Challenges and opportunities for pest management in specialty crops

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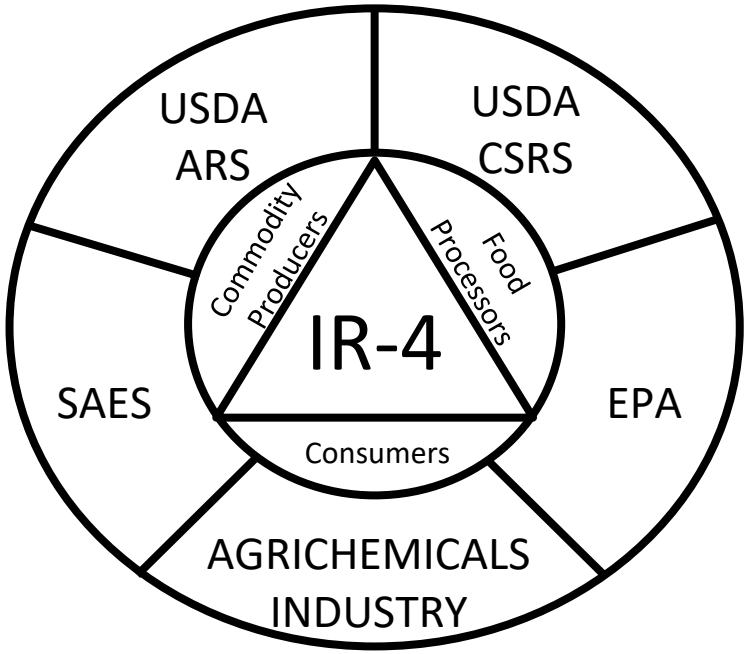
https://www.ir4project.org/

Pest Management Solutions for Specialty Crops and Specialty Uses

The IR-4 Project

Established in 1963 by the United States Department of Agriculture to provide a solution to the “Minor Use Problem”.



Minor Use Pesticide Problem

Specialty crops such as fruits and vegetables have high value per acre.

Fewer acres per crop compared with corn, cotton, soybeans.

High risk but little return on investments so companies are generally not interested in registering a product in minor or specialty crops.

Who can help specialty crop growers?

The IR-4 Project


G Brust

IR-4 Mission

Facilitating the regulatory approval of sustainable pest management technology for specialty crops and specialty uses to promote public well-being

Program/Efforts

Research Funding

Food Program

- Residue Studies
- Product Performance
- Integrated Solutions

Environment Horticulture

- Product Performance

Support Activities

- Crop Grouping
- Biopesticides Registration

IR-4 is Technology Neutral

Give farmers the tools, let them make the decision on what products to use.

IR-4 supports conventional and organic farming practices with conventional pesticides, biopesticides, biotechnology and other pest management technology

Food Crops Program

- Residue Program
  - Conduct 70 residue studies per year on 40 or chemistries (about 450 field trials)
  - Submit 80 study reports to EPA
  - Approximately 1000+ new uses registered / year
- Targeted Product Performance
  - Not required to submit to EPA-done to satisfy company or needs by states
  - Integrated Solutions
- Crop Grouping Expansion
- Harmonization of MRLs and international activities

The IR-4 Food Use Regulatory Clearance Process

Stakeholder:

Define Pest Problem

Identify Pest Management Solution

Request Assistance from IR-4

http://ir4.rutgers.edu/FoodUse/FOODRequestForm.cfm

The Process Starts with Requests

Submitted from:

- Growers
- Grower Groups
- State/Federal Research & Extension Personnel

Request Reviewed by Manufacturer

Requests Prioritized

Top Priorities Researched That Year

Other Priorities Researched as Money Allows

Field and Lab Research

- Measure residue levels in crop samples (EPAregions.pptx)
- Top priorities completed in ~30 months

Data Submitted to EPA

Risk Assessment

Tolerance Established by EPA

Manufacturer Adds Crop to the Product Label

IR-4's Global Activities

- Joint residue studies-PMC in Canada
- Harmonization research-zoning/crop groups
- Codex Committee of Pesticide Residue
- Global Minor Use Summits/Workshops
- OECD
- Capacity development

Minor Use Foundation, Inc.
Working with Governments, Grower Groups, and Specialty Crop Organizations on technology tools

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Biopesticides

IR-4's Biorational Program established in 1982. Over time name changed to Biopesticide Program, then Biopesticide and Organic Support in 2008

Prior to the establishment, IR-4 facilitated "All Crops" tolerance exemption for sprayable Bt

Signature Successes

- Codling Moth Granulosis Virus
- AGRIPHAGES for bacteria control, including canker in greenhouse tomato
- Numerous biopesticides for management of mites in/on honeybees
- Extract of giant knotweed to manage diseases on many crops → REGALIA
- AF36 to manage aflatoxin on many crops
- Honeysweet varieties of stone fruit that is modified to resist Plum Pox
- “All Crop” tolerance for spinosad → Broad ENTRUST label for organic crops

Changes in Biopesticide World

- Many new effective products with registrations
- Big companies are established in biopesticide market
- Consumer demand for green products for home and garden
- Seemingly, biopesticides had greater fit into conventional agriculture systems

Modern Minor Use Problem

Registrations are plentiful but ability to use approved pest management products can be limited:

- Export issues
- Pest resistance
- Use restrictions
- Public acceptance

Integrated Solutions

"Integrated Solutions" initiative; coupling biopesticides with conventional products in research. Priorities include:

- **Pest Problems Without Solutions**

Integrated Solutions

"Integrated Solutions" initiative; coupling biopesticides with conventional products in research. Priorities include:

- Pest Problems Without Solutions,
- **Resistance Management**

Integrated Solutions

"Integrated Solutions" initiative; coupling biopesticides with conventional products in research. Priorities include:

- Pest Problems Without Solutions,
- Resistance Management
- **Residue Mitigation**

Residue Mitigation

Extending the pre harvest interval(time from last application to harvest) to allow for residues to decline below MRLs of export markets and then maintain pest control with biopesticides at the end of the season.

Integrated Solutions

"Integrated Solutions" initiative; coupling biopesticides with conventional products in research. Priorities include:

- Pest Problems Without Solutions,
- Resistance Management
- Residue Mitigation
- **Address needs in organic production systems**

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www.cdms.net/ldat/ld0HQ001.pdf

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Specimen Label

Dow AgroSciences

Success®

NATURALYTE® INSECT CONTROL

®Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

A Naturalyte® insect control product for control or suppression of lepidopterous larvae (worms, caterpillars and peach twig borers), leafminers, and thrips

Group	5	INSECTICIDE

Active Ingredient:
spinosad (a mixture of spinosyn A and spinosyn D) 22.8%
Other Ingredients 77.2%
Total 100.0%

Contains 2 lb of active ingredient per gallon.

EPA Reg. No. 62719-292 EPA Est. _____

Precautionary Statements

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Agricultural Use Requirements (Cont.)

It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow others to enter the treated area until sprays have dried.

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.
Pesticide Storage: Store in original container only. In case of leak or spill, contain material with absorbent materials and dispose as waste.
Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Nonrefillable containers 5 gallons or less:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.
Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Offer for recycling if available.

Refillable containers 5 gallons or larger:

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www.cdms.net/ldat/ldALN017.pdf

Apps 08844 Weather ... Food Use Data ... MarathonGuide... TD Bank Online... TheHill Imported From IE Google The Runner's G...

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Entrust® SC

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OMRI™ Listed

Listed by the Organic Materials Review Institute (OMRI) for use in organic production.

☑ For Organic Production

Precautionary Statements

Personal Protective Equipment (PPE)

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

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- Coveralls
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Regulatory Assistance-Biopesticides

New Active Ingredients from USDA, universities & small companies

- Arranging meetings with EPA
- Write data waiver scientific justification
- Formatting documents
- Government Forms
- Label Modification
- Communication, Negotiation
- Toxicology review

Crop Grouping- Building Research Efficiency

- Conduct residue studies on a few representative crops and get EPA tolerance established on all crops in the group or sub group.

12-12. STONE FRUIT GROUP	Sweet cherry or Tart cherry, Peach and Plum or Prune plum	Apricot; apricot, Japanese; capulin; cherry, black; cherry, Nanking; cherry, sweet; cherry, tart; Jujube, Chinese; nectarine; peach; plum; plum, American; plum, beach; plum, Canada; plum, cherry; plum, Chickasaw; plum, Damson; plum, Japanese; plum, Klamath; plum, prune; plumcot; sloe; cultivars, varieties, and/or hybrids of these
12-12A. Cherry subgroup	Cherry, sweet or Cherry, tart	Capulin; cherry, black; cherry, Nanking; cherry, sweet; cherry, tart; cultivars, varieties, and/or hybrids of these.
12-12B. Peach subgroup	Peach	Nectarine; peach; cultivars, varieties, and/or hybrids of these.
12-12C. Plum subgroup	Plum, or Prune plum	Apricot; apricot, Japanese; Jujube, Chinese; plum; plum, American; plum, beach; plum, Canada; plum, cherry; plum, Chickasaw; plum, Damson; plum, Japanese; plum, Klamath; plum, prune; plumcot; sloe; cultivars, varieties, and/or hybrids of these.

Benefits

Growers

- Legal access to safe & effective pest management technology……grow high quality crops

Food Processors & Food Retailers

- Consistent supply of raw materials

Economy

- IR-4 contributes $9.4 Billion to annual US GDP/supports >95,200 jobs

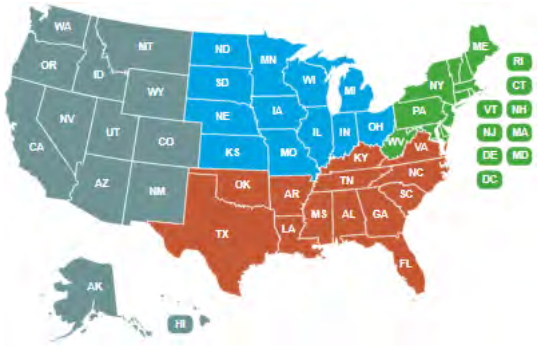
Public

- Plentiful supply of specialty crops that contribute to a healthy diet & plants that enhance the environment.

The IR-4 Project

Research Planning-2023

- Southern Region State Liaison Representatives



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Research Planning- Your Role in 2023 ?

How do I Request Assistance? Talk with your local Commodity Group, Extension Agent, and/or Regional Field Coordinator and Submit a Project Request

Research Planning- Your Role in 2023 ?

What Happens Next?

•Attend the Food Use Workshop to make others aware of your need and garner support.
•Trial samples are then sent to Analytical Laboratories at SAES or USDA-ARS Facilities and if necessary contract labs are assigned samples
•The labs determine the amounts of chemical remaining in or on the crop
•IR-4 QAU and EPA inspections and audits are conducted throughout the study
•This data is then compiled into a regulatory package and submitted to the EPA requesting establishment of new tolerances (Maximum Residue Limits or MRLs).

Research Planning- Your Role in 2023 ?

Behind the Scenes

•IR-4 personnel hold many meetings with registrants to determine their level of support of an IR-4 submission.

•IR-4 personnel meet with the EPA to determine the “red, yellow, green” chance for a tolerance to be granted on the particular chemical/s

Research Planning-2023

- Southern Regional Priority Setting
- New Technology Session on July, 2022
- IR-4 Food Use Workshop- Will be virtual again(?)……in person (??)September 2022

Thank You!

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