Tomato	11/04/23	Trial analysis	12/2024
12	13540	Fluazifop-P-butyl	Squash (summer)	12/07/23	Trial analysis	11/2024
13	11568	Thiophanate-methyl	Radish	02/20/23	Pending SS (10/25)	11/2025

14	13360	Thiophanate-methyl	Carrot	03/22/23	Pending SS (10/25)	11/2025
15	07883	Pyridate	Sweet Corn	11/14/23	Method Development	03/2025
16	13500	Tiafenacil	Tomato	pending	Method Development	11/2024
17	13541	Fluazifop-p-butyl	Pea	pending	Method Development	10/2024

Pending Projects: Trials from the following projects have been received but work on the projects has not started.

#	Project Number	Chemical	Crop	Last Sample Receipt Date	Trial	
					Year	Number
1	13498	Tiafenacil	Cucumber	09/13/23	2023	8
2	13501	Tiafenacil	Pepper	01/11/24	2023	12
3	13449	Inpyrfluxam	Coffee	pending	2023	9
4	13078	Fludioxonil + Pydiflumetofen	Basil	01/11/24	2023	5
5	13293	Fludioxonil + Pydiflumetofen	Mint	pending	2023	6
6	13489	Fludioxonil + Pydiflumetofen	Asparagus (fern)	pending	2023	6
7	13407	Isocycloseram	Strawberry (GH)	pending	2023	5
8	13405	Isocycloseram	Pepper (GH)	pending	2023	5
9	13496	Isocycloseram	Sunflower	12/07/23	2023	9
10	13504	Isocycloseram	Pomegranate	12/13/23	2023	4

Projects with late ASR or backlogged:

#	Project Number	Chemical	Crop	Last Sample Receipt Date	Status	Anticipated Date ASR to HQ
1	12752	Fluazaindolazine	Mint	10/07/22	Method reevaluation	03/2025
2	13169	Fluazaindolazine	Radish	02/20/23	Method reevaluation	06/2026
3	13333	Pydiflumetofen	Cranberry	11/07/22	ASR ready for QA	04/2024
4	13242	Dimethomorph + Ametoctradin	Basil	09/27/22	ASR in preparation	05/2024
5	11568	Thiophanate-methyl	Radish	02/20/23	Pending SS interval in 10/2025	11/2025

3. Quality Assurance Unit

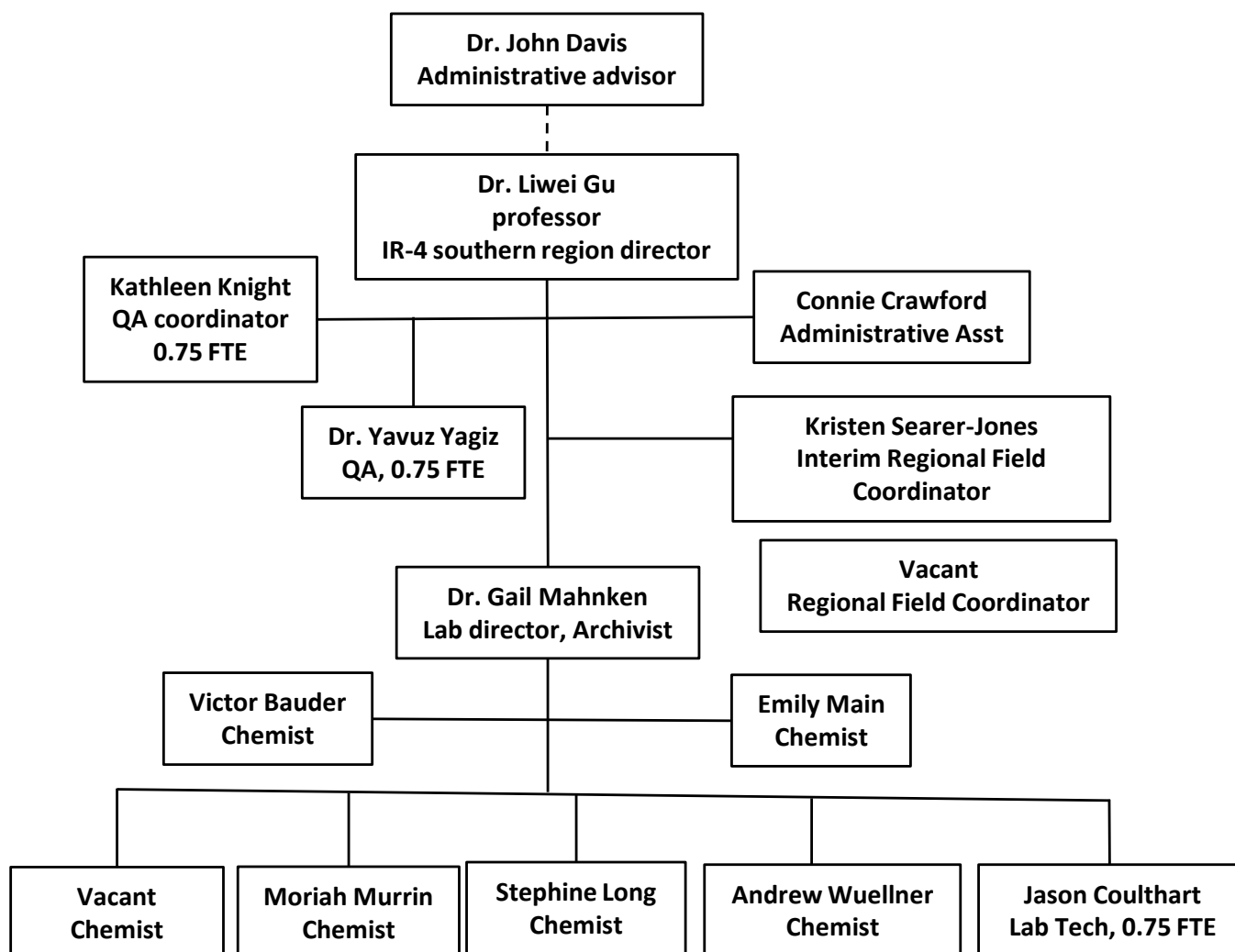
QUA completed all assigned tasks in 2023.

Function (man/days)	2023 completed	2023 Assigned	% Completion	man/days
Draft Final 5	9	13	69%	45
Field Data Books 1.0	170	129	132%	170

Field Critical Point Insp 2.5	33	33	100%	82.5
Lab Facility Inspection 3	0	0	0	0
Lab Critical Point Insp 1.5	30	27	111%	45
Field Facility Inspection 2.5	1	1	100%	2.5
Contributing Scientist's Report Audit 3	9	8	113%	27
Analytical Sum Report 6	16	20	80%	96
Review Calculations 0.1	3			0.3
Training 1	12.5			12.5

Kathleen Knight reduced her time to 75% starting in February 2024. She will cover field audits in Citra Florida and Tifton Georgia. She will continue to take on additional book auditing duties. Yavuz Yagiz will do field audits in Puerto Rico and all lab audits. Other field audits in the southern region will be covered by HQ.

Southern region organizational chart (effective March 1, 2024)



Western Region Report

Presenter: Dr. Matt Hengel and Dr. Marcel Holyoak





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**Western Region IR-4 Report
March 2024 PMC Meeting
January – December 2023**

Matt Hengel – Regional Director & Laboratory Research Director
Kari Arnold – Regional Field Coordinator
Martin Beran – Quality Assurance Coordinator
Marcel Holyoak – Administrative Adviser

Field Program – Food Use Residue Program

- Kari Arnold was hired as the Regional Field Coordinator in fall 2022 to replace Michael Horak who retired in early spring 2023.
- In 2023, 119 field trials were initiated in the Western Region compared to 111 field trials in 2022 and 133 in 2021.
- The Western Region received a grant from the California Department of Food and Agricultural (CDFA) for 2023 and 2024. These grants are funding Food Use Residue projects, several Integrated Solutions and Environmental Horticulture projects, capacity building at the California IR-4 Research Stations, outreach activities, and some support for project associated office, lab and quality assurance activities.
- Western Region IR-4 hosted CDFA representatives August 8th, 2023 for a field day, educating their staff on the work IR-4 does including the field and laboratory.
- Chanz Robbins, the new FRD at New Mexico State University is successfully building his program, taking on more residue trials each season.
- Kari Arnold attended the California Specialty Crops Tour in summer of 2023, providing an educational presentation on IR-4 to attendees consisting of CDFA, CDPR, EPA and other governmental representatives.
- Kari Arnold presented on IR-4 at the University of California Vegetable Crops Program Team Meeting in Salinas, CA Dec 12th, 2023.
- Current status of field trial data is summarized in the following table:

Year	Field trial data not yet received	WR Field Trial Data waiting to be QCed	WR Field trial data under QC review	Data sent to QA/HQ	Total Number of Field Trials
2020	0	0	0	157	157
2021	0	0	0	127	127
2022	0	1	5	103	108
2023	56	24	13	27	119
Total	56	24	18	414	511

Field Program – Performance (Crop Safety and Efficacy)

- In 2023, 60 new WR field trials were conducted
 - 26 researchers in 5 western states CA (14), OR(6), WA(2), ID(1), HI(1), MT(1), AZ(1) are conducting the trials

Year	Trial reports not yet received	Trial reports sent to HQ	Total Number of Crop Safety / Efficacy Trials
2022	3	31	34
2023	29	31	60
Total			

Field Program – Environmental Horticulture

- The 2022 and 2023 WR Environmental Horticulture work consisted of fungicide, insecticide, and herbicide projects.
- added a new plant pathologist at UC Davis. In 2023 we started up a new research program and connections to local nurseries in New Mexico. We also began a regional project on screening products for efficacy against the emerging pest Eriophyid mite in agave plants in Southern California.

Due to 2022 grant fund disbursement challenges at UC Davis and 2023 funds delayed until beginning of 2024 many new researchers were unable to cover costs with other funds which delayed initiation of trials.

Year	Trial reports not yet received	Trial reports sent to HQ	Total Number of Environmental Horticulture Trials
2022	93	65	158
2023	137	7	144
Total	230	72	302

Integrated Solutions Program

- In 2023, there were 33 Integrated Solutions projects initiated with funds from USDA NIFA grant and the CDFA grant

Year	Total Number of Integrated Solutions Projects
2020	4
2021	12
2022	20
2023	33
Total	69

Lab Program

The lab continues to operate at nearly full capacity and no projects were backlogged during this time period.

Lab Summary (1/2023 -12/2023)

Project Year	ASRs Completed	Work in Progress	ASR Preparation	ASR in QA	Total Number of Field Trials
2019	4	0	0	0	30
2020	0	1	0	2	30
2021	7	2	0	1	100
2022	2	3	1	3	39
2023	0	0	2	0	13
Total	13	6	3	6	212

Laboratory Staff Outreach and Collaborative Activities

- During the Spring Quarter (April-June), the LRD lectured and taught laboratory experiments for the core analytical course in the Department of Environmental Toxicology entitled “Quantitative Analysis of Environmental Toxicants” (ETX-102B) to ~64 students in a combination of remote (lectures) and in-person (laboratory).
- LRD coordinated campus tour commemorating 50th anniversary of AGRO division of ACS. Tour highlighted UC Davis contributions to California agriculture. ~50 attendees.
- LRD participated in FUW and NRPM.
- LRD attended Pest Management Advisory Committee of the California Department of Pesticide Regulation meetings.
- LRD provided an IR-4 overview and laboratory tour to USDA-FAS MRL and Borlaug Fellows
- Regional personnel hosted a group from CDFA for an IR-4 overview presentation with field and laboratory tours.
- Regional personnel hosted chemists from U of F and Tifton laboratories for training.
- LRD and Lab personnel prepared two manuscripts for publication on nitropyram analysis on various crops and flutanol determination in hemp and processed fractions.
- Laboratory personnel attended NEC in Puerto Rico and several online seminars offered by various instrument vendors.
 - Alex McFall served as the lead organizer for the lab portion of the NEC training held in Puerto Rico. He did an excellent job organizing and presenting training topics. Through his efforts, lab personnel were engaged and actively participated in discussions. Alex is to be commended for his efforts.
- Lab move (part II, the remix)
 - Campus has determined that Sprocket Building will need seismic renovations which necessitates a move back to Meyer Hall in 2024.
 - Latest updates have the move starting late 2024. Wet lab operation will move to Meyer Hall, instrumentation will remain in Sprocket and remain in operation.
- New round of funding from CDFA helped fund a new Q-ToF mass spectrometer.

- System was successfully validated and has analyze its first IR-4 project (fluorpyram/miracle fruit).
- Wrapping up remaining MSU projects:
 - Flonicamid/Sugar Beet: Awaiting long-term storage stability
 - Acetamiprid/Dragon Fruit: Addressing QA findings
 - Acifluorfen/Pea (Dry): Addressing QA findings
 - Sulfosulfuron/Tomato: Awaiting long-term storage stability (puree & paste)

Quality Assurance Program

We conduct study-based in-life inspections (field, laboratory, and processing activities), paper-based audits (field, laboratory, and study data and reports), and facility-based inspections (field, laboratory, and processing sites). Another of our jobs is to assist our field and lab researchers with EPA inspections.

The role of the Quality Assurance Unit is to identify GLP compliance issues within studies and facilities, and if any are found, report them promptly to the study director and management. QA also plays a key role in assisting researchers in addressing compliance concerns. It is management's responsibility to ensure that corrective actions are taken and documented.

During the January through December period of 2023 the WSR QAU received 7 Final Reports for audit. Also, during this same period the WSR QAU received 95 Field Databooks. During the January through December period our office received 19 lab reports (ASR) for audit.

Sherita continues as the IR4 QAU representative to the Analytical Chemistry Advisory Committee for which she participated in three Zoom meetings. In 2023, she gave eQA training to a QC auditor. Martin serves on the National SOP Committee, Zoom meetings are held monthly.

We had two EPA inspections in the Western Region in 2023. One at the Twin Falls, ID field site in late May and the other at UC Riverside field station in mid-August. Questions about archiving at HQ and the Final Report QA statements were answered. There were no findings (observations) at either of the two inspections.

Last year our office began the search for a new Assistant QA Coordinator to the Western Region. Currently, we have interviewed seven candidates and have had in-person interviews for the top two candidates. Sherita Normington will retire end of June this year. We are confident that we will have someone on board before the end of March. Our plan is to have Sherita train the new hire in analytical data audits and lab inspections and Martin to train in field inspections and Databook audits.

Our office has been periodically performing critical phase inspections in Todd Wixson's lab. He no longer has the services of a contract QA to perform on-site inspections of sample work-up. Sherita has audited four of his current batch of ASRs. This will do two things. One, it will speed up the auditing process to alleviate Todd's ASR backlog. Secondly, Sherita's auditing efforts have revealed certain problem areas that were missed when those audits were conducted by Mary Lynn.

The Western Region hosted a contingent from CDFR in early August. The group took a tour of UC Davis' IR-4 lab and field facilities. Sherita and I spoke at various stops about the purpose of compliance assurance in field applications and lab analysis. Johanna Mazlo and Josh Peterson from HQ were also in attendance.

Meetings and Training

Sherita and I both presented field and lab topics at the National Education Conference in San Juan in February. Martin also produced a short video about the Kearney Ag and Research and Extension center for the conference. It was uploaded onto YouTube.

Sherita and I were involved with interviews for the new HQ QA auditor position. Interviews via Zoom occurred in January and March. Subsequent training with the new QA, Josh Peterson, concerning auditing field raw data occurred in June.

The QA assembled via Zoom in February to target each region's field trials for 2023. The IR4 QA, as a whole, conducted a regional update webinar in November and December with two other meetings addressing potential eFDB audit issues in December.

Both Sherita and Martin have been trained in the use of the iAdvantage electronic Databook. Both served on committees in the spring dedicated to updating Guidance Documents and validation efforts for its use in the field. We also attend, when schedules permit, Philip Moore's Q+A session when his weekly Zoom sessions on the eFDB began in November.

Presentations

Martin gave two lectures to the ETX 102B class in early April. One on the history of the GLPs and another on the Regulations. Sherita and I also trained the Southern Region QA and the new HQ QA on auditing the ASR and analytical raw data in March and December. I conducted two GLP training sessions with new IR4 personnel. A Field GLP Training session concerning Field GLPs was given to the new WSR Regional Field Coordinator and a Lab GLP session was given to a member of the Laboratory Sample Control team.

Audits & Inspections

The status of audits, inspections, and reports within the region for the period 1/1/23 – 12/31/23 follows:

Critical Phase Inspections completed

Field	55
Lab	34
Processing	4
Total	93

Facility Inspections completed

Field	9
Lab	2
Processing	1
Total	12

Raw Data Audits completed

Field Data books	76
Analytical Smry. Rpts.	17
Study Final Reports	7
Total	100

Total Inspections and Audits in 2023: **205**

Program Updates: Environmental Horticulture

Presenter: Dr. Cristi Palmer



IR-4 Environmental Horticulture Update

During 2023, the Environmental Horticulture Program compiled and posted 22 summary reports based on the high priority projects conducted through 2022 (Figure 1): The summary reports include: Abamectin Crop Safety Summary, Beetle, Borer, Weevil & White Grub Efficacy, Botrytis Efficacy Summary, Dimethenamid-p Crop Safety, Flutianil Crop Safety, Isoxaben + Dithiopyr Crop Safety, Liverwort Efficacy, Mealybug Efficacy, Mefentrifluconazole Crop Safety, Oxathiapiprolin Crop Safety, Pendimethalin + Dimethenamid-p Crop Safety, Picarbutrazox Crop Safety, Powdery Mildew Efficacy Summary, Prodiamine + Isoxaben Crop Safety, Pydiflumetofen + Difenconazole Crop Safety Summary, Rhizoctonia Efficacy Summary, S-Metolachlor Crop Safety, Scale Efficacy, Sedge and Nutsedge Efficacy, SP1770 Crop Safety, SP2478 Crop Safety, and Triticonazole Crop Safety. During 2024, five summary reports have been compiled and posted: Afidopyropen Crop Safety Summary - 2023, Flumioxazin Crop Safety, Fluopicolide Crop Safety, Mefentrifluconazole Crop Safety, and Phytophthora Efficacy

One new registration for California was received during 2023 for BotryStop. 2022 registrations now include SureGuard Xtra which included crop safety and efficacy data. 250 crops per weed were used as a conservative number for crop impact. With this refinement and cataloguing weed efficacy data impacts as herbicide products are reviewed, the total historical impact of the program stands currently at 64,063 crop uses.

Figure 1. EHC Program Data Summaries – 2023 - YTD

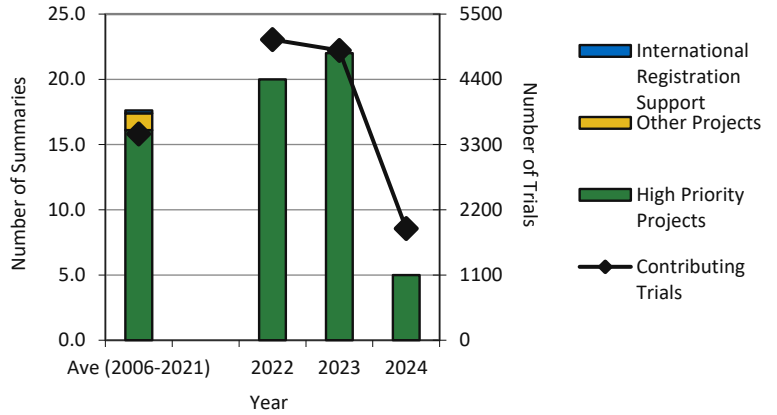


Figure 2. EHC Program Registrations - 2023

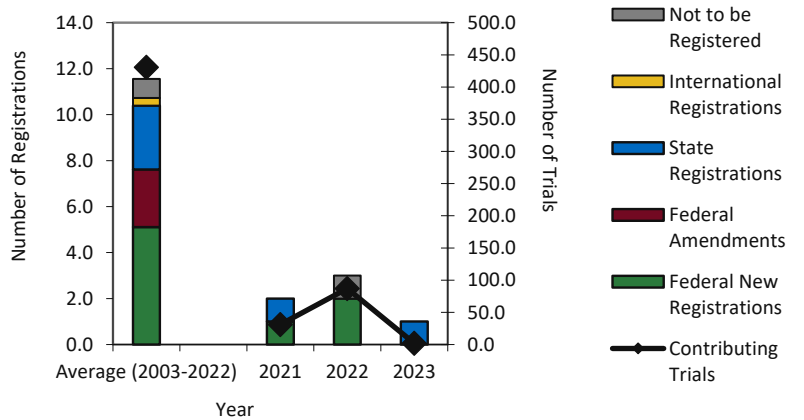
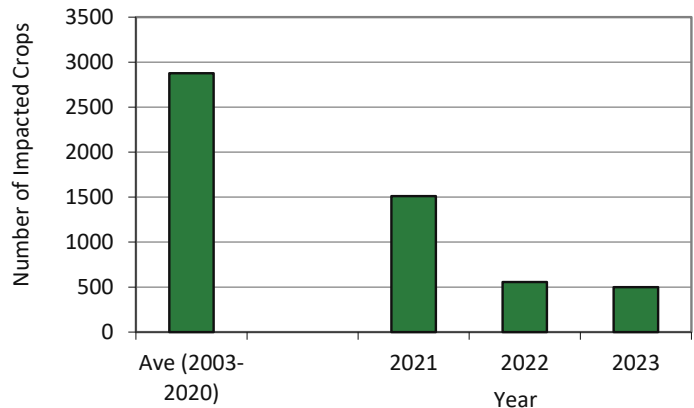


Figure 3. EnvironHort Program - Crop Impact - 2023



Outstanding Data

For 2023, we have received 41% of the planned research with 46% outstanding. For 2022, we have received 75% of the planned research with 15% outstanding. For 2021, we have received 78% of the planned research with 13% outstanding. For 2020, we have received 79% of the planned research with 6% outstanding (Table 1).

Table 1. Number of Planned Trials and Percent Completed by Region, February 23, 2023

Year	NCR					NER					SOR					WSR					USDA ARS				
	# Trials Planned	Complete	Ongoing	Delayed	Cancelled	# Trials Planned	Complete	Ongoing	Delayed	Cancelled	# Trials Planned	Complete	Ongoing	Delayed	Cancelled	# Trials Planned	Complete	Ongoing	Delayed	Cancelled	# Trials Planned	Complete	Ongoing	Delayed	Cancelled
2023	76	59%	36%	0%	5%	60	18%	73%	2%	7%	198	69%	23%	0%	8%	172	4%	76%	0%	20%	138	55%	33%	0%	12%
2022	70	94%	0%	0%	6%	74	66%	20%	0%	14%	259	88%	3%	0%	9%	142	42%	51%	0%	6%	110	71%	7%	0%	22%
2021	82	95%	1%	0%	4%	86	80%	17%	0%	2%	185	78%	1%	0%	21%	160	55%	41%	0%	4%	221	82%	1%	0%	17%
2020	82	89%	0%	1%	10%	102	78%	11%	0%	11%	207	78%	0%	0%	22%	190	69%	16%	0%	15%	165	72%	0%	0%	28%
2019	79	86%	0%	0%	14%	113	99%	0%	0%	1%	235	93%	0%	0%	6%	195	74%	14%	5%	7%	153	90%	1%	0%	10%
2018	111	72%	1%	0%	27%	136	90%	0%	0%	10%	205	82%	0%	0%	18%	156	74%	4%	0%	21%	132	73%	0%	0%	27%
2017	107	86%	1%	0%	13%	110	98%	0%	0%	2%	232	86%	0%	0%	14%	200	88%	0%	0%	13%	148	78%	0%	0%	22%

2024 Research Program

During October 10-12, the EHC Workshop was held following the 2.5 day agenda with a pre-workshop tour, discussions of projects on day one with voting in the evening, followed by national priority refinements as needed and discussion of regional priorities. We also had brief trainings on the research selection portal and how best to write and submit research reports.

National Priority Projects for 2024 - 2025:

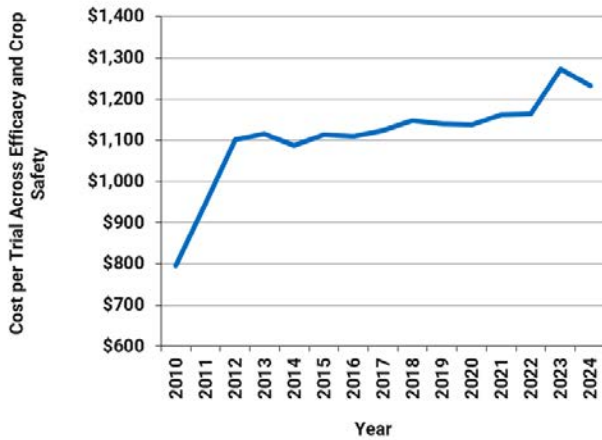
Pathology - Phytophthora & Pythium Efficacy
Pathology - Boxwood Foliar Disease (Blight, Decline, Volutella) Efficacy
Pathology - New Disease Management Tool Crop Safety
Entomology - Thrips Efficacy
Entomology - Scale Efficacy
Entomology - New Pest Management Tool Crop Safety
Weed Science - Preemergent Herbicide Crop Safety (Select Herbaceous Perennials, Cut Flower, In-Ground Production)
Weed Science - Postemergent Herbicide Crop Safety

Regional Priority Projects for 2024 - 2025:

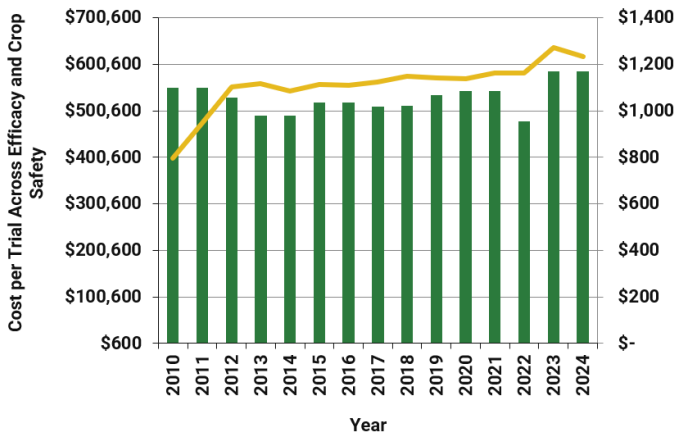
Botrytis Efficacy (NCR, WSR)
Equisetum Efficacy in Christmas Trees (NCR)
Lygus Efficacy (WSR)
Nematode Efficacy (NER)
Pollinator Plant Herbicide Crop Safety (SOR)
Root Aphid/Aphid Efficacy (NER)
Vascular Streak Dieback Efficacy (SOR)

For 2024, the EHC program had a research funding target of \$650,000. Despite inflationary pressures impacting research costs, the RFCs and the program manager elected to utilize the same compensation amount as 2023: \$1,222 per crop safety trial and \$1,556 per efficacy treatment. Once the initial research proposal was developed balancing research among available regional resources and across disciplines, the final total became \$650,800.

While a significant increase in funds was allocated to EHC in 2023, with both IDC and increased trial/treatment rates, this resulted in just a slight increase in the amount of research activities for 2023 versus 2022; however, it represents a similar level to the generally flat number of experiments from 2013 through 2021 and we were not able to fund each researcher that requested to be part of the program in 2023 and was only able to in 2024 due to retirements and researchers 'catching up' on research activities without being allocated new funds. An increase of \$150K is requested to better fund the research network who act as an additional set of people promoting IR-4 as well as improve the registration successes.



* 2023/2024 excludes IDC for comparison purposes; per trial amounts increased in 2010, 2011, 2012, and 2023



* 2023/2024 excludes IDC for comparison purposes; per trial amounts increased in 2010, 2011, 2012, and 2023

Invasive Species

Box Tree Moth. The team successfully developed efficacy data to support a compliance agreement for applications by nurseries to ship boxwoods out of the quarantine zones. Research is continuing for length of residual control after applications to refine recommendations.

Program Update: Biopesticide Regulatory Support / International Capacity Building

Presenter: Dr. Michael Braverman





The IR-4 Biopesticide and Organic Support Program Update.

PMC Meeting March 2024

Michael Braverman Bill Barney

Philip Moore

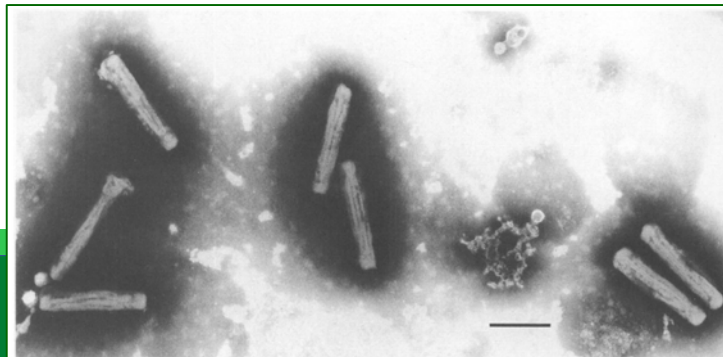
EPA Submissions

Lepidext/ InsterusHz Moths

- *Helicoverpa zea* nudivirus-2 strain 901R71

Update- Provided EPA with responses to questions concerning registration in conjunction with University of Kentucky

Passed 21 day screen and is in Science Review



EPA Submissions – Citrus Greening

CTV-Spinach defensin proteins- Silvec/Southern Gardens.
Update- Completed market basket study and
bioinformatics studies on spinach defensins.

Submitted to EPA Jan 8, 2024



EPA Submissions – GH Cucumber

Attenuated Cucumber Green Mottle Mosaic Virus Strain
ON-BM3

Submitted to EPA Feb 13, 2024



Biopesticide Regulatory Projects Under Development

Sucrose Octanoate-Homeowners formulation

Crown Gall Resistant Walnut Rootstock

K-Salt of Fatty Acids- Mushroom Houses

Pseudomonas solii -fire blight and greening

Peptides for citrus greening

Alum for fireblight on apples

AC203- Greenhouse tomato diseases



Future Projects

Timothy Mcnellis- Penn State developing an attenuated strain of fireblight.

Trying to revive project on hypovirulence of chestnut blight. Thanks-Mary Hausbeck



Meeting with Biopesticide Division of EPA

March 19th

Status updates

Regulatory updates and process

21 day screening updates

New ideas.

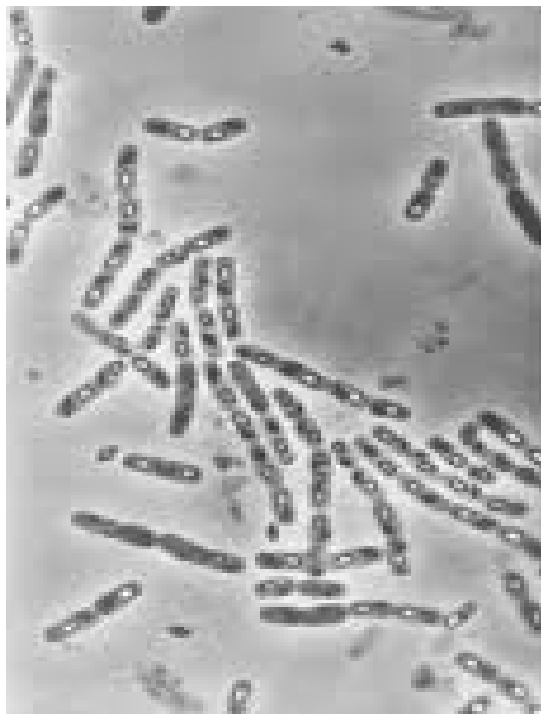
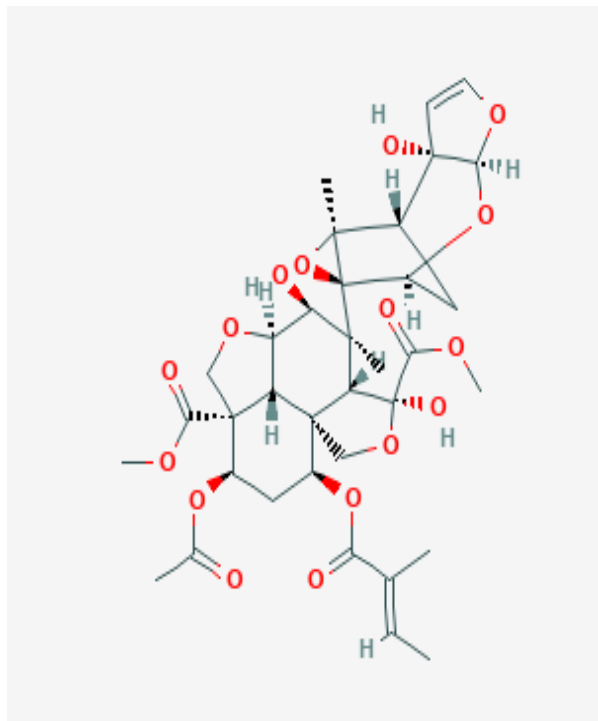
Thank You

Michael Braverman Bill Barney Philip Moore

BIOCHEMICALS

MICROBIALS

BIOTECHNOLOGY





International Capacity Building

PMC Meeting March 2024

Michael Braverman



STDF Project

Thailand – Capacity Building

Follow up on impact of training program on capabilities and advancement of scientists in their own research and organizations. Gained confidence from train the trainer resulting in Thailand helping Laos in laboratory training.



STDF Project

Thailand – Farmer impact. Spinetoram/mango.

Replaced lambda cyhalothrin and cypermethrin. Increased percentage of fruits meeting export quality due to more effective thrips control. Previously had to treat at 3-4 days apart, but with spinetoram reduced to 10-14 days. Enabled farmers to purchase a better sprayer enabling them to treat 20 acres/day with 1 person. Another group invested in a sorting facility.



STDF Project

Kenya – Farmer impact. Sulfoxaflor/mango.

Increased production allowed farmer to send their children to school.



GMUS- Spain

Positive impact. Many kudos for IR-4 from scientists, administrators, STDF, USDA, etc.



IR-4 Communications Update

Presenter: Hannah Ross





Communications Update

Hannah Ross | March 2023





2024 Visual Strategy Update

Logo refresh and color palette update by Nikelle Orellana-Reyes

Updated resources for the team

Brand transition beyond the 60th year...



**Graphic designer to
the rescue!**



Nikelle Orellana-Reyes

UPDATED LOGO

This variation takes the current logo and makes small changes that help with scalability and placement. For example the tips of the leaves were rounded out so they appear less sharp when scaled down. It also uses the updated color palette and drops the use of "The" to make alignment easier.



CURRENT LOGO



UPDATED LOGO

UPDATED BRAND COLOR

These images are taken from the IR-4 library and represent a good mix of the specialty crops farmers grow. Pulling colors from these photos will insure that the color palette will be consistent with the type of content shown in the photos used.



Design work by
Nikelle Orellana-Reyes

UPDATED BRAND COLOR PALETTE

The top rows are considered the primary colors, they should be the predominant colors used in any one communication material. The bottom row are the secondary colors, they should be used evenly to round out the color palette.

PRIMARY COLORS

<p>LIGHT GREEN</p> <p>RGB: 152 171 75 HEX: #98AB4B CMYK: 46 20 90 1</p>	<p>DEEP GREEN</p> <p>RGB: 83 118 61 HEX: #53763D CMYK: 69 34 92 19</p>	<p>OFF WHITE</p> <p>RGB: 248 241 231 HEX: #F8F1E7 CMYK: 2 4 8 0</p>	<p>CHARCOAL</p> <p>RGB: 57 57 50 HEX: #393932 CMYK: 66 59 67 46</p>	<p>MID GRAY</p> <p>RGB: 190 190 185 HEX: #BEBEB9 CMYK: 26 20 24 0</p>	<p>LIGHTEST GRAY</p> <p>RGB: 220 220 215 HEX: #DCDCD7 CMYK: 13 9 13 0</p>
<p>WHITE</p> <p>RGB: 255 255 255 HEX: #FFFFFF CMYK: 0 0 0 0</p>				<p>BLACK</p> <p>RGB: 0 0 0 HEX: #000000 CMYK: 75 68 67 90</p>	

SECONDARY COLORS

<p>PURPLE</p> <p>RGB: 168 76 119 HEX: #A84C77 CMYK: 34 83 31 3</p>	<p>BLUE</p> <p>RGB: 54 117 140 HEX: #36758C CMYK: 81 44 34 7</p>	<p>BROWN</p> <p>RGB: 122 81 31 HEX: #7A511F CMYK: 39 62 100 33</p>	<p>ORANGE</p> <p>RGB: 221 135 45 HEX: #DD872D CMYK: 11 54 97 1</p>	<p>RED</p> <p>RGB: 183 28 8 HEX: #B71C08 CMYK: 19 100 100 11</p>	<p>WARM GRAY</p> <p>RGB: 127 127 19 HEX: #7F7F77 CMYK: 51 42 49 10</p>
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UPDATED BRAND COLOR ACCESSIBILITY

It's very important to have a color palette that has enough contrast between certain colors to be considered Web Accessibility compliant. These primary palette color combinations have been tested and pass the WebAIM Accessibility Tests.

PRIMARY COLOR ACCESSIBLE COMBINATIONS

#53763D TEXT ON #F8F1E7 BACKGROUND	#393932 TEXT ON #98AB4B BACKGROUND	#393932 TEXT ON #BEBEB9 BACKGROUND
#393932 TEXT ON #F8F1E7 BACKGROUND	#000000 TEXT ON #98AB4B BACKGROUND	#F8F1E7 TEXT ON #393932 BACKGROUND
#000000 TEXT ON #F8F1E7 BACKGROUND	#FFFFFF TEXT ON #53763D BACKGROUND	#98AB4B TEXT ON #393932 BACKGROUND
#393932 TEXT ON #DCDCD7 BACKGROUND	#F8F1E7 TEXT ON #53763D BACKGROUND	#DCDCD7 TEXT ON #393932 BACKGROUND

IR-4
Project 

IR-4
Project 

IR-4
Project 

IR-4
Project 



Design work by Nikelle Orellana-Reyes

New Team Resources

- Updated Visual Strategy Guidelines & tutorials
- Branded templates, including:
 - Presentations
 - Posters
 - Letterhead
 - Certificates
- Logos for download & guidelines for usage
- RFCs and HQ updated & have customized guidelines



IR-4 Out + About

HQ + Regional teams are sporting new swag & print materials to represent IR-4!



Latest Print Materials

Annual Report, Year-End Summary, Research Cycle Leaflet,
Updated One-Pagers



20
23

ANNUAL
REPORT

Pest management solutions for
specialty crops and specialty uses



**2023 Annual Report &
Year-End Summary now
posted on our website**

THE IR-4 PROJECT

Pest Management Solutions for Specialty Crops and Specialty Uses

60 Years Of Impact

For over 60 years, The IR-4 Project has been a trusted ally of the specialty crop community. By facilitating Environmental Protection Agency registration of sustainable pest management products and technologies, IR-4 helps growers access tools to protect their crops. Healthy, abundant specialty crop harvests are vital to public wellbeing.

Food Crops + Environmental Horticulture

Specialty crops include both food and ornamental plants—essential components of a healthy diet and a thriving landscape. Because these crops are under significant pressure from damaging insects, weeds, and diseases, the work of IR-4 is critical to preserving the biodiversity and variety that we enjoy.

Strategic Pest Management

Putting farmers' needs first, IR-4 assesses tools of all kinds for both conventional and organic growers—including reduced-risk chemical and bio-based pesticides, as well as emerging technologies. In addition to working with EPA to secure product and use registrations in the US, IR-4 helps harmonize international pesticide regulations, removing barriers to agricultural trade.

A Verdant Future

IR-4 has championed farmers since its founding by the USDA in 1963, securing over **23,000 pest product registrations** on food crops through EPA—along with countless others on ornamental crops. As the future of pest management and its regulation grows increasingly complex, IR-4 has the expertise to guide the specialty crop community forward with innovative, pragmatic, and collaborative solutions.

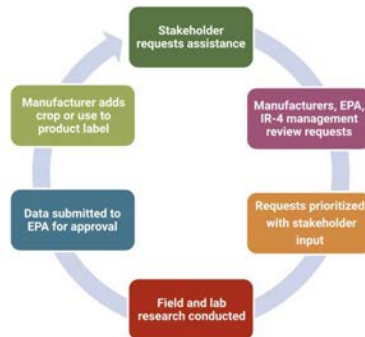
Learn more or submit a project request at ir4project.org.



IR-4's Research Cycle

Guided by the needs of growers

IR-4's Food Crop Program follows an annual cycle:



HOW TO GET INVOLVED:

- Contact your Regional Field Coordinator (RFC) and join regional priority-setting meetings
- Submit a Project Clearance Request (PCR) for a pest or product
- Nominate the projects you'd like to see prioritized prior to future Food Use Workshops
- Attend the annual Food Use Workshop



All year, IR-4's regional teams work with specialty crop stakeholders to identify pest management needs and discuss high priority projects prior to the fall Food Use Workshop (FUW).

We invite you to advocate for the crops, pest challenges and potential solutions that matter most to you.



Contact your Regional Field Coordinator.



Join our newsletter for FUW updates and more.



Learn how to submit a Project Request.



See how to nominate a project prior to the FUW.



Digital Updates

Social Media, Newsletter, Website, Intranet





Month in Review: January 2024

Pest Management Solutions for Specialty Crops and Specialty Uses

The following is a recap of news and updates released by
The IR-4 Project during the month of January.

LATEST NEWS

Mary Hausbeck Appointed to North Central Region Leadership Role



- Updated visual identity
- Maintaining a 30% average open rate (a healthy open rate =20-40%)
- Over 2,000 total contacts
- Net gain of 118 subscribers in past year

IR-4 Project

About IR-4 ▾ Food Crops ▾ Environmental Horticulture Events & Training Stakeholder Resources ▾ [Submit a Request >](#)

Q Search... [Search >](#)

Pest Management Solutions for Specialty Crops and Specialty Uses

About the IR-4 Project

The IR-4 Project helps *specialty crop* growers address pest management concerns so they can produce healthy fruits, vegetables, herbs, and other crops recommended for a healthy diet; as well as flowers, shrubs, and landscape plants that enhance our environment.

The crop protection industry focuses their efforts on major crops, leaving specialty crop growers with fewer tools for effectively managing pests. The IR-4 Project develops data necessary for the registration of safe and effective pest management solutions with the U.S. Environmental Protection Agency. IR-4 also supports the registration of specialty uses on major crops, such as corn, soybeans, and cotton.

[Read More >](#)

Registration is Open

IR-4 Project Research Symposium
April 9, 2024

Learn more about our pest management research on food crops in this annual symposium led by IR-4 biologists. [View the event page to register.](#)

[View Event >](#)

Learn More About IR-4

60 Years of IR-4

1963-2023
YEARS
IR-4

THE IR-4 PROJECT
Pest Management Solutions for
Specialty Crops and Specialty Uses

Watch on [YouTube](#)

Discover what we do—and why it matters—as we commemorate IR-4's 60th year serving the specialty crop community.

Logo, colors updated on homepage

- A WordPress site has been established via NC State Office of Information Technology
- Plan to develop the intranet site via NC State's platform using an unbranded theme (will allow us to use IR-4 logo and color scheme—updated palette meets accessibility standards)
- Will engage IR-4 Technology Team and Management for guidance on content & organization
- Our current freelance graphic designer has extensive WordPress experience and is available to help build site
- NC State marketing content team also available to provide strategic consultation
- Western Region's IR-4 Works being used as point of reference
- Project will be a focus of 2024
- Aim to have development site ready for testing by Fall

New video content planned for 2024

- Final 60 Years video focused on looking ahead, ft. researchers interviewed at 2023 FUW (to be released soon)
- Food Use Workshop tutorial to be released prior to event, to aid outreach to new stakeholders & event promotion
- Also planned: Project Upgrade Proposal instructional video (completion date tbd)



Meister Media created
an extensive report
Highlighting 60 Years
of IR-4



Scan to view digital version

THE IR-4 PROJECT

Celebrating 60 years as the trusted ally of
the specialty crop community

Read on



Connect With Us





LEARN MORE

ir4project.org
ir-4_project@ncsu.edu

Grant Processing Update

Presenter: Dr. Krystal Chojnacki



Grant Processing Update

Spring CLC/PMC Joint Meeting

Washington, DC

Krystal Chojnacki, PHD

Where we are at...

Some Successes

- NIFA Awards have been cleaned up: Award Number and IDC rate
- Status of Year 3 Subawards - Awarded!

Frustrations and Limitations

- Access to new NC State Research Enterprise Data (RED System) for managing research administration.

Additional Steps

More clean-up coming your way!

- Late March/April
- Amendment to deobligate the year 2-3 funds from the current subaward that houses them all and establish a new subaward to house those funds (and future year 4).

Subaward Clean-up

On each Subaward Amendment adding year 3 funding a note like the one below was included on the cover page to each Subawardee (except Rutgers), laying the groundwork for these next steps.

Other (See Below)

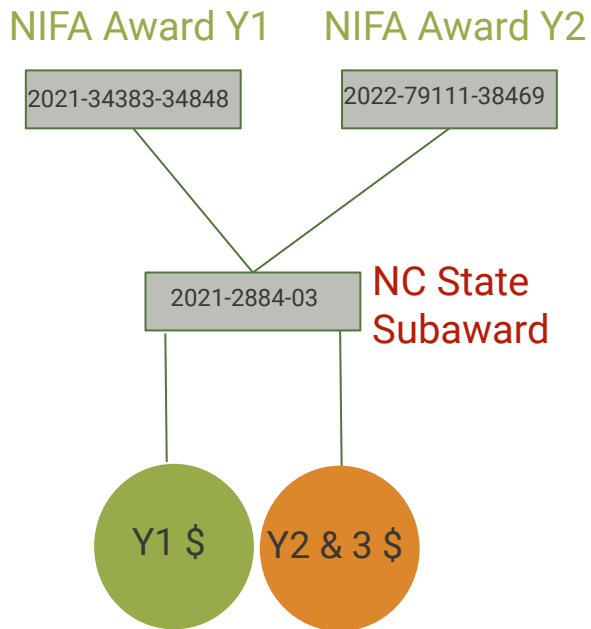
Subaward No. changed from 2021-2884-03 to PAM-P24-000837-SA03

Of the Total Amount of Funds Obligated to Date, \$8,455,239 has been re-issued under new Prime Award No. 2022-79111-38469 and is available during the additional budget period of 08/01/2022-07/31/2024. The new notice of award is included as Attachment 5A. The difference of \$3,781,609 issued in year 1 is available 08/01/2021-07/31/2024 under the prior Prime Award No. 2021-34383-34848.

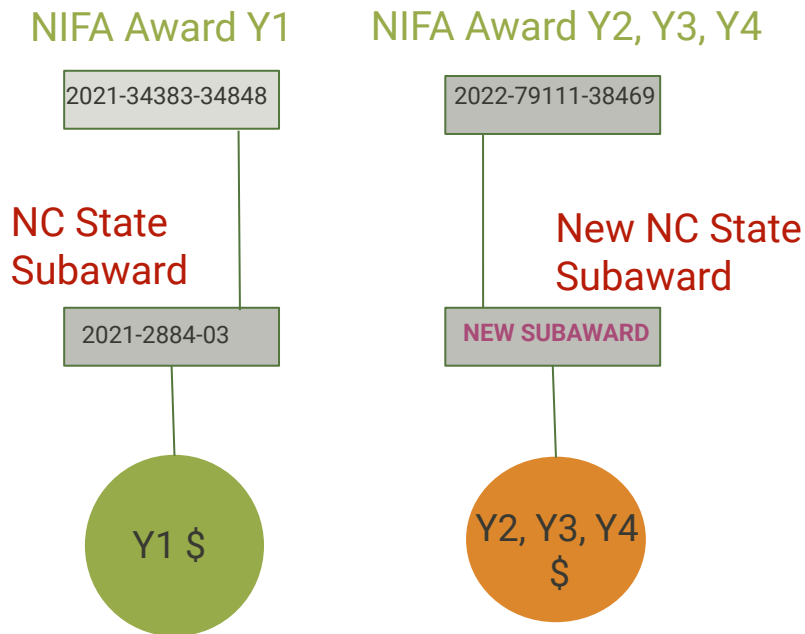
**Excerpt above is from UC Davis amendment*



Current Structure



NEW Structure



Reminder: Y1 funds end 7/31/2024.



Thank you



Technology Team & eFDB Update

Presenters: Jimmy Byrtus and Philip Moore



Technology Team Update



Technology Team Background

- **Established from The Path Forward 2.0 Report**
- Tasked with identifying, evaluating, and potentially implementing new technology for increased efficiency and accuracy across IR-4.



Technology Team Update

- Kickoff meeting convened January 12, 2024
- Discussed potential areas for initial improvement
- Survey sent out to IR4 for prioritizing technology

Technology Team Members

- Jimmy Byrtus (HQ) (Chair)
- Alex McFall (Lab)
- Josh Peterson (QA)
- Kari Arnold (RFC)
- Leona Horst (FRD)
- Megan James Hickman (Assistant RFC and FRD)
- Mika Tolson (Program Assistant)
- Allison Robinson (FRD)
- Shiayi Huang (HQ Database Administrator)



eFDB Update

March 2024 PMC Meeting



The eFDB is in the hands of over 50 IR-4, CA-PMC, and CRO FRDs

15 study protocols for 2024 have been signed that require the eFDB

Practice notebooks provided to all who request and during trainings.

In 2023 IR-4 and the PMC committed to the full implementation and acceptance of the eFDB

*It was not an easy decision and the immediate reaction was
controversial*

**Since the decision was made in October, we
doubled down on training and support**

*>12 weekly Q+A meetings have been hosted for anyone to join.
Typically around 30-50 participates are on each 1 hour zoom call.*

*Philip will share questions or issues that occurred that week and the
audience asks any of their questions*

Additional Training and Support Activities

- Bi-monthly QA and RFC meetings conducted to share concerns and answer questions.
- Separately, the QAU meets weekly to discuss eFDB topics and gain consensus on GLP interpretation and enforcement.
- In-person trainings are occurring at each IR -4 Region this spring.
- **3-day eFDB Southern Region Training occurred in February.**
 - 17 participants were in-person in Gainesville.
 - Including GA and SCUSDAARSFRDs and 3 QAU
 - Another 20+ viewed the presentations virtually, including SOR CROs.
 - Hands on – mock application conducted with the eFDB Mobile Edition (off-line version)
 - Participants were engaged and open with questions and shared their recent experience for others to learn from.

Users are typically able to enter their data with ease!

- Most often, entering study data in the notebooks is intuitive.
- Some application aspects are more complex and require a “work -around” to provide application calculations accurately, based on the setup of the calculation forms.
- Questions are brought to Philip or Jimmy, via e -mail or phone, who have been able to assist immediately and resolve concerns.
- CROs and users needing one-on-one training have met over zoom for a one hour walk through training.

First electronic notebooks are being reviewed

- **QA and QC are reviewing the first completed notebooks. First GLP e-book audit forthcoming soon.**
 - Most findings are due to document uploads (PDFs and pictures) not providing minimum documentation requirements:
 - Files must contain the trial code, initial, date, and if a copy, the location of the original.
 - Enforcement and trainings will ensure corrective action and future understanding.
- **Benefits already being realized due to immediate access of study data**
 - QA is able to review plot maps and test substance data remotely, prior to in-life audits.
 - Study Directors and others are able to remotely view study data and confirm acceptability or recommend changes or additional explanation.
 - FRDs are able to make changes due to findings themselves, after completion of the notebook.

**Still a long road ahead to full understanding and to realize
the full potential.**

**But users are optimistic and open to transition to a more
efficient system, guided by HQ leadership.**

Program Update: Food Program

Presenter: Dr. Debbie Carpenter





Food Program March, 2024

Debbie Carpenter

Outline

New Uses - 2023

Submissions – 2023

Crop Group update

Residue Research Program (10-year history)

Outstanding Field Notebooks

Timeline Update

Regulatory Challenges



2023 New Uses

18 Actions (new uses)

- Acifluorfen (11)
- Dodine (49)
- Ethalfluralin (49)
- Flonicamid (97)
- Fluazifop-p-butyl (79)
- Fluopyram (306)
- Fluxapyroxad (2)
- Fomesafen (54)
- Glufosinate (103)
- Mandestrobin (16)
- Penthiopyrad (3)
- Pydiflumetofen (9)
- Pyraclostrobin (2)
- Rimsulfuron (57)
- Spinetoram (191)
- Spinosad (191)
- Trifloxystrobin (393)
- Trinexapac-ethyl (1)

Total = 1613 new uses,
213 tolerances

2023 Submissions-12

- **Afidopyropen**
- **Bifenthrin**
- **Cyazofamid**
- **Cymoxanil**
- **Dimethenamid-p**
- **Ethaboxam**
- **Famoxadone**
- **Flutriafol**
- **Inpyrfluxam**
- **Methoxyfenozide**
- **Permethrin**
- **Pyridate**
- **Provided to registrant**
 - Picarbutrazox/lettuce
 - Azoxystrobin Fludioxonil/sweet potato

Crop Group Update

- **Crop Grouping Initiative**
- **All Commodity Classes have been approved by the Codex Alimentarius Commission.**
- **US EPA - Final Rule Published Sept 21, 2022**
 - **Phase VI: CG 15, Cereal Grains; CG 16, Forage, Fodder and Straw of Cereal Grains; CG 6, Legume Vegetables and CG 7, Foliage of Legume Vegetables**
- **Remain to be published (IR-4 work is completed)**
 - **Phase VII: CG 17, Grass Forage, Fodder, and Hay Group; CG18, Nongrass Animal Feeds; CG1, Root and Tuber Vegetables; CG2, Leaves of Root and Tuber Vegetables and CG9, Cucurbit Vegetables. Timing TBD.**

Field Research

2023 Residue Program

- 52 New Studies
- 354 New Field trials
- 30 Carryover trials

2024 Residue Program

- 54 New Studies
- 365 Residue Field trials
- 38 Carryover trials

Field Research Program

Region	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
NER	49	39	27/11*	34	39	36	33	26	28	34	26
NCR	68	59	67/4	66	61	39	50	51	49	81	63
SOR	76	92	78/19	85	78	90	100	95	90	73	74
WSR	171	185	162/16	167	149	164	140	151	128	129	138
ARS	54	62	52/15	67	55	49	62	49	46	56	52
Canada	41	36	32/3	31	19	29	31	10	6	11	12
TOTAL	451	472	418	450	401	407	416	382	347	384	365

*indicates 2016 dropped trials, mostly due to study changes.
Other dropped trials not included in numbers reported



Field Data Notebooks, 3/24

Year	Total	FRD	RFC	QA	HQ
2021	382	0	0	1	381
2022	347	12*	8	8	316
2023	384	142**	47	54	116
*Did not count 3 trials to be harvested in early 2024					
**Did not count 25 trials to be harvested in 2024					

Outstanding FDB, 3/24

Notebooks with FRD						
Year	ARS	WSR	NER	SOR	NCR	CAN
2021	0	0	0	0	0	0
2022	1	2	0	8*	1	0
2023	17	68	3	26	22	6
*Did not count 3 trials to be harvested in early 2024						
Notebooks with RFC						
Year	ARS	WSR	NER	SOR	NCR	CAN
2021	0	0	0	0	0	0
2022	0	2	0	4	2	0
2023	0	8	20	4	15	0

Timeline Summary

- *Field databooks from 2022 are not all at HQ. Only 30% of books with trials completed in 2023 have arrived at HQ. Completion of FDB is critical to meeting timelines.*
- *About fifty studies in final report processing (Writing/QA etc)*
- *More than 100 studies are TBD for submission. Most are signed and ready to submit.*
- *Many cannot be submitted as a safety finding cannot be made or registrant is holding submissions.*
- *Two registrants will not move forward with IR-4 submissions, until the impact of the Endangered Species Act on existing registrations is clearer.*

Regulatory Challenges

Internal challenges

Analytical backlog and quality

Delays submissions

Costs lab, study directors and QA resources to address

Delayed field databooks –

More critical as analytical backlog is addressed.

One outstanding book holds up the whole study.

Concern that if we miss a submission, it could be years before it can go in.

eFDB may greatly help ease delayed field databooks.

|

Regulatory Challenges

External issues

Impacts from Endangered species act still a concern

Concern about mitigation proposals and how they will impact stakeholders

Once in compliance, will not want to be out of compliance

Registration status in Europe and impact on support from companies for stakeholder requests.

Hold on submissions by some companies

Path forward is not clear due to ESA – resulting in some registrants holding submissions

Lack of submission documents until previous labels have issued from EPA



**Thank
You!**



Program Reports: Laboratory Update/Backlog

Presenter: Dr. Debbie Carpenter



Laboratory Update/Backlog March, 2024

Debbie Carpenter

Outline

Backlog

Current status at each lab

Plans to address backlog

Use of contract labs

Summary

Other



Plans for Moving Forward

Backlog – Tifton

Three studies are backlogged.

Suspended all work on propiconazole analyses.

Propiconazole avocado study, received an A priority at FUW, not moving forward. Replacement studies identified.

Concern about viability of samples which were delayed due to work on propiconazole method. Analyses in progress.

Plans for Moving Forward

Backlog – YAR

Some progress during the past year.

Still eight ASRs that need to be completed (Analyses complete).

Data quality is a concern – analytical work shut down in Jan until GLP issues can be addressed. Redoing SOPs, documentation forms so that data is complete and readable. On-going work with HQ staff and Davis QA to assist.

Six additional studies will become backlogged in 2024

No 2024 studies are being assigned to YAR until backlog is addressed. Will impact rest of program



Plans for Moving Forward

Backlog – CAR

Six backlogged studies, but two due to outside issues.

All analytical work has been completed or is in progress.

CAR has analyzed many of the studies from Michigan.

Storage stability delays-samples not spiked when received.

Hemp studies take much time, many crop fractions.

No action needed to reduce backlog, but cannot help other labs by taking additional studies.



Backlog Details - FLR

FLR	PR	Chemical	Matrix	Trials	ASR Due Date	ASR Est.	Initial EPA Target Sub.	Revised EPA Target Sub.	Note	Late ASRs	Backlogged
	12752	fluazaindolizine	mint		6/11/23	3/25			if SS on hand allowed	1	1
	13169	fluazaindolizine	radish		5/02/24	6/26			if repeating val & SS intervals	1	1
	13333	pydiflumethofen	cranberry		5/11/23	4/24			ready for raw data & ASR audits	1	1
	11568	thiophanate methyl	radish		6/02/24	11/25			pending SS (10/2025)	1	1
	13242	dimethomorph + ametoctradin	basil		8/10/23	5/24			ASR in preparation	2	2
			Total trials backlogged		30						
										Backlog	6 studies



Plans for Moving Forward

Backlog – FLR

Six studies are backlogged.

Data quality a concern.

Identified the issue and working through it.

Uses time and resources.

Will not make submission timeline with Corteva newer chemistry

Difficulty in maintaining experienced analysts.

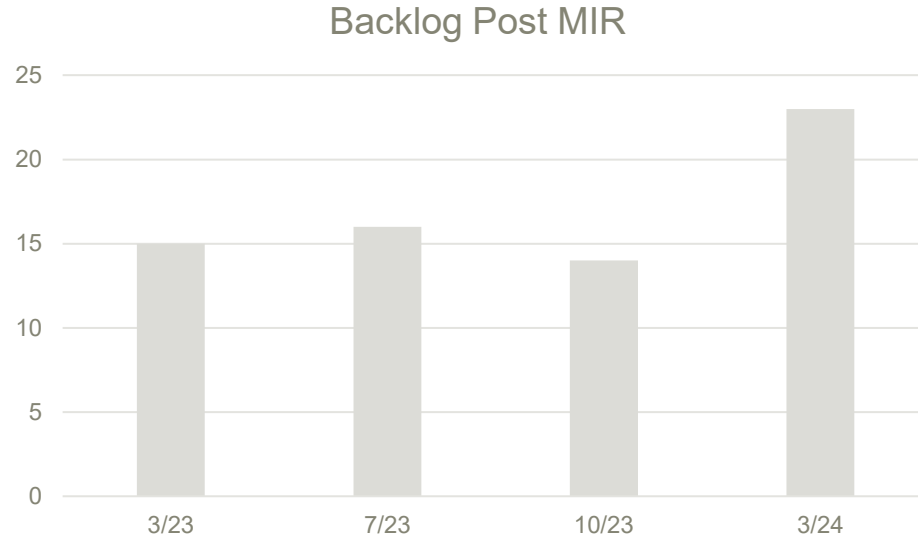
Working diligently to address issues and get back on track.



Studies at Contract Labs

Pnum	chemical	Crop	Original Lab(current lab)
12564	ABAMECTIN	MIRACLE FRUIT	MIR (GPR)
12757	ABAMECTIN	BET (SUGAR)	MIR (GPR)
10827	AZOXYSTROBIN	POMEGRANATE	MIR (GPR)
12538	BENZOVINDIFLUPYR + DIFENOCONAZOLE	STEVIA	MIR (Adpen)
13179	BENZOVINDIFLUPYR + DIFENOCONAZOLE	COFFEE	(Adpen)
13409	CYCLOATE	SPINACH	(GPR)
13411	CYCLOATE	BET (GARDEN)	(GPR)
12220	DIQUAT	GRAPE	MIR (GPR)
12675	EMAMECTIN BENZOATE	BEAN, LIMA (SUCCULENT)	MIR (GPR)
09520	FLUTOLANIL	BET (GARDEN)	MIR (GPR)
11195	FLUTOLANIL	PEPPER (BELL & NONBELL)	FLR (GPR)
12902	FLUTOLANIL	CARROT	MIR (GPR)
12903	FLUTOLANIL	RADISH	YAR (GPR)
12904	FLUTOLANIL	TOMATO	YAR (GPR)
09102	FLUTOLANIL	STRAWBERRY	(GPR)
13295	GF-4031	CHERRY	YAR (EUR)
13355	GF-4031	STRAWBERRY	YAR (EUR)
09493	GLUFOSINATE	COFFEE	MIR (Adpen)
11148	GLUFOSINATE	SESAME	(Adpen)
13178	GLUFOSINATE	SUNFLOWER	FLR (Adpen)
13330	GLUFOSINATE	DRAGON FRUIT (PITAYA)	(Adpen)
13455	GLUFOSINATE	STRAWBERRY	(Adpen)
13463	GLUFOSINATE	PEANUT	(Adpen)
13408	HALOSULFURON	STEVIA	(Adpen)
11772	LINURON	BEAN (EDIBLE PODDED & SUCCULENT SHELLLED)	FLR (GPR)
12816	LINURON	ONION (DRY BULB)	GPR
12544	ZIRAM	OLIVE	SYM (GPR)

Backlog Graph Post MIR



Summary

Backlog

Slowly addressing the backlog. March is traditionally the highpoint due to crop arrival time periods.

Plans for lab focused training for all analysts. All agree this is needed to bring analysts to a baseline level and help with method development skills.

Other

MIR data

Storage stability samples not spiked in some cases – delays

QA audits not addressed completely – time and resources as study directors, QA must identify and address as final report is written.

Data quality at two labs

Many resources required to address

Includes not only Lab, but also Study Director, QA

Potential Impacts on IR-4 Reputation



**Thank
You!**



Program Update: Quality Assurance

Presenter: Dr. Johanna Mazlo





QA Update

March PMC Meeting

Overview

- EPA Compliance Monitoring Update
- QA and Electronic notebook Update
- QA Update
- QA Audit\Inspection data
- eQA and eDocs Update

EPA Compliance Monitoring

- EPA has moved to on-site inspections
- February 2024
 - University of California – Davis Lab
 - University of California – Davis Field
 - Turner Ag Research (CA) – postponed
- March 2024
 - Dragon Run Ag (VA) – week of March 4th

QA and Electronic Field Notebook

- QA has been actively preparing for the electronic notebook
 - Audited validation
 - Attending the face-to-face training
 - Regular meetings with QC and P. Moore\J. Byrtus
 - Going out to the field to observe the FRDs use the notebook
 - Working proactively to anticipate GLP issues
 - Unofficially audited a notebook

QA Update

- Working across regions
 - HQ is picking up SOR field in-lives
 - 2023 – TX
 - 2024 – TX, LA, Homestead, FL, ARS Charleston
 - HQ continue to assist NCR
 - 2023 – SD, ND
 - 2024 - ND
 - SOR QA picking up additional Field Notebooks

QA Update

- **QA Shared Drive**
 - Allows QA to connect in real time
 - Created some efficiencies
 - examples:
 - reduced time in planning meeting
 - reduced amount of emails chains
- Meeting on a regular intervals

2022 Audit/Inspection Data

Region	I. or A. Type	Protocol	ASR	LCPI	LFI	FDB	FCPI	FFI	CSR*	Fnl Rpt	Close Rpt	Total
	Days Equiv	1	6	1.5	3	1	2.5	2.5	5	5	1.5	
HQ	I. or A. Type	1	5	0	0	50	13	0	10	32	49	160
	Days Equiv	1	30	0	0	50	32.5	0	50	160	73.5	397
NCR	I. or A. Type	0	0	0	0	0	22	3	0	0	0	25
	Days Equiv	0	0	0	0	0	55	7.5	0	0	0	62.5
NER	I. or A. Type	0	0	0	0	0	15	0	0	0	0	15
	Days Equiv	0	0	0	0	0	37.5	0	0	0	0	37.5
SOR	I. or A. Type	0	16	30	0	170	33	1	8	9	0	267
	Days Equiv	0	96	45	0	170	82.5	2.5	40	45	0	481
WSR	I. or A. Type	0	17	34	2	76	55	10	4	7	0	205
	Days Equiv	0	102	51	6	76	137.5	25	20	35	0	452.5
Total	I. or A. Type=	1	38	64	2	296	138	14	22	48	49	672
	Days Equiv	1	228	96	6	296	345	35	110	240	73.5	1430.5

* includes 4 processing reports

LCPI and FCPI = # of critical phase inspections

LFI and FFI= # of Facility Inspections

ASR = # of Analytical Summary Reports audits

FBDs = # of Field Data Notebook audits

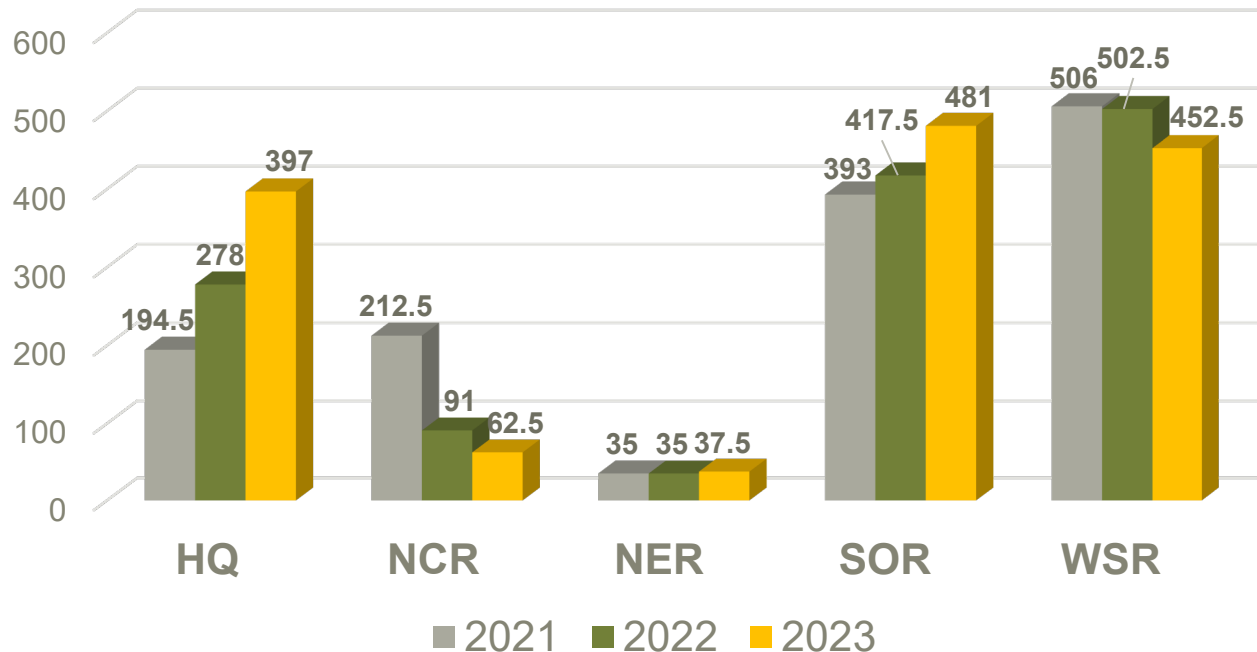
Close report = the review done at HQ where HQ QA reviews the final report audit, reviews the responses, checks on the corrective action status of all previous QA reports, and

Day Equi = one person working for one eight hour day



Comparison of Audit/Inspection Data from 2021-2023

Total Equivalent Amount of Days Spent on Audits by Region



Year	Total Equivalent Days
2021	1341
2022	1324
2023	1430.5

eQA and eDoc Update

- eQA
 - Trained 3 people in Nov 2023
 - 798 audits added in 2023
- eDocs
 - 6105 total documents
 - Analytical methods 367
 - Working methods 58
 - Will be adding a section for National SOPs
 - All RFCs, QC, and FRDs have access to HQ SOPs

Program Reports: IR-4 Education and Training Committee

Presenter: Christina Dineen





Education & Training Committee Update

IR-4 PMC Meeting

March 2024

Christina Dineen

Planning for NEC 2026

- **Top Locations**

- Tucson, AZ
- Ft. Myers/Palm Beach, FL
- Charleston, SC
- Homestead, FL

Planning for NEC 2026

- **Top Locations**

- Tucson, AZ



IR-4 Survey	Potential Field Component
51 out of 65 votes as a Top-2 location	<ul style="list-style-type: none">• Bayer Marana Greenhouse• Desert Forest Nursery• Green Valley Pecans• Maricopa Ag Center• USDA-APHIS PPQ Plant Inspection Station• Biosphere 2



Planning for NEC 2026

- **Top Locations**



- **Charleston, SC**



IR-4 Survey	Potential Field Component
37 out of 65 votes as a top-2 location	<ul style="list-style-type: none">• USDA-ARS US Vegetable Laboratory• Hydroponic growing pods• Horticulture sites• Charleston Tea Plantation• Local growers with winter crops• Cole Smith spray truck/sample trailer

Planning for NEC 2026

- **Next steps**

- Finalize location/dates
 - Recommended Feb 3-5 or Feb 10-12, 2026
- NEC Content
 - Brainstorm potential outside speakers (book early)
 - Consider topics that may need extra time (eFDB)
 - Endangered Species Act, more in-depth GLP training

National SOPs

- **Committee Members**

Alex McFall (Lab / WSR)	Leona Horst (FRD / ARS)	Christina Dineen (SD / HQ)
Mika Pringle Tolson (RFC / WSR)	Martin Beran (QA / WSR)	

- Completing edits to SOP on SOPs – for review
- Starting EPA Inspections
- Working on incorporating into eQA with Johanna

National SOPs

The screenshot displays the 'Document List' page for 'The IR-4 Project eQA/eDOCs'. The page features a blue header with the project logo and the text 'QUALITY COMPLIANCE Document List'. Below the header is a navigation bar with links: 'Do Search', 'Reset Fields', 'Show All', and 'Print Results'. On the left, there is a 'Menu' section for user 'Christina Dineen' with a 'Home' icon and a 'Log Out' link. The menu is divided into three sections: 'Main Menu' (containing 'My Activities', 'Document List', 'Document Search', 'Document Add', 'Reports', and 'Document / Packet Search'), 'Forms Module', and 'Management'. The main content area contains search filters: 'Favorite Search' with fields for 'Document ID', 'Title', and 'Document Type'; 'Description/Purpose'; and 'Location'. A dropdown menu is open for 'Description/Purpose', listing various document types: 'Test Document', 'QA Protocol/Change forms', 'HQ Standard Operating Procedures', 'Certificate of Analysis', 'Analytical Method', 'HQ SOP App.', 'Old Test documents', and 'National Standard Operating Procedures'. A red arrow points to the 'National Standard Operating Procedures' option.

- eQA training for new processes
- Prompt all users to train on SOPs
- SOP on SOPs, eFDB SOP

MOR Protocol Template Rev.

- Committee Members**

Cristina Marconi (SD / HQ)	Scott Muir (QA / HQ)	Dan Heider (FRD / NCR)
Mika Pringle Tolson (RFC / WSR)	Megan James Hickman (RFC / NER)	Christina Dineen (SD / HQ)
Gail Mahnken (LRD / SOR)	Cole Smith (FRD / SOR)	Chanz Robbins (FRD / WSR)

- Review, rearrange, reword, etc.
- Potential new National SOPs, updates to Advisories
- Expected July 2024 for IR-4 review



Ongoing Training Updates

- **Quarterly Virtual Trainings**

- Hosted by Regional Field Coordinators
- Feb 29: Field Trial Planning, FRD Org. Systems, GH Trials
- Upcoming: May, August, November

- **IR-4 Advisory Updates**

- #2007-01: Shipping Requirements via Commercial Carrier with Dry Ice & Training/Certification Guidance
- Next up: #2005-01: Test Substance Container Disposal – Website Approval Procedure

