

2021 NCERA 222 Report

PARTICIPANTS

Daren Mueller – Iowa State University, Laura Iles – Iowa State University, Elena Polush – Iowa State University, Erin Lizotte – Michigan State University, Lynnae Jess – Michigan State University, Cliff Sadof – Purdue University, Jim Jasinski – Ohio State University, Diane Plewa – University of Illinois, Bob Wright – University of Nebraska-Lincoln, Asha Mane – University of Nebraska-Lincoln, Mandy Bish – University of Missouri, Marissa Shuh – University of Minnesota, Patrick Beauzay – North Dakota State University, Ryan Clifford – University of Kansas

Objective 1: Increase the capacity of members to implement Extension based programs.

Participation in NCERA-222 results in information exchange among members and generates new ideas in implementing integrated pest management (IPM) programming, both of which can increase capacity. This has led to invitations to participate in grant review panels, which has further strengthened our ability to write successful grants. Also, the rotating leadership structure of NCERA-222 has allowed newer IPM coordinators the opportunity to engage with the National IPM Coordinating Committee, which broadens perspective and potentially leads to collaborations outside of the North Central (NC) region.

When many of the traditional ways to “do extension” were disrupted by COVID-19, the state IPM programs turned to innovation to provide information to stakeholders. The NCERA-222 meeting was a place to share some of the successful new programs (or methods) used throughout the region. Podcasting has been a primary activity, and the meeting has been a great place to talk about best practices for podcasts and for sharing experiences. Michigan State University (MSU) is developing an IPM-focused podcast with three other universities participating. Iowa State University continues work on a podcast for high school teachers called *Into the Class* and began another IPM podcast called *I See Dead Plants*. In 2021, the *I See Dead Plants* podcast homepage on the IPM Website had 460 pageviews. There were 50 streams on Spotify and 263 plays on Apple Podcasts. The *War Against Weeds* Podcast was launched in 2021. Weed scientists from the University of Missouri, Kansas State University, and North Dakota State University host different experts each week to discuss topics such as the spread of weed seed and the integration of non-chemical weed management strategies with pesticides. Collectively, the podcast has over 11,000 distinct downloads. The University of Minnesota has also started a podcast called *Podcasts for Field Crops*. Anthony Hanson is the host and producer of the podcast which covers IPM topics for Minnesota and surrounding states. Seven episodes were produced (1,395 listeners in 2021). Minnesota Extension educator Natalie Hoidal hosted five North Central IPM-funded *Great Lakes Vegetable Growers Network* podcast episodes in 2021, attracting 2,322 listeners.

Objective 2: Review, prioritize and disseminate IPM research and Extension needs.

In 2021 Project GREEN (led by MSU AgBioResearch, MSU Extension, and the Michigan Department of Agriculture and Rural Development) solicited grower-led organizations’ research and Extension priorities to identify critical and emerging issues affecting their industries. This

information was shared broadly among the MSU community and beyond to determine funding priorities for competitive grant programs within the state. The MSU IPM Program Communication Manager facilitated weekly in-season meetings to allow for research and outreach discussion and planning for agronomic and specialty crops as well as consumer horticulture for resource sharing and need identification in real-time. Approximately 510 agriculture professionals in Missouri were surveyed in 2021 to determine how they prefer to receive information on row crop production, including IPM information. Respondents indicated that extension is the most trusted source of information, regardless of how often they utilized extension resources. Outdated and difficult to access information were key concerns for those who do not routinely utilize extension. In Illinois, data from the state-wide surveys and suggested impacts were disseminated via extension publications, radio, television, and social media, providing timely information and increased knowledge of pest populations.

Objective 3: Increase collaboration and coordination between state IPM programs, NCIPMC-related working groups, and relevant NC multistate committees.

NC IPM Center working groups include the NC Field Crop Entomologists, Pulse Crop Working Group, Sunflower Working Group, and Alfalfa Pest Management Working Group. Specialists from Iowa, Minnesota, Nebraska, and Wisconsin joined the Alfalfa Pest Management Working Group in 2021 and the group produced new content on the Crop Protection Network. Nebraska entomologists participate in the NC Extension Entomologists Working Group to share information about current insect pest issues. MSU participated in the NCERA 222 project and multiple NC IPM Center Working Groups, most notably the Great Lakes Fruit Workers and Great Lakes Vegetable Workers.

Entomologists participated in a multistate effort to address a newly described insect pest, the soybean gall midge, now found in Nebraska, Iowa, South Dakota, Minnesota, and Missouri. A regional webinar was held in February 2021 to communicate what is known about the biology, impact, and management options for this new pest. The webinar series consisted of three sessions with 625 live views and an additional 432 views of the recordings. A review article was published with multistate authors summarizing current knowledge of soybean gall midge biology and management.

Collaboration occurred among several states in the NC Soybean Research Program on insect-related research and Extension activities (coordinated by Kelley Tilmon, Ohio State University). There was participation in NC-246 Ecology and Management of Arthropods in Corn. Collaboration took place with South Dakota on red sunflower seed weevil project funded by the National Sunflower Association.

Objective 4: Facilitate multistate programming to share curriculum and educational materials.

All states in the NC Central region organized and helped provide speakers for the Virtual Crop Scout School, which was made available on the Crop Protection Network page in April 2021.

This provided an online option for summer interns to learn the basics of crop scouting asynchronously. Some of the members of NCERA-222 directly contributed by giving talks, while Iowa State University (ISU) helped line up appropriate speakers. There were 22 presentations recorded in 2021. Virtual Crop Scout School registrants included 684 people representing 34 U.S. states and Puerto Rico and 24 other countries. There were 52 registrants from Canada representing five provinces. Registrants consisted of educators, researchers, independent crop consultants, co-op/fertilizer ag. chemical dealers, seed salespeople, farmer/farm managers, seed company representatives, and others.

The high school crop scouting competition continues to expand. In 2021, across the region there were approximately 50 teams from Illinois, Iowa, Minnesota, Indiana, Nebraska and Kentucky. These events included an estimated 150 youth. State competitions were held in July or August. A regional competition that had teams from five states was held on September 9. These competitions are organized by Extension, supported by IPM programs and industry and commodity groups.

Extra information

Additional metrics, activities, and information organized by state.

[Illinois] - Staff from the Plant Clinic and from the Wide-Area Monitoring Program keep in close contact with the Illinois Department of Agriculture and United States Department of Agriculture personnel to update them with new detections or identification of regulated pests or pathogens. Laboratory tours with hands-on exercises were delivered to undergraduate and graduate students, along with multiple Extension Master Gardener trainings and a presentation at a conference on urban tree care. Diane Plewa attended an Illinois Department of Agriculture inspection of a tomato and pepper growing facility and trained inspectors and commercial staff in scouting for common and regulated diseases of these crops. Scouting tools (sweep nets and hand lens) were distributed and hands-on instruction was provided at several small, in-person events, including field days and individual field visits. The Illinois Extension Good Growing podcast recorded an episode focused on pest trends in 2021. The Plant Clinic's website was completely redone in 2021. As part of the Extension Horticulture Team programming, the website will serve to increase awareness of and knowledge about the importance of pollinators, and how to protect these species while managing pests in pollinator habitats. In addition to a published factsheet about the exotic pest spotted lanternfly, work was completed on a soybean cyst nematode factsheet (printing in progress) and two factsheets about the native bee pollinator research conducted as part of this grant are in progress. An update to the University of Illinois Agronomy Handbook (describing comprehensive recommendations for agronomic crop production, including disease, insect, and weed management) is currently under development. Work on the Illinois Pollinator website is progressing. While this resource is mostly focused on Illinois, information from the website should be useful to bordering states with similar environmental conditions. Wide-area monitoring transitioned to using www.agpestmonitor.org for reporting in conjunction with using <https://www.eddmaps.org/> (EddMapS) for mapping. The Ag Pest Monitor website is used by many University Extension groups, while EddMapS and IPipe are used across the nation. An overview presentation of the

Illinois IPM program occurred as part of the NC IPM Center's Pests and Progress webinar. Specialists in Illinois were able to continue monitoring programs and provide laboratory-based identification of pests and pathogens and research-based management recommendations for clients all year. Free field crop plant and soil sample diagnoses were provided to producers as part of the Agronomic Crops priority program.

[Iowa] - In 2020, 55,396 ISU Extension IPM team publications were distributed through the Extension Distribution Center. The ISU IPM YouTube Channel saw a massive increase in use in 2021 compared to 2020. In 2020, 93 videos were produced, and 28,300 views, 1,300 hours of watch time, and 312,200 impressions occurred on the channel. In 2021, 235 videos were produced, and 106,395 views, 4,354 hours of watch time, and 1,070,522 impressions occurred across the channel. In 2020, the ISU IPM Website had 10,888 visits, 21,639 pageviews, and 6,766 downloads. In 2021 – ISU IPM website had 11,980 visits, , 23,069 pageviews, and 7,231 downloads. In 2020, the IPM team participated in more than 40 events. The Plant and Insect Diagnostic Clinic at ISU had more that 3,000 total contacts in 2020, including 1,442 physical samples, 89 phone calls, and 1,652 emails. In 2021, there were 3,085 total contacts including 1,959 physical samples, 192 phone calls, and 934 emails.

[Indiana] - Hybrid meetings such as the Purdue Crop Management Workshop continued to provide information used by growers and field crop consultants. Out of 800 meetings, 720 were virtual and 80 were live. Participants were surveyed and 90% indicated they would use IPM in their decision making, 95% would share this information, 97% said the workshop was worth the time and money, and 48% of attendees indicate that information learned in the workshop saved them > \$10,000. As Principal Investigator of the United Soybean Board grant project *Take Action Against Weeds*, Bill Johnson and his group produced seven webinars and published a 100-page manual to help field scouts identify weeds and herbicide injury. Newsletters and blogs continue to be well-received with the Purdue Landscape Report winning multiple awards from the College and the Horticultural Society of America for serving Indiana's multi-billion-dollar green industry. Nearly 90% of survey respondents thought information provided in this newsletter was timely, improving their ability to diagnose and manage problems. Over 75% felt the newsletter had a positive impact on their business, and 68% reported it helped them to select the correct pesticide.

[Kansas] - In Kansas, coordination of the Garden Hour webinar occurred, which has had attendees from other states. The MyFields program that is being used in multiple states allows for pest tracking in real-time and allows users to access Extension publications for a given crop in one location.

[Michigan] The MSU IPM Program published IPM, agronomic activities/recommendations, and related articles on the MSU Extension website with specialty crop information. 6,190 people are subscribed to the field crops email digest of articles that is sent weekly (777 new subscribers in the last year). The *Field Crops Virtual Breakfast* series delivered another year of timely information/management practices to producers. Live meetings had on average of

approximately 100 participants, and recordings (posted on YouTube) had 3,357 views cumulatively.

[Minnesota] - The NC IPM Center Alfalfa Pest Management Working Group reviewed and chose priority pests for region-wide educational materials and infographics. Minnesota Extension Educator Marissa Schuh serves as the state lead for the NC IPM-facilitated regional production guide, the Midwest Vegetable Production Guide. Schuh served as a reviewer and updated the Okra and Cole Crop Insect chapters. This guide is distributed as an interactive database across the region. Natalie Hoidal collaborated with members of the Great Lakes Vegetable Working group to produce Spanish language videos on IPM practices focused on plant diagnostics. The 2021, the Midwest soybean gall midge discussion series was a multi-state webinar collaboration. Bruce Potter, who is supported by the Minnesota IPM program, contributed to this series. The webinars focused on developing IPM for soybean gall midge through identifying current research on this new species.

Strategic Farming: Field Notes was an online, audio-only webinar and podcast program during the 2021 growing season that invited regional field crops experts to discuss timely crops issues and field questions from growers live each week. Twenty episodes were produced (13 with an IPM focus) with 1,080 live attendees and 1,395 podcast downloads (<https://strategicfarming.transistor.fm/>).

[Missouri] - Missouri Extension partnered in organizing the Agriculture Drift and Inversion Monitoring Workshop. The three-day virtual event was held in February 2021 and brought together approximately 70 professionals from government, academic climatology units, academic extension programs, pesticide safety education programs, and state departments of agriculture to discuss needed tools and information for pesticide applicators to help minimize drift. Missouri weed scientists led a multi-state project that resulted from this event and are currently summarizing data on the accuracy of weather tools, which will be provided to pesticide applicators. The University of Missouri IPM website exceeded 650,000 visits in 2021, approximately 100,000 more than in 2020.

[Ohio] - Several members of the IPM Program and other specialists contribute to the Midwest Vegetable Production Guide, Midwest Fruit Pest Management Guide, and the Ohio State University Vector-borne disease team that organized the Ohio Regional Tick Symposium in 2021.