



ENVIRONMENTAL HORTICULTURE WORKSHOP

October 7-8, 2025



WELCOME TO THE 2025 IR-4 ENVIRONMENTAL HORTICULTURE WORKSHOP

Day 1: Tuesday, Oct. 7



**ENVIRONMENTAL
HORTICULTURE WORKSHOP**

October 7-8, 2025

Thanks for joining us in Kansas City! Our work this week will help deliver pest management solutions to specialty crop growers nationwide.

Thank You, IR-4 Event Sponsors!

Platinum



Gold



Silver



Bronze

2025

Today's Agenda

Welcome & Updates	8:00 am - 10:00 am
Technology Session and Project Proposals - Weed Science	10:30 am - 12:00 pm
Lunch	12:00 pm - 1:30 pm
Technology Session and Project Proposals - Plant Pathology	1:30 pm - 3:00 pm
Technology Session and Project Proposals - Entomology	3:30 pm - 5:00 pm
Reception	5:30 pm - 7:30 pm



Ground Rules

- ✓ Be mindful of time
- ✓ Ensure everyone has the opportunity to contribute
- ✓ Listen actively and with an open mind
- ✓ In-person attendees: please do not join Zoom audio



Virtual Etiquette Reminders

- Make sure your **name** is listed correctly
- Please stay on **mute**
- Have a question or comment that needs to be shared? Type “Q” in the chat!
- The workshop schedule is fluid; check the chat or your email for notifications about timing shifts throughout the event





**ENVIRONMENTAL
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October 7-8, 2025

Welcome & Introductions

**Josh Kindel, IR-4 Environmental
Horticulture Program Manager**

In-Person Participant Introductions



Please share your name and professional affiliation.



**ENVIRONMENTAL
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October 7-8, 2025

State of IR-4

**Jerry Baron,
IR-4 Executive Director**



IR-4 Update
Environmental Horticulture Workshop
October 7, 2025

Jerry Baron

Since our last EH Workshop (2023)

- Completed the relocation of IR-4 HQ from Rutgers to NC State
 - Last Phase involved moving EH and Biopesticide Regulatory Manager positions to Raleigh (Phase 1 involved Food Program)
- Facilitated a Program review by Ornamental Stakeholders
- Established a Biology Team within IR-4 to better coordinate activities in efficacy/crop safety testing
 - Capture opportunities for synergies on research/regulatory efforts on food crops and ornamentals

EH Program Review

- Co-Chaired with Michael Martin (HRI) and Amy Upton (MNLA)
 - Phase 1 - Held listening sessions at three major grower meetings
 - Positive comments received at all three sessions
 - Phase 2 - Assemble a panel of stakeholders to go through a deep review of activities and provide feedback
 - Chose to “tap the brakes” on Phase 2 to accommodate new IR-4 leadership
 - Realistic completion of report by fall 2026

Environmental Horticulture Program

Year	Successes, Regulatory Actions & Research
2023	BotryStop was registered in California, contributing to 500 new crop uses.
	22 research summaries were written to support new or update existing registrations.
	739 field and greenhouse trials (355 efficacy, 384 crop safety) that contributed to 26 projects
2024	11 research summaries were written to support new or update existing registrations.
	675 field and greenhouse trials (247 efficacy, 428 crop safety) that contributed to 20 projects
2025	602 field and greenhouse trials (160 efficacy, 442 crop safety) that contributed to 22 projects

Environmental Horticulture Program

- Hired Josh Kindel in June, former VP for Bonide Products
 - Background in Entomology with experience in Regulatory
 - Also background in Marketing
- Primary task to date has been bridging to growers, industry and researchers and preparing for EH Workshop
 - EXCELLENT response on Grower & Extension Survey; will have a lot to discuss at the Workshop
 - The 2026 allocation for research will be the same as 2024
 - 2025 one-time bump of research \$ from salary savings

Environmental Hort. Priority Setting Workshop

- Using similar process than in the past with a few exceptions
 - Elimination of Sticker Caucusus - There is confidence that this group can discuss the merits of projects and come to consensus on selecting the most appropriate priorities.
 - Consensus Decision Making - Decision making process that seeks to achieve broad agreement among participants. Consensus requires that all members support or at least live with decisions

Other changes

- Enhanced accountability of research-Utilization of research trial tracking system
- Rebranding of Program name
 - Return to Ornamental Horticulture to better reflect majority of efforts
 - Room in tent for other crops/use sites
 - Forestry seedling
 - Nursery uses on food crops

Other Happenings within IR-4

Food Program successes are down

- Industry wide situation - This is not uncommon with a new President; typically a moratorium on new regulations for the first 100 days.
- EPA (Office of Pesticide Programs) lost a significant number of highly experienced employees
 - e.g. Nancy Fitz, Minor Use Team Leader
- For IR-4, pollinator data gaps are the most pressing issue with the EPA we are facing
- Also, there are concerns about taking an ESA-compliant chemical and adding new uses to take it out of compliance.

Food Program trends

- There seems to be a reduced need for residue data and a greater need for product performance (efficacy/crop safety). WHY?
 - Less new chemical products, more products that don't require residue data (biopesticide, mRNAi, peptides, etc.)
 - Less people in public sector who performed product performance testing outside of IR-4
 - More product performance data needs by companies, states & EPA
- IR-4 has responded by putting more resources into efficacy/crop safety
 - Established Biology Team
 - Fund more product performance → Cut back on residue projects

ARS involvement in IR-4; I hope this is wrong

- ARS does 15-20% of the field/laboratory work for IR-4-including ornamentals
- In 2024, the ARS **eliminated long term investment in Ornamental research in NE Region**
- FRD at ARS-Salinas, CA site no longer doing work for IR-4; she is the primary cardholder to pay ARS bills in the Pacific Region
- Research in Ohio is phasing out in 2026
- ARS is under a hiring freeze
 - ***IR-4 cooperative positions are low priority***

USDA-NIFA Funding

Annual Appropriation

- After a **LONG** delay, the 2025 Request for Application for IR-4 funding was released on July 31. The release commonly occurs in Feb/March.
 - Helped by efforts by CLC/Friends of IR-4
- Short response period
 - Normally 45 days — truncated to 14 days — submitted in 7
- We received the Award on September 10

NRSP-4/Hatch Funds

- Ag Innovation (SAES) is cutting IR-4 funding approximately \$75,000



Funding Challenges

- Great stakeholder support (Friends of IR-4/CLC), but prospects of more funding via NIFA are weak
- ARS involvement may diminish
- Host institutions are reducing in-kind contributions to IR-4
- Industry cutbacks
- Costs are increasing

Something has to give....but what?

Executive Director Recruitment

- Position finally posted in early summer. Great response: over **30 applications**. Almost all of the candidates qualified for the position.
- The Search and Selection Committee identified **eight candidates** for additional screening (Zoom interviews).
- The committee has narrowed the field down to **3 candidates for in-person interviews** at IR-4 Headquarters in late October.
- NC State has instituted a hiring and salary capacity policy in anticipation of State/Federal funding challenges > new person will not be able to start until January 2026

Reflections

There is a lot to be proud of

- Thousands of registration successes in food and non-food crops
- Helping specialty crop farmers solve problems so they can stay in business and contribute to rural economies.
- IR-4 Project activities/efforts contribute \$8.97 billion to the annual gross domestic product.
- Feed the world with reasonably priced fresh and processed fruits and vegetables...the good stuff & enhance the environment
- Develop regulatory schemes that service the regulated community (Crop Groups, Zone Maps)
- Export the IR-4 concept to the world (Minor Use Foundation)



Challenges

- Funding, funding, funding (Federal/University/Industry)
- Access to crop protection technology
- Unpredictable approval process by the EPA
- Public pushback against chemical pesticides and new technology
- International regulations limiting domestic use
- Stakeholder support

Our strength is our people

- Fortunate to work with so many hard-working, dedicated people
 - IR-4 co-workers
 - Companies
 - Commodity Groups
 - Government (EPA & USDA)
 - NC State
 - Mentors
- Through their collective efforts, they made my time at IR-4 so fulfilling—truly a dream job!





Awards & Recognition



Thank You!



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EH Program Updates

**Josh Kindel, IR-4 Environmental
Horticulture Program Manager**

**Thank you for carrying the
program along, Jimmy!**

Registration Support Research



The IR-4 Project's Environmental Horticulture (EH) Program facilitates regulatory approval of sustainable pest management products for ornamental crops.

EH research helps green industry growers cultivate a diverse selection of healthy plants for landscapes, homes and gardens—a service to growers, the environment, the economy, and public well-being.



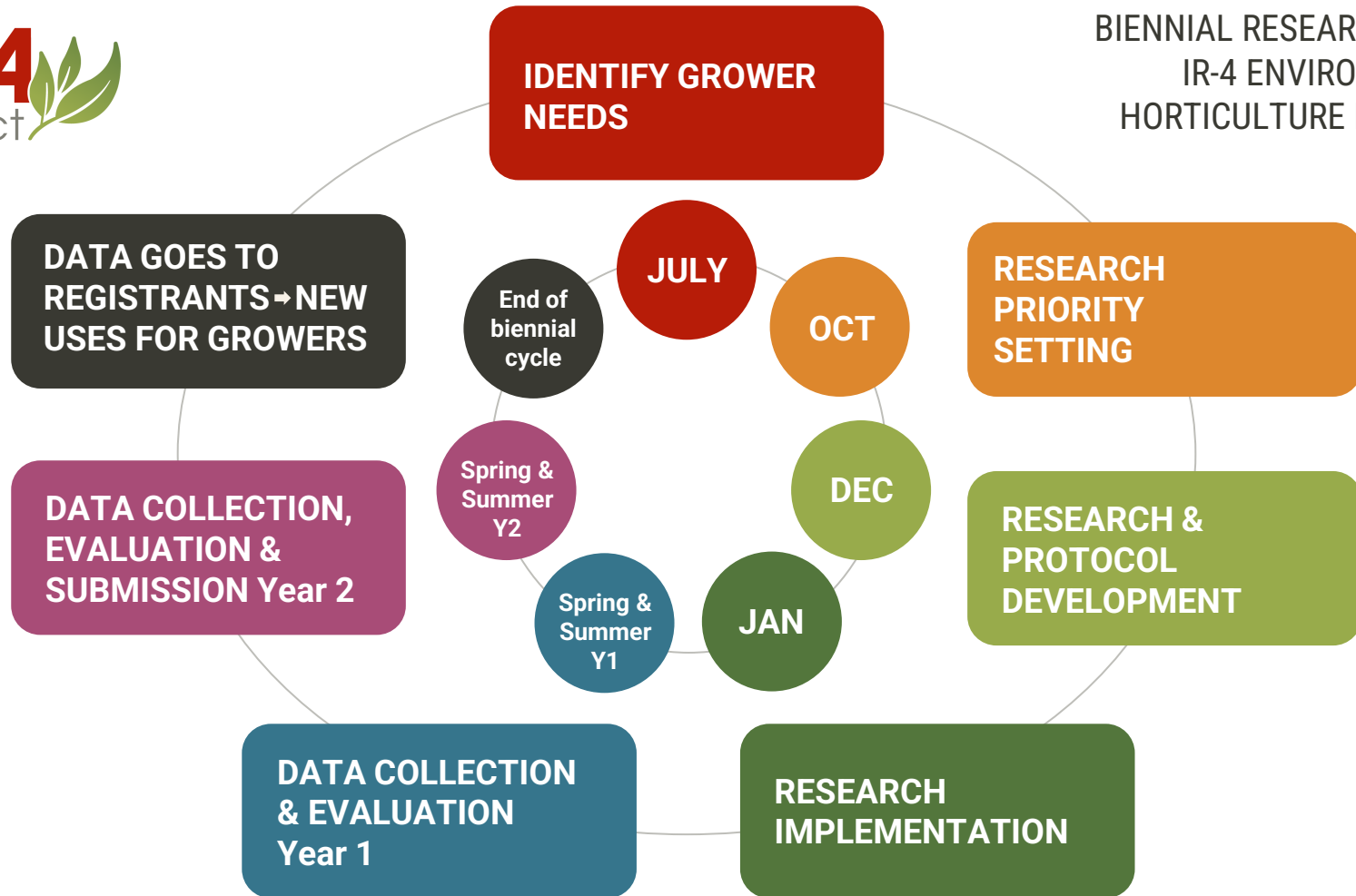
Registration Support Research

IR-4 coordinates national and regional research projects to develop efficacy and crop safety data so that new biological and chemical active ingredients can be registered and current products expanded for new uses.

- Identify grower needs through surveys and project requests
- Prioritize projects at biennial workshop
- Conduct research with key entomologists, horticulturists, plant pathologists and weed scientists throughout the US
- Communicate results by compiling trial data and posting summaries
- Track impacts of these research activities
- Network with growers, researchers, registrants and regulatory officials



Updated Biennial Research Cycle



BIENNIAL IR-4 ENVIRONMENTAL HORTICULTURE RESEARCH CYCLE

STEP	IDENTIFY GROWER NEEDS	RESEARCH PRIORITY SETTING	RESEARCH & PROTOCOL DEVELOPMENT	IMPLEMENT RESEARCH	DATA COLLECTION & EVALUATION— YEAR 1	DATA COLLECTION, EVALUATION & SUBMISSION— YEAR 2	DATA GOES TO REGISTRANTS >>> NEW USES FOR GROWERS
TIMING	July	October	December	January	Spring + Summer Year 1	Spring + Summer Year 2	End of biennial cycle
ACTIVITIES	Grower & Extension Survey (updated biennially) Project Request Form (year-round)	Environmental Horticulture Workshop (biennial) Stakeholder priority proposals & consensus	National Research Planning Meeting Drafting of protocols	Assign trials to researchers Field and lab work begins	Study evaluation Data transfer to IR-4 HQ Interim updates with registrants	Study evaluation Data transfer to IR-4 HQ HQ review of reports, start of summaries	Transmit data reports to registrant to update or create new labels Data summaries written

Research Summaries

The EH Program compiles and summarizes efficacy and crop safety data into Research Summaries by project

For crop safety, a project is defined as all the crops screened for phytotoxicity with a specific active ingredient / formulation

For efficacy, a project is defined as all the experiments related to screening activity against a type of pathogen, pest, or weed

Crop Safety

All Entomology Pathology Weed Science



Pendimethalin Crop Safety – 2024

Pendimethalin has been registered in the United States since 1994 for uses in and around environmental horticulture plants in production nurseries and in



S-Metolachlor Crop Safety – 2024

From 2004 to 2023, IR-4 completed 258 trials on Pennant Magnum (s-metolachlor). The data contained in this report was generated to register uses of



Flumioxazin Crop Safety – 2024

Flumioxazin has been registered in the United States since 2003 for uses in and around environmental horticulture plants in production nurseries and in landscapes. Between 2000 and 2023, the IR-4 Project has conducted 641 trials using three granular



Afidopyropen Crop Safety – 2024

Ventiga (afidopyropen) is an insecticide registered by BASF for the control of piercing and sucking insect pests such as aphids, whiteflies, psyllids, scales and leafhoppers.

Efficacy

All Entomology InvasiveSpecies Pathology PGR Weed Science



Nematode Efficacy – 2024

Nematodes are typically known for the damage they cause when feeding on or residing inside roots. However, they also can impact foliage. The host range of foliar and soil dwelling nematodes is wide affecting various environmental horticulture crops,



Bacterial Disease Efficacy – 2024

From 2008 to 2022, 83 products were tested through the IR-4 Environmental Horticulture Program as foliar or drench applications against bacterial pathogens. In addition to research collected through the IR-4 program, this summary includes



Mollusc Efficacy – 2024

Molluscs (slugs and snails) can cause significant feeding damage of environmental horticulture plants in production. Baits containing metaldehyde or iron phosphate are the primary means to manage molluscs. This project was initiated to examine the potential for active ingredients with less risky environmental



Fatty Acid Herbicide Efficacy – 2024

Fatty acid herbicides represent potential alternatives for managing glyphosate resistant weeds as well as an option for less environmental impacts for post emergent weed management. However, optimal use patterns have not been fully established. From 2020 to 2023, five different fatty



Budget vs. Projects

- Budget (generally) stays the same, but cost of research goes up
- Number of projects over the years (next slides) has steadily decreased because of this
- For the time being, we are seeking quality vs. quantity

2020/2021 Study Program

2020

- **26 Projects**
 - Entomology – 9 Protocols
 - Plant Pathology – 11 Protocols
 - Weed Science – 6 Protocols

2021

- **26 Projects**
 - Entomology – 10 Protocols
 - Plant Pathology – 11 Protocols
 - Weed Science – 5 Protocols

2022/2023 Study Program

2022

- **24 Projects**
 - Entomology – 9 Protocols
 - Plant Pathology – 10 Protocols
 - Weed Science – 5 Protocols

2023

- **26 Projects**
 - Entomology – 10 Protocols
 - Plant Pathology – 11 Protocols
 - Weed Science – 5 Protocols

2024/2025 Study Program

2024

- **20 Projects**
 - Entomology – 7 Protocols
 - Plant Pathology – 8 Protocols
 - Weed Science – 5 Protocols

2025

- **22 Projects**
 - Entomology – 8 Protocols
 - Plant Pathology – 9 Protocols
 - Weed Science – 5 Protocols

Outstanding Data

Trial Year	Data Type	Total	Ongoing	% Ongoing	Cancelled	% Cancelled	Complete	% Complete
2022	Efficacy*	336	65	19%	29	9%	242	72%
	Phytotoxicity	300	29	10%	30	10%	241	80%
2023	Efficacy*	355	97	27%	62	17%	189	53%
	Phytotoxicity	384	103	27%	31	8%	249	65%
2024	Efficacy*	247	138	56%	25	10%	84	34%
	Phytotoxicity	428	159	37%	34	8%	235	55%
2025	Efficacy*	160	160	100%		0%		0%
	Phytotoxicity	442	436	99%	6	1%		0%

* Working on number of efficacy studies; data presented is on PR numbers only

Pesticide Type per Year

Chemical Group	Algaecides		Bactericides				Fungicides				Herbicides			
Trial Year	2022	2023	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025
# of Trials	9	17	16	3	8	4	169	254	203	180	304	262	234	209
Chemical Group	Insecticides				Miticides			Nematicides						
Trial Year	2022	2023	2024	2025	2023	2024	2025	2023	2024	2025				
# of Trials	130	183	190	185	13	21	23	6	16	1				

Updated Environmental Horticulture Program One Pager

The IR-4 Project's Environmental Horticulture (EH) Program facilitates regulatory approval of sustainable pest management products for ornamental crops. EH research helps green industry growers cultivate a diverse selection of healthy plants for landscapes, homes and gardens—a service to growers, the environment, the economy, and public well-being.

The EH program is divided into two key areas:

REGISTRATION SUPPORT

EH coordinates research to gather data on bio-based and chemical crop protection products. Research priorities are identified every two years based on the needs of growers, Extension personnel and industry professionals. This is the core focus of the EH Program.

Outcomes

- More than 57,000 horticulture crop uses registered using IR-4 data
- More sustainable crop management tools for greenhouse and nursery growers

INVASIVE SPECIES

IR-4 investigates mitigation strategies and helps to increase knowledge of invasive pathogens and pests. For example, the EH Program has explored pest management solutions for boxwoods and other important nursery crops.

Outcomes

- Improved management strategies and diagnostic tools
- Better understanding of pathogen infection and pest development



ECONOMIC IMPACTS*

9,700 total jobs supported (directly and indirectly)

\$725.5 million
contributed to the
annual GDP

Annual crop losses mitigated valued at \$506 million

RESEARCH CYCLE

The Environmental Horticulture Program operates on a biennial research cycle, with the Environmental Horticulture Workshop (priority-setting meeting) occurring every other Fall.



CONNECT WITH THE EH PROGRAM

Do you have an ornamental pest problem (or potential solution) in mind?
Connect with IR-4 to voice your needs and get involved in our research.



Program Contact

Josh Kindel
Environmental Horticulture Program Manager
(919) 515-3771 (office)
jtkindel@ncsu.edu
ir4project.org

Visit our **Grower Needs page** to submit a Project Request or Grower Survey.

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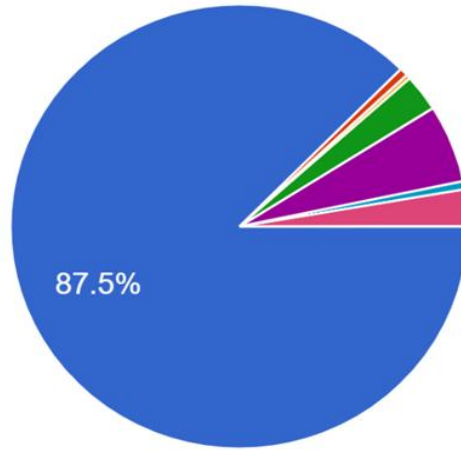
Workshop Overview and the Prioritization Process

**Josh Kindel, IR-4 Environmental
Horticulture Program Manager**

2025 Grower & Extension Survey

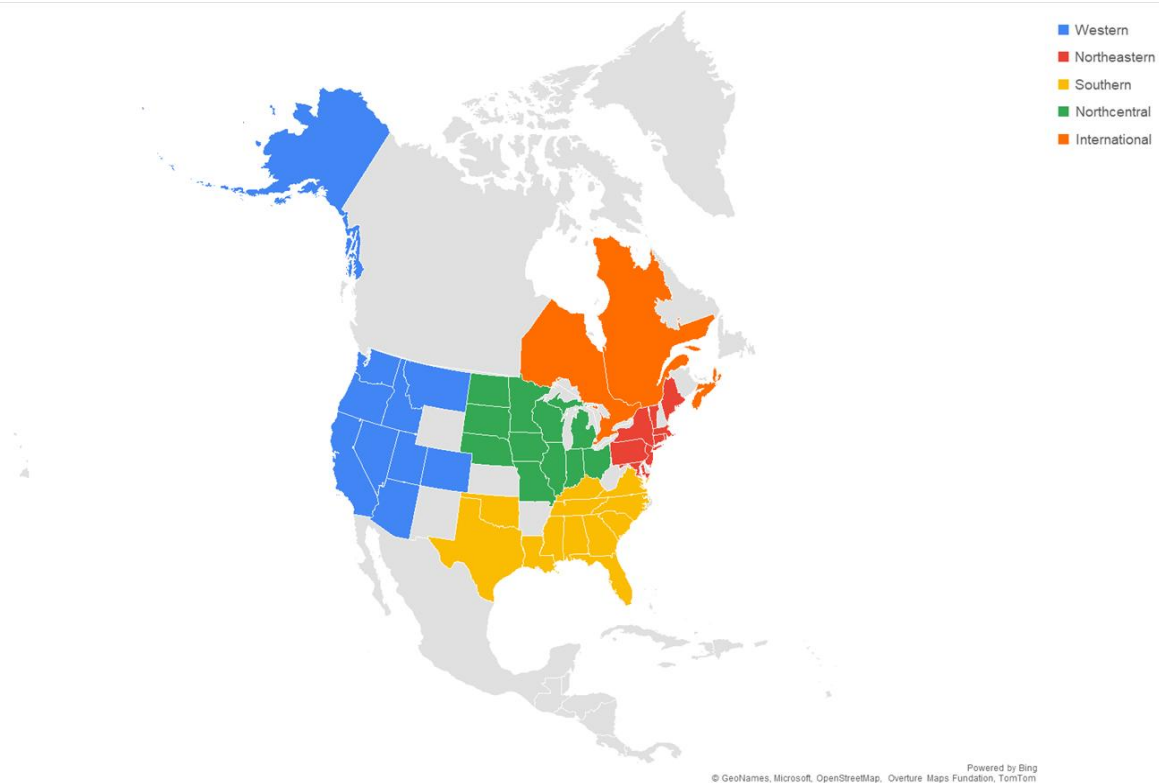
Please check one affiliation:

335 responses



- Grower (greenhouse and/or nursery)
- Landscape care professional
- Interiorscaper
- University or USDA-ARS researcher
- Cooperative Extension
- Federal, state or local government
- Allied industry member

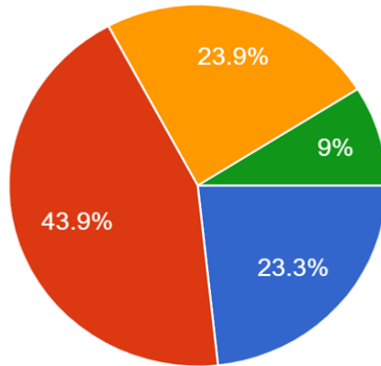
2025 Grower & Extension Survey



2025 Grower & Extension Survey

Select the pest management area you had difficulty managing in the last year (or select move to the next section)

335 responses



- Diseases (Including bacteria, fungi, nematodes)
- Insects and/or mites with few to no available tools
- Weeds with few to no available tools
- I do not have any difficult diseases, pests or weeds to report and want to proceed to the next section

2025 Grower & Extension Survey

Survey Respondents by Region

Region	Count	Percent
International	7	2%
Northcentral	78	23%
Northeastern	80	24%
Southern	108	32%
Western	62	19%
Grand Total	335	100%

Survey Respondent Affiliation

Segment	Count	Percent
Extension	19	5.7%
Government	2	0.6%
Grower	293	87.5%
Industry	9	2.7%
LCP/Interiorscape	3	0.9%
University or USDA-ARS researcher	9	2.7%

2025 Grower & Extension Survey

Respondents by Operation

Operation	Responses
Greenhouse	200
Nursery - Field Grown	155
Nursery - Container	128
Landscape	62
Christmas Tree Farm	51
Garden Center	36
Public Garden	23
Interiorscape	16
Sod Farm	6

Respondent's Pest Management Strategies

Management Strategy	Responses
Biological Control	188
Chemical Control	168
IPM	205
Organic	116
Standard weekly/monthly program	110
Spray program based on thresholds	139

2025 Grower & Extension Survey

Respondent Crop Category

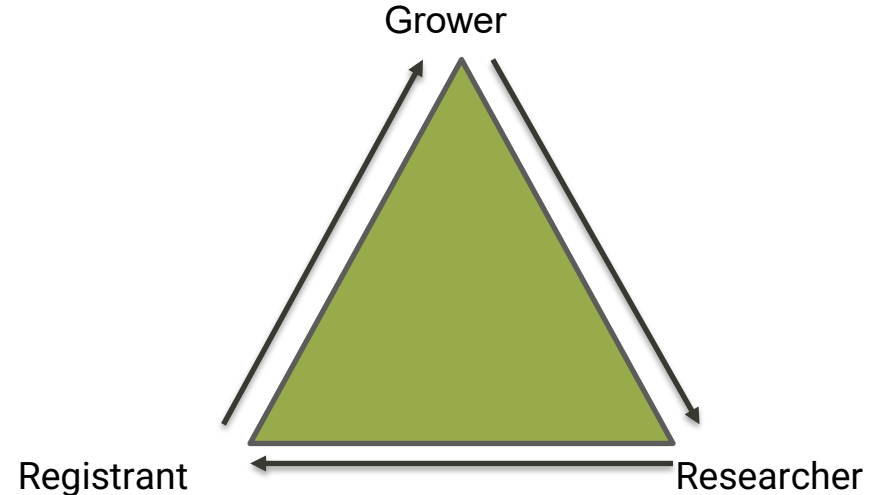
Crop Category	Responses
Cut Flowers	196
Herbaceous Perennials	175
Shrubs	157
Foliage Plants	145
Ornamental Grasses	141
Trees	121
Bedding Plants	101
Christmas Trees	59
Seasonal Potted Plants	52
Palms	27
Turf	19

Type of Data Requested

Data Type	Responses	Percent
Crop safety is needed more than efficacy	28	10%
Efficacy is needed more than crop safety	69	24%
Crop safety and efficacy needed equally	194	67%
Total responses	291	100%

Workshop Changes

- Elimination of sticker caucus for priority selection
- Instead, pre-workshop meetings were held leading up to the workshop
 - Three national prep meetings
 - One prep meeting per discipline
 - One prep meeting per region
- Start of the transition to utilizing Research Requests to identify solutions to Grower's Survey



Prioritization Process

Weighted rankings:

- Survey respondents are asked their top 3 pest problems per discipline
- Pest #1 assigned a ranking of 3; pest #2 assigned a ranking of 2 and pest #3 assigned a ranking of 1
- Totals gives final weighted ranking

2025 Grower & Extension Survey

Weighted Ranking of Insects/Mites

Insect/Mite	Weighted Ranking
Thrips	192
Mites & Spider Mites	117
Scale & Mealybugs	115
Scarabs	87
Aphids	84
Hemiptera	41
Flea beetle / RHFB	41
Diabrotica	36
Leafhopper	29
Lepidopterans	21

Weighted Ranking of Pathogens

Pathogen	Weighted Ranking
Powdery Mildew	93
Fusarium	65
Botrytis	54
Bacterial Diseases	54
Phytophthora	49
Cercospora Leaf Spot	30
Fireblight	23
Aster Yellows	22
Nematodes	21
Pythium	16

2025 Grower & Extension Survey

Weighted Ranking of Weeds

Weed	Weighted Ranking
Ragweed*	67
Runner / Vine weeds	67
Grasses	56
Summer annual weeds	53
Thistle	51
Nutsedge & Sedges	48
Horseweed* / Maretail*	46
Summer Annual Grasses	40
Lambsquarters*	39
Rhizomatous / Stoloniferous grass	25

*Indicates specific mention of resistance found

Top Insect / Mite Issues by Crop Category (with Count of Times Mentioned in the Survey)

Cut Flowers (191)	Shrubs (95)	Bedding Plants (63)	Herbaceous perennials (63)	Foliage Plants (61)
Thrips (49)	Mites & Spider Mites (17)	Thrips (20)	Thrips (12)	Mites & Spider Mites (12)
Scarabs (31)	Flea Beetle / RHFB (15)	Mites & Spider Mites (16)	Mites & Spider Mites (11)	Scale & Mealybugs (11)
Aphids (23)	Thrips (11)		Scarabs (9)	Thrips (11)
Hemiptera (20)	Scale & Mealybugs (10)		Flea Beetle / RHFB (7)	Scarabs (5)
Diabrotica (15)	Scarabs (9)		Scale & Mealybugs (6)	Aphids (5)

Trees (48)	Seasonal Potted Plants (37)	Christmas Trees (30)	Ornamental Grasses (14)
Scale & Mealybugs (13)	Thrips (12)	Scale & Mealybugs (14)	Mites & Spider Mites (4)
Mites & Spider Mites (10)	Mites & Spider Mites (11)	Aphids (8)	Thrips (4)
	Scale & Mealybugs (5)	Mites & Spider Mites (5)	

Top Pathogen Issues by Crop Category (with Count of Times Mentioned in the Survey)

Cut Flowers (120)	Shrubs (55)	Trees (50)	Herbaceous perennials (47)	Bedding Plants (33)
Powdery Mildew (29)	Phytophthora (11)	Bacterial Diseases (6)	Powdery Mildew (11)	Bacterial Diseases (8)
Botrytis (20)	Cercospora Leaf Spot (6)	Fireblight (6)	Bacterial Diseases (6)	Powdery Mildew (6)
Fusarium (18)	Nematodes (4)	Phytophthora (4)	Phytophthora (5)	Pythium / Phytophthora (4)
Aster Yellows (7)	Powdery Mildew (4)			Botrytis (3)
	Bacterial Diseases (4)			

Foliage Plants (33)	Seasonal Potted Plants (22)	Ornamental Grasses (10)	Christmas Trees (7)
Bacterial Diseases (7)	Bacterial Diseases (8)	Pythium / Phytophthora (3)	Phytophthora (7)
Powdery Mildew (4)	Pythium / Phytophthora (3)		
Pythium / Phytophthora (3)	Fusarium (3)		
Botrytis (3)			

Top Weed Issues by Crop Category (with Count of Times Mentioned in the Survey)

Cut Flowers (140)	Christmas Trees (81)	Herbaceous Perennials (67)	Shrubs (52)	Trees (52)
Runner / Vine Weeds (26)	Ragweed* (23)	Summer Annual Grasses (8)	Nutsedge & Sedges (7)	Marestail* (10)
Thistle (16)	Lambsquarters* (14)	Summer Annual Weeds (7)	Summer Annual Weeds (7)	Nutsedge & Sedges (9)
Summer Annual Weeds (15)	Marestail* (14)	Liverwort (7)	Thistle (6)	Summer Annual Weeds (5)
Grasses (14)	Palmer amaranth (6)	Runner/Vine Weeds (5)	Marestail* (5)	Grasses (4)
Summer Annual Grasses (13)		Thistle (5)	Lambsquarters* (4)	Ragweed* (3)

Foliage Plants (39)	Ornamental Grasses (23)	Bedding Plants (21)	Shrubs (15)
Runner / Vine Weeds (6)	Summer Annual Weeds (10)	Marestail* (3)	Runner / Vine Weeds (3)
Marestail* (4)	Grasses (2)	Summer Annual Weeds (3)	Grasses (2)
Summer Annual Weeds (4)	Liverwort (2)	Thistle (3)	Summer Annual Grasses (2)
Summer Annual Grasses (4)	Marestail* (2)	Liverwort (3)	Thistle (2)

*Indicates specific mention of resistance found



Weighted Ranking of Pathogens by Region

Region	Pathogen	Weighted Ranking
Southern	Phytophthora	33
	Bacterial Diseases	16
	Powdery Mildew	13
	Nematodes	12
	Fusarium	10
Northcentral	Powdery Mildew	26
	Aster Yellows	22
	Botrytis	19
	Bacterial Diseases	13
	Fusarium	12
	Cercospora Leaf Spot	10
Northeastern	Powdery Mildew	35
	Fusarium	19
	Bacterial Diseases	18
	Botrytis	16
	Downy mildew	10
Western	Powdery Mildew	19
	Fusarium	18
	Botrytis	11
	Fireblight	8
	Bacterial Diseases	7



Weighted Ranking of Insects/Mites by Region

Region	Insect/Mite	Weighted Ranking
Southern	Scale & Mealybugs	78
	Thrips	51
	Mites & Spider Mites	31
	Scarabs	29
	Aphids	18
	Flea beetle / RHFB	17
Northcentral	Thrips	44
	Mites & Spider Mites	35
	Scarabs	24
	Diabrotica	19
	Aphids	19
Northeastern	Thrips	53
	Scarabs	27
	Mites & Spider Mites	23
	Scale & Mealybugs	20
	Aphids	19
Western	Thrips	41
	Mites & Spider Mites	28
	Aphids	25
	Diabrotica	11
	Root Aphid	9



Weighted Ranking of Weeds by Region

Region	Weed	Weighted Ranking
Southern	Ragweed*	63
	Lambsquarters*	33
	Horseweed* / Marestail*	30
	Runner / Vine weeds	19
	Rhizomatous / Stoloniferous grass	19
Northcentral	Grasses	23
	Summer annual weeds	20
	Nutsedge & Sedges	18
	Summer Annual Grasses	16
	Thistle	11
Northeastern	Runner / Vine weeds	21
	Thistle	16
	Summer annual weeds	14
	Liverwort	11
	Grasses	9
Western	Thistle	22
	Runner / Vine weeds	19
	Grasses	12
	Mugwort / Alligator weed /	9
	Horsenettle	
	Nutsedge & Sedges	8

Research Selection Portal

- Research Selection Portal Open Nov 1 to Nov 30
- IR-4 HQ and RFCs develop research plan in Dec
- Researchers contacted about 2026 experiments in January



Researcher Resources

This page contains information and links for researchers interested in participating in IR-4's EHC Program research projects. The [Research Selection Portal](#) is where researchers can enter potential crop safety trials and efficacy research projects. The [Protocol Search](#) pulls current and historical protocols. We've added a list of [Equipment Suppliers](#) who provide smaller versions of commercial application equipment for research purposes. The section on [Research Reports](#) provides a report template, instructions, and examples of completed reports. We've also included guidance on how to [Acknowledge](#) funding through the IR-4 Project and pointed to our Outreach page for promotional materials.

Research Selection Portal

Enter your email and Password

Email/User ID

Password

[First time user click here to create user login](#)

[Forgot Password](#)



BREAK /
QUESTIONS



TECHNOLOGY SESSION

Weed Science

Session Hosts: Joe Neal and Josh Kindel

Agenda

Dr. JC Chong
Technical Development Manager
SePRO

- SP1190 and StriCore

SP1190 and StriCore



Add a footer



Background of SP1190

- A new active ingredient (WSSA 12)
- Formulation: SC
- Use site - ornamentals:
 - Nurseries (field and containerized)
 - Landscapes
 - Christmas trees
 - Conifer plantations
- Target:
 - Annual grasses
 - Small-seeded broadleaves
- Application:
 - Method: Directed spray
 - Rate: 10-32 fl oz/acre
- Expected product launch: Fall 2027

IR-4 research on SP1190 (2023-2025) – Thank you!

- Crop safety on pollinator plants
 - Cosmos, dahlia, peony, zinnia
- Crop safety – directed application
 - Catalpa, coffeetree (*Gymnocladus*), elm, hackberry, honey locust, hydrangea, Japanese barberry, linden, Norway maple, oak, *Prunus*, red maple, rose, serviceberry, sugar maple, tulip tree, winterberry
 - Asiatic lily, goldenrod
- Efficacy
 - Horsetail

Background of StriCore (previously SP7105)

- Pethoxamid (WSSA 15)
- Formulation: EC
- Product launched: Summer 2024
- Use site - ornamentals:
 - Nurseries (field and containerized)
 - Landscapes
- Target:
 - Annual grasses
 - Small-seeded broadleaves
 - Sedges
- Application:
 - Method: Directed spray
 - Rate: 16-48 fl oz/acre

IR-4 research on StriCore (2023-2025) – Thank you!

- Efficacy
 - Horsetail

Herbicide research assistance requests

- Crop safety
 - SP1190 & StriCore: Directed application to field and containerized ornamentals
 - StriCore: Over-the-top to containerized and field ornamentals
- Efficacy
 - SP1190: PRE on annual grasses and broadleaves
 - StriCore: PRE on annual grasses, broadleaves, and sedges



PROJECT PROPOSALS

Weed Science

Session Hosts: Joe Neal and Josh Kindel

IR-4 priority setting workshop

Weed Science

October 2025, J. Neal

Grower survey 'needs' – top weed responses

#	Weed	Weighted Ranking	Crop setting
1	Runner / Vine weeds (mile-a-minute, buttercup, ground ivy, bindweed, etc)	67	Cut flowers & a few others
2	Ragweed* (herbicide resistant)	67	Christmas trees
3	Grasses	56	Cut flowers
4	Thistles	51	Cut flowers primarily (Clopyralid labeled in the UK for peony)
5	Nutsedge & Sedges	48	All crops, nursery, Christmas trees, peonies, dahlias, cut flowers
6	Summer annual weeds (Velvetleaf, Spurges, Purslane)	47	Cut flowers
7	Horseweed* / Maretail* (herbicide resistant)	46	Christmas trees, Field nursery,
8	Summer Annual Grasses (crabgrass/foxtail/japanese stiltgrass)	40	
9	Lambsquarters* (herbicide resistant)	39	Christmas trees & cut flowers
10	Rhizomatous / Stoloniferous grass (bermudagrass, johnsongrass, “pasture grasses”, etc)	25	Landscapes, perennial beds and cut flowers
11	Mugwort / Alligator weed / Horsenettle / Nightshades	23	Cut flowers, a few others
12	Liverwort	21	Herbaceous perennials, foliage plants
13	Palmer amaranth/pigweed/waterhemp	20	Cut flowers, Christmas trees (resist.)
14	Bittercress	13	Cont. nurseries, herbaceous orn.
15	Perennials	9	Cut flowers
16	Horsetail	8	Christmas trees, cut flowers, wodies

Top 12 crop species needing herbicide safety data – Grower survey results

Species	# Phyto needs	Labeled options	Needed / Solutions?
Dahlias	49	Devrinol, Fortress, Gallery, Pendulum, Snapshot, Envoy, Segment	Brdlf control: Gallery, SP1190, Nutsedge control (pre / post)
Ranunculus	21	None current (Surflan)	Are these field grown?
Peonies	17	Barricade, Freehand, Gemini, Pendulum, (data for others available)	Gallery, Tower, Sureguard ? Perennial weed control: bindweed, thistle, nutsedge
Lisianthus	16	Fortress, Gallery, Snapshot	? Barricade, pendulum,
Zinnias	15	Transplanted... many. Direct-seeded – few	Direct seeded
Snapdragons	14	Dimension, Oxadiazon, Pendulum, Pennant M, Snapshot, Treflan,	Barricade, Tower / Freehand?
Hydrangeas	14	Macrophylla well researched. Most herbicides injure. BUT remove from the foliage for minimal injury	Other species – arborescens, paniculata, quercifolia
Roses	13	LOTS	? Education?
Christmas trees	10	LOTS	Horsenettle, vines, herb. resist. weeds
Fraser fir	9	LOTS	Herb. resistant weeds – ragweed, lambsquarters, horseweed;
Gerbera	3	No PRE herbicides, only sethoxydim	?? Do they need herbicides ??
Asters	3	Lots – Barricade, pendulum, Fortress, Gallery, Gemini Snapshot, Pennant Magnum, etc.	? Nutsedge maybe? POST?

Cut flowers

General weed control

- Summer annual grasses (x28)**
- Summer annual brdlvs (x24)**
(including ragweed, pigweed, etc)
- Perennial grass control (x9) **

** many species already have labels.
Educational opportunity???

Research opportunity – many cut flower crops have no or few registrations. Focus on that?

Specific weed targets

- Thistle (x15)
- Nutsedge (x 10)
- Bindweed in peony (x 9)
- Horsetail (x3)

TBD: specific crop / weed combinations?

- Bindweed, thistle and nutsedge in peony?
- Dahlia – nutsedge.
- What other crops are long-term enough to have these perennial weeds?

Christmas trees

Southern growers

- Ragweed x 20
- Lambsquarters x 14
- Horseweed x 13
- Pigweeds x 4
- Grasses (ann / perennial) x 3
- Vining weeds (mile-a-minute, other) x 4
- Nutsedge x 1

Other regions

- Thistle
- Cottonwood (hardwood saplings)
- Wild carrot
- Bedstraw
- Mugwort / Horsenettle / Nightshades
- Milkweed
- Swallowwort
- Grasses
- Blackberries
- Horseweed* / Maretail*
- Poison Ivy
- Horsetail
- Nutsedge & Sedges

Herbaceous perennials*

General weed control

- Summer annuals (including pigweeds)
- Bittercress
- Grasses – annual and perennial

Specific weed targets

- Liverwort
- Thistles (Canada thistle)
- Nutsedge
- Quackgrass
- Johsongrass
- *Rorippa sylvestris* (1x)

*Some overlap with cut flowers

Trees and Shrubs

General weed control

- Nutsedge control
- Thistle
- Mugwort / horsenettle / etc
- Summer annuals
- Glyphosate resistant ragweed, horseweed, lambsquarters

Specific weed targets

- Horsetail (Equisetum) (x4)
- Woody weeds (brambles, cottonweed, etc. (x3)
- Swallowwort (x2)
- Liverwort (x3)

Cut flower species with few or no PRE herbicide registrations:

Genus	Common name	# herbicide ai labeled	Direct-seeded cropping?	In the IR4 database?
Alcea	Hollyhock	0		No reports
Amaranthus	Love-Lies-bleeding	0		No reports
Bupleurum	Bupleurum or hare's ear	0	Y	No reports (not in the IR4 database)
Consolida	Larkspur	0		No reports (not in the IR4 database)
Eryngium	Sea holly	0		<i>E. planum</i> . Senesac: no injury from Dimension, Prodiamine, Clethodim. 20080627z.pdf , 20080627y.pdf , 20120727o.pdf , see table 4.10
Gerbera	Gerbera Daisy	0		Pend. 2G. safe, several reports. PR 24701 Metol. – injury in several reports Snapshot – safe or little phyto, several reports 24791
Goniolimon	Statice, German	0		1 report each: pendulum DG & prod. No injury 19730109g.pdf , 19990102j.pdf
Molucella	Bells of Ireland	0		No reports
Nigella	Love-in-a-Mist	0		No reports , see table 4.10
Ranunculus	Ranunculus	0		No reports

PR requests and justifications

Product	Site(s)	Grower survey 'need' to be addressed
Zalo (glufosinate + quizalofop premix)	Field grown deciduous trees (directed) maples, others Christmas trees (dormant only)	One request in grower survey. Improved control of clethodim resistant ryegrass (likely glyphosate resistant as well), and Poa annua
Quelex (halauxifen + florasulam)	Christmas trees. Directed application, in season Wild carrot control.	2 mentions in grower survey.
Ammoniated soap, caprylic acid, halosulfuron, SP1190, SP7105	Christmas trees, nursery	4 mentions in survey. Subject of 2025 N. Central regional project
Frequency (topramezone)	Christmas trees	Horsenettle control

PR requests and justifications, cont.

Product	Site(s)	Grower survey 'need' to be addressed
TBD	Hydrangea production – H. arborescens, panniculata, quercifolia	7 th most requested species for crop safety in grower survey.
Rimsulfuron	Peony cut flower production	#1 runner weeds in cut flowers (prelim data available)
Strongarm**	Fraser fir Christmas trees	#2 & #7 glyphosate resistant weeds. (3 years of prelim data available)
Callisto (mesotrione)	Fraser fir Christmas trees	#9 glyphosate lambsquarters (prelim data avail)

**A bit better on Ragweed than FirstRate, otherwise very similar. FirstRate tests were completed but company decided not to label.

PR request: Zalo for ryegrass control in Christmas trees & nurseries

Product	Site(s)	Grower survey 'need' to be addressed
Zalo (glufosinate + quizalofop premix)	Field grown deciduous trees (directed) maples, others Christmas trees (dormant only)	One request in grower survey. Improved control of clethodim resistant ryegrass (likely glyphosate resistant as well), and Poa annua

- Limited number of POST herbicides labeled in Christmas trees
- Herbicide resistance in Italian ryegrass and annual bluegrass
- Labeled products: fluazifop, sethoxydim, clethodim, glufosinate, glyphosate, Kerb?

Glufosinate on Fraser fir

Pre-budbreak



POST-
budbreak



PR request: Quelex for wild carrot control in Christmas trees

Product	Site(s)	Grower survey 'need' to be addressed
Quelex (halauxifen + florasulam)	Christmas trees. Directed application, in season Wild carrot control.	2 mentions in grower survey.

- Limited number of POST herbicides labeled in Christmas trees that can control
- wild carrot & cat's ear.
- Documented wild carrot resistance to flazasulfuron in Oregon,
- Additional modes of action (halauxifen-benzyl) can help manage the resistance.

PR request: Equisetum control in Christmas trees & nurseries

Product	Site(s)	Grower survey 'need' to be addressed
Ammoniated soap, caprylic acid, halosulfuron, SP1190, SP7105	Christmas trees, nursery	4 mentions in survey. Subject of 2025 N. Central regional project

- Limited options in conifers
- Prelim data (Saha) 2025 north central regional project. Repeat?
- Senesac 2020 fatty acid report. Fireworx ineffective. Suppress better, regrowth occurred.
- Sedgehammer labeled
- Other options? Asulox?

PR request: Horsenettle suppression in Christmas trees

Product	Site(s)	Grower survey 'need' to be addressed
Frequency (topramezone)	Christmas trees (what about other sites?)	Horsenettle control Efficacy data needed. Already labeled for the site.

- Horsenettle not well controlled by current herbicides
- Triclopyr most effective. But not safe on conifers in-season
- Prelim data from Perennial Broadleaf Protocol – 80% control with topramezone
- Field data suggests safety to Fraser fir and other conifers as a directed spray in-season

PR request: PRE herbicides for Hydrangea production – species other than macrophylla

Product	Site(s)	Grower survey 'need' to be addressed
TBD	Hydrangea production – H. arborescens, panniculata, quercifolia	7 th most requested species for crop safety in grower survey.

- Most registrations and data are for H. macrophylla.
- Limited data on arborescens, panniculata, quercifolia
- Currently labeled: Pennant Magnum and Tower (*Hydrangea* spp.)
- Increased interest and sales of in arborescens hybrids and quercifolia (native).
- Prelim data (Witcher). Some data on panniculata and quercifolia (Freehand, Ronstar, Snapshot were safe)

What's labeled?

<i>Scientific Name</i>	Common name	Barricade	Biathlon	Broadstar	Devrinol	Dimension	Freehand	Fortress	Fuerte	Gallery	Gemini	Goal	Marengo/Specticle G	Marengo/Specticle SC	OH2	Pendulum (EC)	Pendulum (granule)	Pennant Magnum	Princep	Regalkade	Regal OO	Ronstar G	Rout	Snapshot TG	Surflan	Sureguard	Tower	Treflan
Hydrangea spp.	hydrangea		Ø*	Ø						Ø	Ø							F			f/c			Ø		Ø	f/c	
Hydrangea arborescens	hydrangea, smoot		Ø	Ø						Ø	Ø				Ø*			F			f/c			Ø*	Ø		Ø	f/c
Hydrangea macrophylla	hydrangea, bigleaf	f/c	Ø	Ø			f/c			Ø	Ø		Ø*	Ø*	f/c*		f/c	F		f/c					Ø	f/c		f/c
Hydrangea paniculata	hydrangea,		Ø	Ø						Ø	Ø							F			f/c			Ø*	Ø		Ø	f/c
Hydrangea quercifolia	hydrangea, oak-leaf		Ø	Ø						Ø	Ø							F			f/c				Ø	f/c		f/c

PR request: rimsulfuron for hedge bindweed control in peony cut flower production



Product	Site(s)	Grower survey 'need' to be addressed
Rimsulfuron	Peony cut flower production	#1 - runner weeds in cut flowers (prelim data available – efficacy and safety)
** also consider clopyralid **halosulfuron	Peony cut flower production	Hedge bindweed suppression -- labeled in the UK, efficacy data in IR4 Nutsedge in peony also mentioned in the survey by the same growers.

- Peony plantings maintained for 10 to 20 years ☐ perennial weeds
- Bindweed twines around stems – hand labor to remove before harvest.
- Late season, shielded 2,4-D & glyphosate have not provided adequate control.
- Container screening trials: effective suppression and no significant injury to vegetative plants (over the top). Need data on flowering plants (on-farm).
- ? Field bindweed ?

PR request: glyphosate resistant weed control in Christmas trees (+maintenance of clover ground cover)

Product(s)	Site(s)	Grower survey 'need' to be addressed
Diclosulam (Strongarm)	Fraser fir Christmas trees	#2 & #7 glyphosate resistant weeds. (3 years of prelim data available)
Mesotrione (Callisto, others)	Fraser fir Christmas trees	#9 glyphosate resistant lambsquarters. (prelim data available)

- Over 30,000 acres in NC affected, more in VA, TN
- Current alternatives: weed-eat, spot treat with 2,4-D (shielded) – by hand.
- Likely used as a tank mix.
- Early POST – directed and over the top.
- Minor discoloration was temporary, and growers accepted.
- Other species? Some applications to canaan, nordman by growers. no injury reported

What protocols do you want ?

Product(s)	Crop / Need	National / Regional	Comments?

LUNCH BREAK



TECHNOLOGY SESSION

Plant Pathology

Session Hosts: Mary Hausbeck and Josh Kindel

Agenda

Dr. JC Chong, Technical Development Manager, SePRO

- SP2487

Julie Graesch, Technical Services Manager, BioWorks

- BW165E WP

Dr. Juliana Baggio, R&D Scientist, Syngenta

- Tymirium Technology

SP2487



Add a footer



Background of SP2487

- FRAC 3
- Formulation: SC
- Expected product launch: Spring 2026
- Use site - ornamentals:
 - Nurseries (field and containerized)
 - Greenhouses and shadehouses
 - Interior and outdoor landscapes
 - Christmas trees
 - Conifer plantations
 - Greenhouse cucumber & tomato

Background of SP2487

- Labeled targets:

- *Alternaria*
- *Botrytis*
- *Exserohilum*
- *Gymnosporangium*
- *Helminthosporium*
- *Myrothecium*
- *Puccinia*
- *Venturia*
- Powdery mildew (*Erysiphe*, *Oidium*, *Podosphaera*, *Sphaerotheca*)

- Labeled targets:

- *Berkeleyomyces* (*Thielaviopsis*)
- *Cylindrocladium*
- *Fusarium*
- *Rhizoctonia*

- Application:

- Foliar spray: 2-8 fl oz/100 gal
- Drench: 2-16 fl oz/100 gal
- Cutting soak: 12-16 fl oz/100 gal

IR-4 research on SP2487

- Previously conducted by IR-4 EH Program:
 - Boxwood blight – 1 study
- Fungicide research assistance request:
 - Efficacy
 - Additional foliar and soil-borne fungal diseases identified as priorities by this workshop
 - Crop safety
 - Current master label does not list any sensitive plant taxa
 - Spray and drench safety for major containerized crops

2026 IR4 DISEASE TARGETS

BW165E WP



Julie Graesch
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BW165E – BOTRYSTOP WP

Based on the fungus, *Ulocladium oudemansii* Strain U3

- Preventative biofungicide for management of:
 - *Botrytis cinerea*
 - *B. squamosa*
 - *Xanthomonas*
 - *Monilinia* spp.
 - *Sclerotinia* spp.
 - *Erwinia* spp.
- Use in organic and conventional production
- Indoor and outdoor crops



ABOVE AND BEYOND IS WHERE WE BEGIN



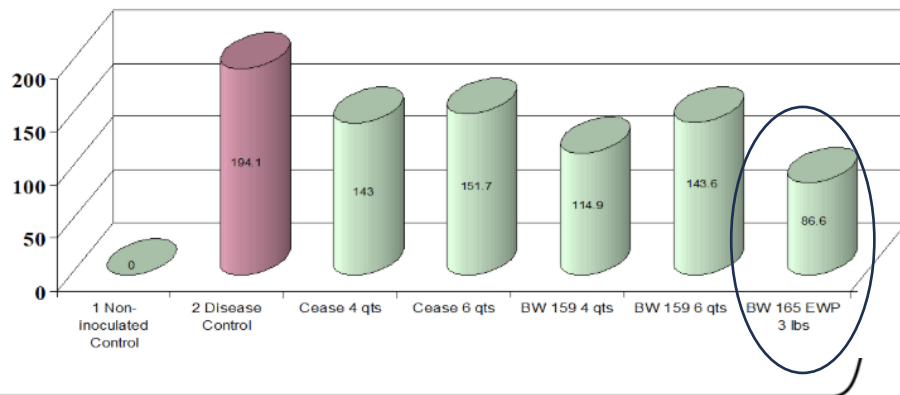
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DIVISION OF BIOFIRST GROUP

EFFICACY/ACTIVITY BW165E FOR CONTROL OF XANTHOMONAS & PSEUDOMONAS ON GERANIUM & IMPATIENS

Trials by D.J. Norman, Associate Professor Plant Pathology, IFAS, University of Florida, MREC-Apopka

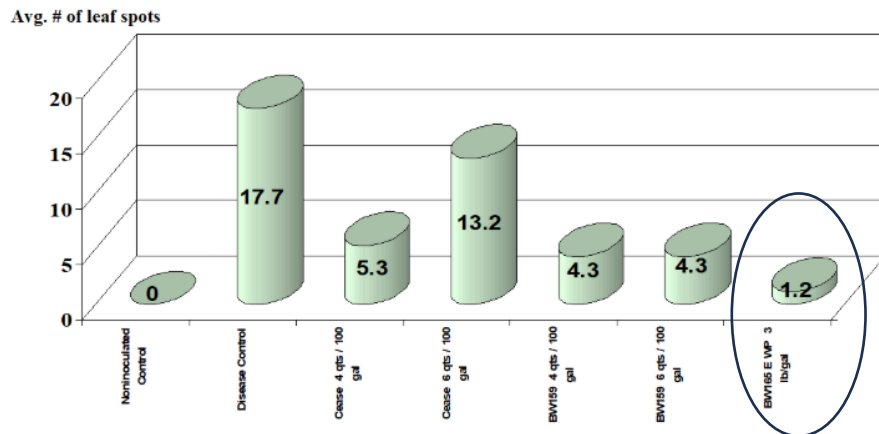
Xanthomonas on Geranium

Figure 1: Average number of leaf spot per plant within each treatment.



Pseudomonas on Impatiens

Figure 1; Average number of leaf spots per plant 05/10/22, 12 days after inoculation, 7 days after last product application.



BW165E WP

CURRENT KNOWLEDGE & DATA GAPS

IR4 Survey Targets	Known Activity	Efficacy Gaps/Data Needs
Botrytis	Yes	N/A
Bacterial diseases	<i>Xanthomonas</i> , <i>Pseudomonas</i>	N/A
Fire blight	Data needed	Indoor/Outdoor efficacy
Leaf Spot	Data needed	Indoor/Outdoor efficacy
Anthrachnose	Data needed	Indoor/Outdoor efficacy
Black Spot	Data needed	Indoor/Outdoor efficacy
Rust	Data needed	Indoor/Outdoor efficacy
Boxwood blight	Data needed	Indoor/Outdoor efficacy

ABOVE AND BEYOND IS WHERE WE BEGIN



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THANK YOU!



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PROJECT PROPOSALS

Plant Pathology

Session Hosts: Mary Hausbeck and Josh Kindel



BREAK /
QUESTIONS



TECHNOLOGY SESSION

Entomology

Session Host: Josh Kindel

Agenda

Dr. JC Chong, Technical Development Manager, SePRO

- SP3301

Julie Graesch, Technical Services Manager, BioWorks

- EI00WP-2 (Principle WP)
- NI02ES-1 (EpiShield)

Dr. Jon Hamill, Product Biology Lead, Syngenta

- Plinazolin Technology

SP3301



Add a footer



Background of SP3301

- IRAC 6 + 20
- Formulation: SC
- Expected product launch: Spring 2026
- Use site - ornamentals:
 - Nurseries (field and containerized)
 - Greenhouses and shadehouses
 - Interior and outdoor landscapes
 - Christmas trees
 - Conifer plantations

Background of SP3301

- Labeled targets:
 - Spider mites
 - Tarsonemid mites (broad and cyclamen)
 - Eriophyid mites (rust and bud)
 - Clover mite
 - Boxwood leafminer
 - Serpentine leafminers
 - Aphids
 - Whiteflies
 - Thrips
- Application:
 - Foliar spray: 3-6 fl oz/100 gal

IR-4 research on SP3301

- Previously conducted by IR-4 EH Program:
 - None
- Insecticide research assistance request:
 - Efficacy
 - Additional insect and mite pest groups/species
 - Foliar nematode
 - Crop safety
 - No sensitive plant taxa are currently listed on label
 - Spray safety for major containerized crops

2026 IR4 ARTHROPOD TARGETS:

- EIOOWP-2 (PRINCIPLE WP)
- NIO2ES-1 (EPISHIELD)



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PRINCIPLE™

E100WP-2 – INDOOR

A biological mycoinsecticide based on *Beauveria bassiana* Strain BW149 that controls many destructive crop pests including thrips, whiteflies, aphids and more!

EPA Registration April 2025

4-Hour REI / 0-Day PHI

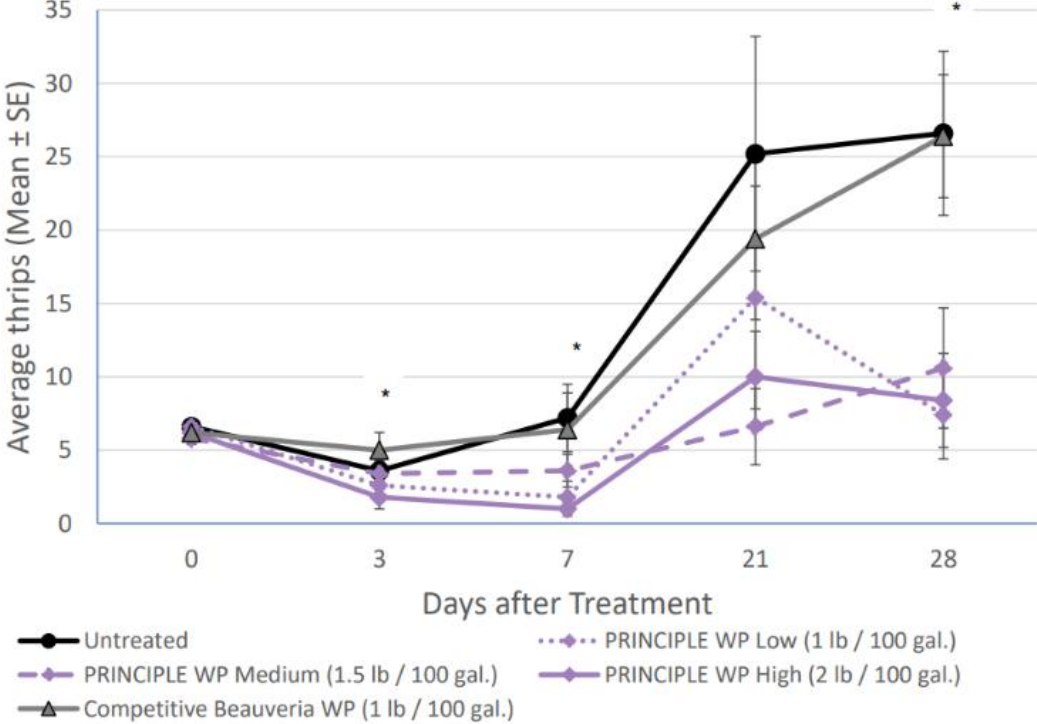
Available in 1 lb packages



ABOVE AND BEYOND IS WHERE WE BEGIN



DR. LUIS CAÑAS, THE OHIO STATE UNIVERSITY



Method Summary

Crop	<i>Zinnia</i> (<i>Zinnia elegans</i> 'Queeny Red Lime')
Location	Containerized plants on greenhouse benches
Pest	Western flower thrips (<i>Frankliniella occidentalis</i>)
Trial Design	Randomized complete block, 5 reps/treatment
Application Dates	July 5, 12, 19, 26 (2024)
Application Method	Foliar spray

Average number of thrips after four foliar spray applications. Days with a star above indicate PRINCIPLE WP treatment(s) statistically significant from the untreated control.

NIO2ES-1 (EPISHIELD®)

25b Miticide – insecticide based on peppermint & clove essential oils

Target Pests: Mites, Aphids, Thrips, Whitefly, Mealybugs

Launched October of '23

Zero REI / 0-Day PHI

Available In 2, 8, 36 fl oz, & 2.5 gal



ABOVE AND BEYOND IS WHERE WE BEGIN



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IR-4 Environmental Horticulture Program Research Report Cover Sheet

Researcher(s) Dan Gilrein

Trial: 2023 NY

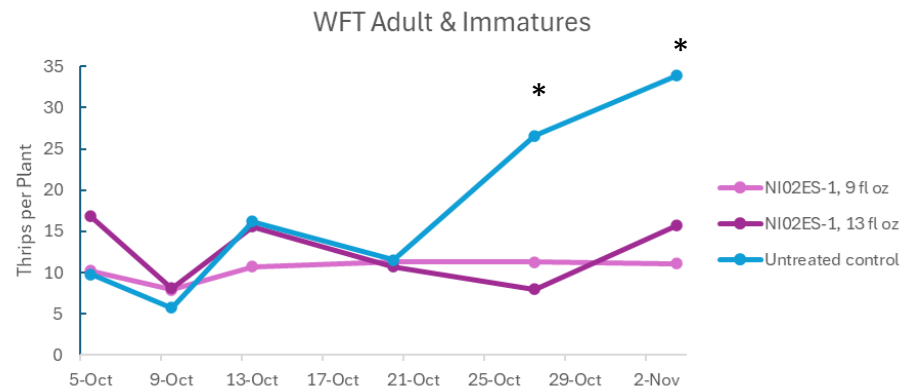
Affiliation: Cornell Cooperative Extension of Suffol
Cornell Cooperative Extension, L.I. Res
3059 Sound Avenue
Riverhead NY 11901

PhoneNumber: 631-727-3595 x2

Email: dog1@cornell.edu

ProjectTitle: Thrips Efficacy

Protocol #: 23-025



* Significantly different from the untreated control

IR-4 Environmental Horticulture Program Research Report Cover Sheet

Researcher(s) Dan Gilrein

Trial: 2023 NY

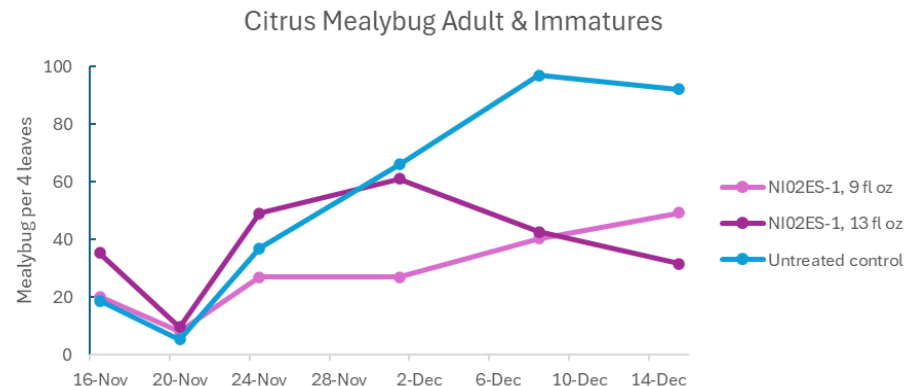
Affiliation: Cornell Cooperative Extension of Suffol
Cornell Cooperative Extension, L.I. Res
3059 Sound Avenue
Riverhead NY 11901

PhoneNumber: 631-727-3595 x2

Email: dog1@cornell.edu

ProjectTitle: Mealybug Efficacy

Protocol #: 23-005



CURRENT KNOWLEDGE & DATA GAPS NI00OD-1 = <i>Beauveria bassiana</i> BW149 liquid	IR4 Survey Targets	Target Product	Known Activity	Efficacy Gaps/Data Needs
	Thrips	NI02ES-1 EI00WP-2 NI00OD-1	Western flower thrips	Indoor/outdoor: Pepper, Onion, Chili
	Mites	NI02ES-1	Twospotted spider mites	Indoor/outdoor: Broad, Russet, Lewis
	Coleoptera (Scarabaeidae, Diabrotica, flea beetles)	NI02ES-1 NI00OD-1	No data	Indoor/outdoor (NI02ES-1) Outdoor (NI00OD-1)
	Scale/Mealybug	NI02ES-1 NI00OD-1	Citrus mealybugs (NI02ES-1)	Indoor/outdoor (NI02ES-1) Outdoor (NI00OD-1)
	Aphids	NI02ES-1 EI00WP-2 NI00OD-1	Green peach, root (EI00WP-2)	Indoor/outdoor (NI02ES-1, EI00WP-2) Outdoor (NI00OD-1)
	True bugs (Hemiptera)	NI02ES-1 NI00OD-1	No data	Indoor/outdoor (NI02ES-1) Outdoor (NI00OD-1)
	Leafhopper	NI02ES-1 NI00OD-1	No data	Indoor/outdoor (NI02ES-1) Outdoor (NI00OD-1)
	Lepidopterans	NI02ES-1 NI00OD-1	Lab assay showing efficacy (NI02ES-1)	Indoor/outdoor (NI02ES-1) Outdoor (NI00OD-1)
	Whiteflies	NI02ES-1 EI00WP-2 NI00OD-1	Greenhouse (NI02ES-1) Silverleaf (EI00WP-2)	Indoor/outdoor (NI02ES-1, EI00WP-2) Outdoor (NI00OD-1)



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THANK YOU!



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PROJECT PROPOSALS

Entomology

Session Host: Josh Kindel

Next Steps

- **Day 1 presentation and technology session presentations** will be posted to the EHW web page immediately after workshop. We'll share the link via email and our newsletter.
- **Regional Discussions:** Tomorrow (10/8) from 7:45 am – 8:45 am

Thank you for joining us!

Thank You, IR-4 Event Sponsors!

Platinum



Gold



Silver



Bronze

2025



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