



The Role of The IR-4 Project to Expand Pesticide Registrations for Specialty Crops

Southeast Partnership for Advanced Renewables - Carinata
Tifton, Georgia
March 15, 2023



Janine Spies, University of Florida

Pest Management Solutions for Specialty Crops and Specialty Uses

Overview

- What is IR-4?
- The Programs of IR-4
- IR-4 support of carinata
- New Technologies
- How to request help from IR-4



The IR-4 Project

- Inter-Regional Research Project Number 4 (Minor Crop Pest Management Program)
- Established in 1963 by USDA and State Land Grant Universities to help farmers gain legal access to safe and effective pest management products
- Facilitate registration of sustainable pest management technology for specialty crops and minor uses



Specialty Crops and Uses

- Specialty Crops are...
 - Low acreage, high value
 - Fruits
 - Vegetables
 - Nuts
 - Herbs
 - Ornamentals
- Specialty Uses are...
 - Minor use on a major crop
 - Local pest
 - Regional pest



The Need for IR-4

- Registration of pesticides is required for every crop
- The cost of registering a pesticide is high
- Research investment is large
- Specialty crops are low acreage but high value
- Lack of economic incentive for pesticide manufacturer investment



Partnerships

- Needs are driven by the public sector (Growers, Commodity Groups, Land Grant University Researchers & Extension)
- IR-4 works with pesticide producers to identify potential solutions
- Advocates for the needs of food-crop growers with policy makers and regulators
- Generate data to meet standards required by EPA



Commodity Liaison Committee



- Stakeholder committee representing various specialty crop commodity groups
- Provide guidance to IR-4 on ways to serve needs of crop growers
- Advocate for IR-4 to elected officials

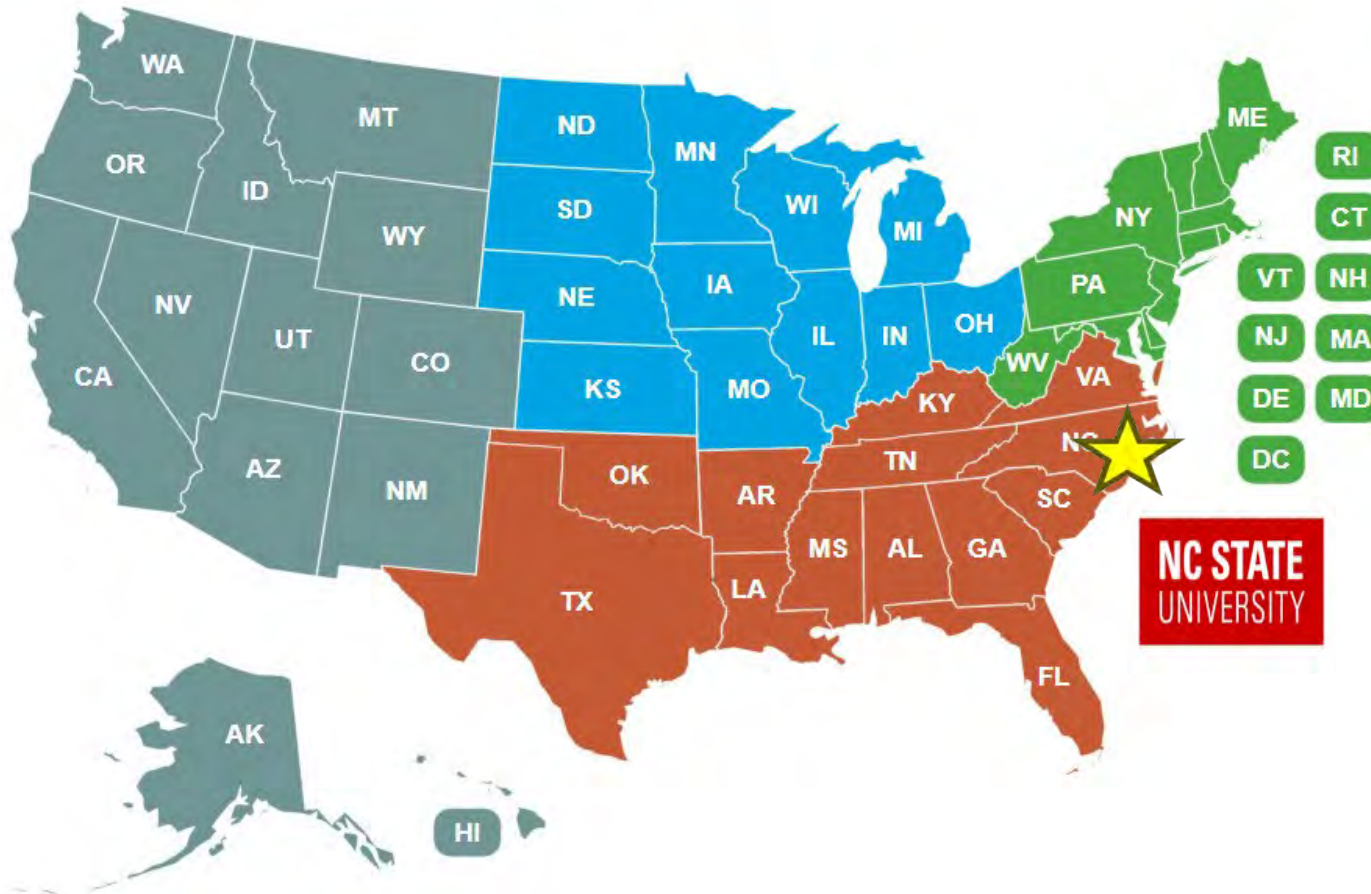


Partnerships

- EPA sets pesticide residue tolerances on harvested crops = maximum residue levels (MRLs)
- EPA approval for pesticide use is preceded by significant investment in research for efficacy, environmental outcomes, and threat to human health
- Collaborate with EPA to streamline and standardize petitions for use registration, and rigorously pursue critical use exemptions



Stakeholders are represented by 4 Regions across the U.S.



Program Areas

Food Crops

- Residue Studies
- Product Performance
- Integrated Solutions
- Biopesticide Regulatory Support
- International Activities



Environmental Horticulture

- Product Performance
- Pollinator Health
- Invasive Species

Food Use Program

MAGNITUDE OF RESIDUE (MOR)

- Conducted under Good Laboratory Practice (GLP) standards
- Required by EPA for registrations
- A clear pathway to registrations

PRODUCT PERFORMANCE

- Non-GLP
- Efficacy
- Crop Safety



Integrated Solutions (IS)



- Strives to identify pest problems and solutions
- Potential solutions can be organic products, biopesticides, and conventional products not already registered or labelled
- Research areas include:
 - Pest Problems Without Solutions
 - Resistance Management
 - Residue Mitigation
 - Organic Food Production




International Involvement

- Global harmonization of crop groups and MRLs
- Partnership with Agriculture and Agri-Foods Canada
 - Trial cooperation
 - Sharing data
- Involved in various international regulatory groups
- For more information visit: <https://www.ir4project.org/fc/international-programs/>



Crop Grouping

- Allows residue data collected from one crop to cover similar crops without having to conduct additional research.
- Crops are grouped with others that have similar traits, such as structure and form, cultural practices, edible portions and growing seasons/locations, as well as similar potential for pesticide residues.



20. OILSEED GROUP	Rapeseed (canola varieties only); sunflower, seed; and cottonseed	Borage; calendula; castor oil plant; Chinese tallowtree; cottonseed; crambe; cuphea; echium; euphorbia; evening primrose; flax seed; gold of pleasure; hare's ear mustard; jojoba; lesquerella; lunaria; meadowfoam; milkweed; mustard seed; niger seed; oil radish; poppy seed; rapeseed; rose hip; safflower; sesame; stokes aster; sunflower; sweet rocket; tallowwood; tea oil plant; vernonia; cultivars, varieties, and/or hybrids of these
20A. Rapeseed subgroup	Rapeseed, canola varieties only	Borage; crambe; cuphea; echium; flax seed; gold of pleasure; hare's ear mustard; lesquerella; lunaria; meadowfoam; milkweed; mustard seed; oil radish; poppy seed; rapeseed; sesame; sweet rocket; cultivars, varieties, and/or hybrids of these
20B. Sunflower subgroup	Sunflower, seed	Calendula; castor oil plant; Chinese tallowtree; euphorbia; evening primrose; jojoba; niger seed; rose hip; safflower; stokes aster; sunflower; tallowwood; tea oil plant; vernonia; cultivars, varieties, and/or hybrids of these
20C. Cottonseed subgroup	Cottonseed	Cottonseed; cultivars, varieties, and/or hybrids of these



Crop Group 20A

Crop Group


Representative Commodities

Commodities Covered

20A. Rapeseed subgroup	Rapeseed, canola varieties only	Borage; crambe; cuphea; echium; flax seed; gold of pleasure; hare's ear mustard; lesquerella; lunaria; meadowfoam; milkweed; mustard seed; oil radish; poppy seed; rapeseed; sesame; sweet rocket; cultivars, varieties, and/or hybrids of these
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How has IR-4 helped carinata growers?



- Approx. 30 requests submitted to IR-4
- 4 Registrations achieved 
- 1 project on-going
- 3 requests are now researchable
- Many project request status “HOLD” or “MFG WILL NOT SUPPORT”

Product (MFG)	Active Ingredient	Pest
Quilt Xcel (Syngenta)	Azoxystrobin + Propiconazole	Foliar diseases
Apron XL (Syngenta)	Mefenoxam	Pythium
Select (Valent)	Clethodim	Grasses
Assure II (AMVAC)	Quizalofop	Grasses





Records counts: 22 Sort records by clicking on the header of the column.

PR# Priority Protocol	Pesticide(MFG)	Commodity (Crop Group)	Crop Group/ Subgroup	Project Status	Performance Data Available	Req_States	PST
10979	ATRAZINE (ADAMA,DREXEL,SYNGEN)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	HOLD	YES	TN MT	10979
10968	CLETHODIM (ADAMA,UPL NA,VALENT)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	USE REGISTERED	YES	TN MT	10968
10980 E	CLOMAZONE (FMC)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	NEED E/CS DATA ONLY	YES	TN MT FL NC	10980
12053 C	CLOPYRALID (CORTEVA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT	YES	SD	12053
10977 F	DICAMBA (BASF,CORTEVA,UPL NA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	NON-NOMINATED PROJECT, WITHDRAWN		TN MT	10977
10981	DIURON (ADAMA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		TN MT	10981
12336 C	ETHAMETSULFURON (DUPONT)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		SD	12336
10978	FLUROXYPYR (CORTEVA,LOVLND)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		TN MT	10978
10976 D	FLUTHIACET-METHYL (FMC)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		TN MT	10976
10970 C	GLYPHOSATE + MESOTRIONE + S-METOLACHLOR/METOLACHLO (CHMNOV)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	HOLD	YES	TN MT	10970
10974 + 	LINURON (TKI)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	RESEARCHABLE, E/CS ON-GOING; RESIDUE DATA NEEDED	YES	TN MT AR NC	10974
10982 C	MESOTRIONE (SYNGEN,UPL NA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		TN MT	10982
10973 C	METRIBUZIN (ADAMA,BAYER,UPL NA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		TN MT	10973
10972 D	METRIBUZIN + SULFENTRAZONE (ADAMA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	HOLD		TN MT AR	10972
11558 D	PENDIMETHALIN (BASF,UPL NA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT	YES	SD	11558
12052 C	PENDIMETHALIN (BASF,UPL NA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		SD	12052
10983 F	PROMETRYN (ADAMA,SYNGEN)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	NON-NOMINATED PROJECT, WITHDRAWN		TN MT	10983
12335 + 	QUIZALOFOP (AMVAC,GOWAN)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	USE REGISTERED	YES	SD	12335
10971 F	S-METOLACHLOR/METOLACHLOR (SYNGEN,UPL NA)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	NON-NOMINATED PROJECT, WITHDRAWN	YES	TN	10971
10975 L	S-METOLACHLOR/METOLACHLOR + FOMESAFEN (SYNGEN)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		TN MT AR	10975
11560 F	SULFENTRAZONE (FMC)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	NON-NOMINATED PROJECT, WITHDRAWN		SD	11560
10969 C	TRIFLURALIN (GOWAN)	CARINATA (BRASSICA CARINATA) (20A = RAPESEED SUBGROUP)	20A	MFG WILL NOT SUPPORT		TN MT	10969

Labels

Assure II (Quizalofop)

Specific Crop Use Directions and Restrictions

Table 1. Crop Specific Use Directions

Crops	Use rate/A ^{1,2} (fl oz)	No. of applications /crop year ³	PHI (days)	Maximum rate/acre/crop year fl oz (lb ai)	Instructions and Restrictions
Canola Crambe Rapeseed Crop subgroup 20A (except Flax)* Carinata Pennycress	4 -12	2	60	18 (0.124)	<p>Apply in a minimum of 3 gallons of water per acre. Chemigation not allowed.</p> <p>Restrictions:</p> <p>Do not apply ASSURE II within 14 days of anticipated bloom of crop.</p>
*borage, canola, crambe, gold of pleasure (camelina), cuphea, echium, hare's ear mustard, lequesrella, lunaria, meadowfoam, milkweed mustard seed, oil radish, poppy seed, rapeseed, sesame, sweet rocket, including cultivars, varieties, and/or hybrids of these					

7.14 Rapeseed Crop Subgroup 20A

Crops		
Borage	Hare's ear mustard	Oil radish
Crambe	Lesquerella	Poppy seed
Cuphea	Lunaria	Rapeseed (canola)
Echium	Meadowfoam	Sesame
Flax seed	Milkweed	Sweet rocket
Gold of pleasure	Mustard seed	Cultivars, varieties, and/or hybrids of these
Target Disease		Rate (fl oz/100 lb of seed)
Pythium damping-off		0.32
Resistance Management: <ul style="list-style-type: none"> Refer to Section 3.1 		

Apron XL (Mefenoxam)



On-going projects

Linuron (Linex)

- Collecting performance data to support the reduction of the registered rotational interval for Brassica carinata following application of linuron.
- Testing 1.0 and 1.5 lb ai/ A rates of Linex 4L
- Soil broadcast at 30, 60, 90, 120 days prior to seeding
- Collect data on plant stand and plant vigor
- Efficacy trials conducted by Drs. Ramon Leon (NC) and Pratap Devkota (FL)
- Status updated to “Researchable, Residue Data Needed”



Researchable projects

Integrated Solutions -

IS00392 Herbicide screening on *Brassica carinata*

Potential products to screen:

Prowl H2O

Stinger

Dual-magnum

Fusilade DX

Devrinol



Researchable projects

Linuron (Linex) – Efficacy/ Crop safety ongoing, Residue data needed

Clomazone (Command) – Efficacy/ Crop Safety only, Tolerance established



New Technology – Potential Uses

- RM-1963K: Sucking pests/mites (OAT Agrio)
- Seican (Cinnamaldehyde): Miticide/insecticide, OMRI (Summit Agro)
- Protac: protein degradation; disease (stem rot), insect, weed control (OerthBio)
- MBI-306: Insecticide (DBM)/Fungicide; MBI-015: Herbicide (MarroneBio)

IR-4 2022 Industry Technology Session recordings are [available](#)

INDUSTRY TECHNOLOGY SESSION



Thursday, July 20, 2023 | Virtual

This annual event gives chemical registrants the opportunity to present updates on products already in IR-4 research, as well as new technologies. Visit the [event webpage](#) for more details.



Pest Management Solutions for Specialty Crops

<https://www.ir4project.org/>



Food Crops – Organics & Integrated Solutions – Environmental Horticulture



What are your pesticide needs?

Project Request Process

ir4project.org/about-ir4/submit-a-request/

Upcoming Prioritization Events:

Southern Region Priority Setting

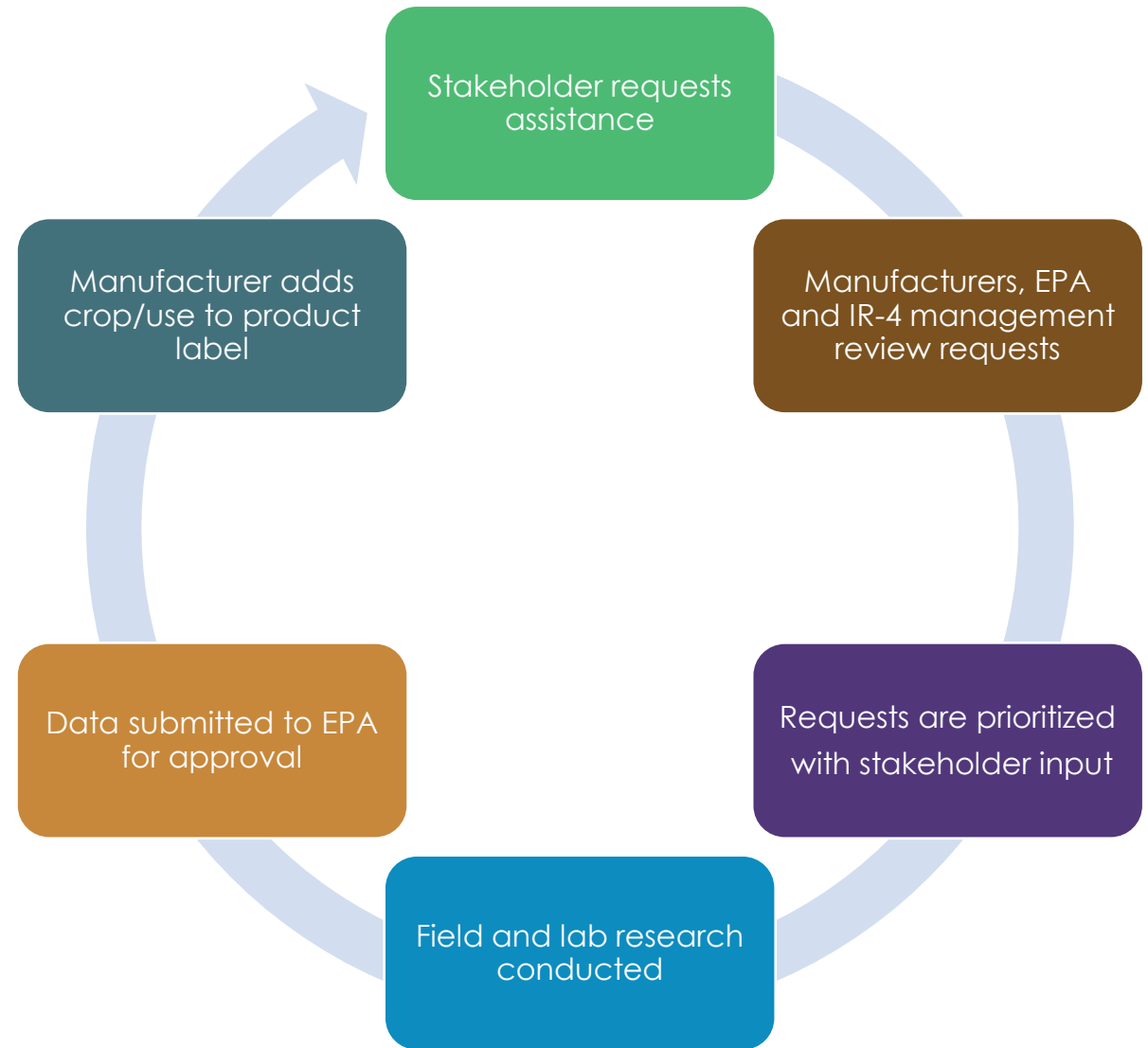
June 20-22, 2023

Virtual

2023 Food Use Workshop

September 12 – 14, 2023

Raleigh, NC



Submit a Project Clearance Request!



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[Food Crops](#) ▼

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Submit a Request



Food Crops

[Residue and Product Performance Form](#)

Is this the correct form for my request?

[Integrated Solutions Form](#)

Is this the correct form for my request?



Environmental Horticulture

[Research Request Form](#)

[Grower & Extension Survey](#)



Biopesticide Regulatory Support

[Regulatory Assistance Form](#)

Contact Us



Janine Spies

Southern Regional Field Coordinator

University of Florida

352-294-3991

jrazze@ufl.edu





2023 IR-4 Project Research Symposium: Food Crops

April 11, 2023

1 p.m. - 4 p.m., EDT

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#60Years of IR4