



**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 Doochan 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