



IR-4 and Growers

Partners

in

Agriculture

2017 Year-End-Summary



Dear IR-4 Friends and Family,

With great pleasure, I present to you the 2017 IR-4 Year End Summary (YES) highlighting our collective accomplishments and acknowledging our challenges. Once again, there are many positive stories to share from IR-4 2017 deliverables to the specialty crop community. We continue to make a substantial difference for our stakeholders, providing them with the modern tools needed to manage pests on their high value crops.

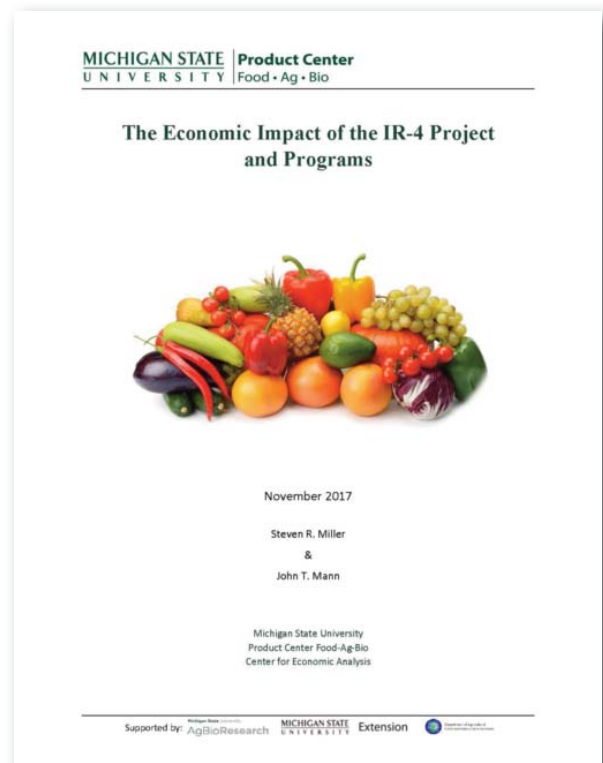
The theme of this year's YES is "Partners in Agriculture". In 2017, IR-4 partnerships led to the registration of over 530 new uses on food crops and registered 2 new ornamental horticulture products impacting more than 800 crop uses. IR-4's Biopesticide & Organic Support Program has supported the facilitation of EPA approval of new uses on 9 crops with 3 active ingredients. These accomplishments have occurred with the support from our many partners that include the farmers/growers who request and need the tools to protect their crops, the public sector research/extension network that assists in priority setting, data development and regulatory stewardship activities, the U.S. Environmental Protection Agency, the primary evaluator of IR-4 submissions, and the crop protection industry that provides IR-4 access to their technology. Many partners, successfully working together to accomplish one important goal.



Unfortunately, in 2017, IR-4 had to suspend its activities in the development of new tools to manage mosquitoes, ticks, and other arthropod pests that transmit disease to humans and animals, due to loss of funding. The IR-4 Public Health Pesticide Program was an important partner with the US Department of Defense and USDA in its effort to protect deployed forces from malaria, dengue fever, Zika virus, and other diseases transmitted by insects. Over the ten-year tenure of this program, there were significant accomplishments. The most recent and final deliverable before the program was suspended involved IR-4 submitting a data package to EPA supporting a new registration authorizing the use of an insecticide to disinfect aircraft of mosquitoes to prevent the spread of the Zika virus. IR-4 thanks our partners for supporting this program.

IR-4 and the specialty crop community have been Partners in Agriculture for over 54 years, and together, we have contributed to greater availability of healthy foods and beautiful plants that enhance the environment. The farmer/grower partners know the value of IR-4 in having safe and effective crop protection technology available.

To better ascertain the economic value of IR-4, Michigan State University's Center for Economic Analysis recently updated an economic analysis of IR-4 and concluded that, "IR-4's Partnership with Agriculture contributes to 95,261 jobs with total labor income of \$5.6 billion and annual contributions to gross domestic product totaling about \$9.4 billion."



IR-4 continues to face many internal and external challenges, including uncertainty within the crop protection industry (due to mergers of key partners) a decade of flat federal funding, increased costs of operations, potential implementation of University service fees, and aging research equipment. I am very fortunate to have excellent partners including the IR-4 Project Management Committee, the staff at IR-4 Headquarters and Regions, and IR-4 Commodity Liaison Committee to work on these and other critical issues. We remain committed to a positive and proactive approach to ensure that IR-4 has capacity to meet the current and future needs of our partners.

Access to international markets remains a priority for the specialty crop community. IR-4 continues to partner and assist in various aspects to remove barriers to trade and to support harmonization. In April, the Codex Committee of Pesticide Residues approved an IR-4 proposal to update the international crop groups for many of the vegetables and cereal grains. This concept of using representative crops to support all of the related crops within a crop group is efficient in both time and money. In October, IR-4 was co-host with USDA-Foreign Agriculture Service and Agriculture and Ag-Food Canada for the 3rd Global Minor Use Summit. The goal of the Summit was to continue the progress with international partners in finding harmonization strategies for specialty crops and minor use programs. Another highlight of IR-4 international activities was the December recognition by seventeen senior government officials who signed a joint statement acknowledging the productive work of the Standards and Trade Development Facility (STDF). STDF provided the funding for IR-4, in partnership with the USDA-FAS, to manage and coordinate opportunities for building knowledge and capacity for developing countries in the area of pesticide maximum residue levels (MRLs).

IR-4 is proud to be an essential partner in providing pest management tools for growers to produce high quality vegetables, fruits, nuts, herbs, nursery crops, flowers, and other horticulture crops. These tools enable growers to provide quality food that is an important component of a healthy diet, and plants that enhance landscapes. It is IR-4's aim that the specialty crop industry be profitable, able to sustain farming and other components of the food chain, and provide consumers with affordable specialty crops throughout the year.

All the best —Jerry

The IR-4 Project is a life saver for our vegetable farm. We raise 15 different minor crops on 3 types of soils which means we need many different crop protection chemicals to control our pests. IR-4 provides the chemical companies with the information they need in order for them to register their products for our crops. Without IR-4 I do not know how we could farm!
— Bruce Burma, Burma Farms



IR-4 and Growers: Partners in Agriculture

IR-4 is all about its Partners in Agriculture. From partnering with US growers and our friends in Canada to partnering with Integrated Pest Management experts, to partnering with regulatory agencies and registrants; IR-4 works diligently with these partners to achieve products that produce great crops.

Partnering with EPA

2017 was a productive year for fungicide registrations. The IR-4 Project submitted a number of fungicide petitions to EPA that are expected to address a number of critical needs for growers. These new uses will aid both field and greenhouse growers on a number of important foliar and fruit diseases, such as powdery mildew, leaf spot, *Pythium*, and *Phytophthora*. When registered, these active ingredients will provide additional “tools” for the US specialty crop growers as part of their Integrated Pest Management system.

The IR-4 Project also submitted a number of nitrapyrin residue studies, a 2016 Presidential Green Chemistry award-winning product. This product will support healthy plant growth, as well as reduce nitrogen losses from leaching and denitrification.

IR-4 continues to work closely with EPA to make progress toward the registration of some critical agricultural antibiotic uses to support the many bacterial diseases affecting US crops.

After completing the final crop group submission to EPA in 2016, IR-4 continues to help expand and enhance crop groups and sub-groups by assisting the EPA with analysis of proposals for Crop Group 15, Cereal Grains; Crop Group 16, Forage, Fodder and Straw of Cereal Grains; and Crop Group 18, Nongrass Animal Feeds Group. EPA did review (and approved) the revised Herb and Spice Crop Groups, Root and Tuber, Leaves of Root and Tuber Vegetable and also Legume Vegetables and Foliage of Legume Vegetable groups. The proposed rule for the revised Herb and Spice Crop Groups is expected to be published in the Federal Register later in 2018.

“Since I’ve been attending the IR-4 Food Use Workshops (2002) Van Drunen Farms has been the benefactor of several products for the herbs we provide to the public. Through our partnership with IR-4 and other stakeholders who also attend the annual Workshop, when a problem occurs, the long term solution always points back to the work that IR-4 does. So you can see how IR-4, working with their stakeholders has been a tremendous help to this one specialty grower Van Drunen Farms. The accomplishments of this partnership is impressive!”

— Alan DeYoung, Van Drunen Farms



Another great success in 2017 was the Codex final adoption of updates to all Vegetable Types and Cereal Grains classification. This includes the identification and implementation of representative crops that can be used to support all of the related crops within a Crop Group. IR-4 has been coordinating Codex efforts to update the classification of food and feed crops and incorporate the use of Crop Grouping for more than 10 years. This latest installment on vegetable types and cereal grains, along with the fruit types approved in 2012, account for a majority of the crops considered by IR-4 and US growers. The work at Codex will continue in 2018, with consideration of Type 03 Grasses, Type 04 Nuts and Seeds and Type 05 Herbs and Spices.

Partnering with IPM

IPM compatibility continues to be an important criterion for evaluating potential IR-4 projects and is required of all IR-4 project clearance requests. The information is captured and used as part of the evaluation process at the annual Food Use Workshop where stakeholders determine the research plan for the coming season. For example, IPM compatibility was instrumental in choosing a strawberry project at the 2017 IR-4 Food Use Workshop for 2018 research designed to register indoxacarb for the control of Lygus bugs. IR-4 coordinates research efforts with the Regional IPM Centers and partnered with the Western IPM Center on a publication that lays out an unbiased process to determine the extent that a pesticide use adheres to IPM principles (the IR-4 Western Region headquartered at UC Davis leads this coordinated effort). The "IPM Criteria Guidance Document" can be found in the Journal of Integrated Pest Management. IR-4 authors also contributed a chapter in the new book "Sustainable Management of Arthropod Pests of Tomato" edited by Waqas Wakil, Gerald Brust, and Thomas Perring (Elsevier Inc.). The IR-4 chapter is titled *Agricultural Pesticide Registration in the United States*, authored by Keith Dorschner, Dan Kunkel, and Michael Braverman.

Partnering with AAFC/PMC

In October 2017, IR-4 partnered with Agriculture and Agri-Food Canada's Pest Management Centre (AAFC/PMC) to host the Global Minor Use Summit-3. The event drew over 200 people from 35 countries to discuss pest management issues and identify ways to harmonize pesticide regulations.

For almost twenty years, IR-4 has partnered with the US EPA to learn about agricultural practices up close. Each year, IR-4 organizes a day long tour for EPA representatives to meet growers and hear about their needs.



Biopesticides Partner with Agriculture

Biopesticides are a unique sector because they partner with both conventional and organic agriculture. In both categories, IR-4 provides efficacy testing and aids in registration of biopesticide products. Whether it be for specialty crop use or a niche pest on a major crop, this partnership provides farmers with solutions to significant problems.

Registration

In 2017, IR-4 worked with various universities and small companies in an effort to register products with the Biopesticides and Pollution Prevention Division of the EPA. One of these products, the transgenic chestnut, was a part of IR-4 efficacy trials, but is not yet registered. Bringing back this once dominant tree in American forests would lend itself to a fruitful partnership with tree nut growers.



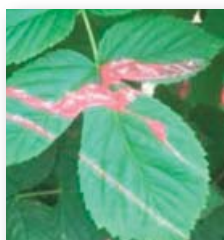
Credit: Andy Newhouse, SUNY-ESF



A trap and lure (Scentry Biologicals, Inc.) to monitor adult SWD numbers.
Credit: Oscar Liburd

Invasive Species

It has been a decade-long struggle for farmers dealing with the invasive Spotted Wing Drosophila (SWD). This priority pest has been the subject of several years' worth of organic and conventional IR-4 efficacy trials. In 2017, a new technique known as SPLAT attract and kill proved beneficial. The fruit industry, particularly berry growers, are reaping the benefits from IR-4 generated solutions.



HOOK SWD splattered on a raspberry leaflet, used to attract and kill the invasive insect.
Credit: Cesar Rodriguez-Saona

Common Problems

There are problems all farmers share. In relation to pollinator health, IR-4 has conducted studies to manage varroa mite of honey bee. Additionally, weed management is a high priority need that IR-4 has been researching, to the benefit of sweet potato and ornamental



Applying biopesticides on blueberries.
Credit: Alan Schreiber

growers. Biopesticides are used in organic and conventional agriculture to control pests up until the day of harvest. The use of these products holds an additional benefit to conventional growers by allowing farmers to mitigate conventional pesticide residues on export of crops, such as blueberries. IR-4 partners with agriculture to support the best production possible.



"IR-4 is a critical program for speciality crop farmers. It is the only tool today that we have that can help us secure control tools for new invasive pests like Spotted Wing Drosophila (SWD). This pest contributed to over a 20% loss of the nations' Tart Cherry Crop in 2016. IR-4 gives farmers hope for the future and the tools they need to be competitive in a global economy."

*— Philip J. Korson II,
President, Cherry Marketing
Institute*

IR-4 and Growers: Partners in Ornamental Horticulture

The definition of partner is a person who takes part in an undertaking with another or others, and the definition of ornamental horticulture is the science, art, or practice of cultivating the soil (or soilless media) and producing crops, which improves the quality of life. In many ways, IR-4 is a silent partner working behind the scenes on the science of growing crops, in particular collaborating to develop new tools to manage diseases, pests, and weeds. IR-4 develops partnerships with the grower, researcher, and regulatory communities for providing high quality, healthy plants that are ready to thrive when placed in the landscape.



Collaborators for High Quality Crops Through Registrations

Growers have the primary goal of producing high quality plants economically so customers have a plentiful and varied supply of flowers, shrubs and trees for their landscapes and interiorscapes. Diseases, pests and weeds threaten this goal. IR-4 collaborates with growers to solve these problems by building a network of registrants to supply potential new tools and researchers to study how to manage different diseases, insects, or weeds. IR-4 pools together the research results and provides them as summaries to the registering companies to create new labels or update current labels so growers have tools to manage their pest issues. This successful collaboration has fostered the registration of numerous products for the green industry.

Allies in Combating Invasive Species

Invasive species are organisms (insects, microbes, plants, animals, etc) from other places in the world that can survive in a new environment and displace native species. Over the last several years, IR-4 has built research teams to study invasive insects and diseases and how growers can deal with them during plant production. These teams consist of researchers with varying expertise; from product screening, recommending what products can be used in the short term; to genomics that look at population dynamics and answer questions about where these new organisms arose. IR-4 facilitated projects on mitigating pests during shipping, such as Chrysanthemum White Rust, boxwood blight, impatiens downy mildew and other downy mildews. All of these projects screened tools to manage pests and diseases and developed basic biological information to best deploy those products during the crop cycle.

Partners for Protecting Pollinators

To explore ways the ornamental horticulture community can aid in providing suitable habitat for these and other bee pollinators, IR-4 developed a multi-disciplinary team to study how best to protect pollinators while growing healthy ornamental horticulture plants for enjoyment by the public. Two key questions considered, “are popular ornamental horticulture plants food sources for pollinators?” and “what are the risks to pollinators if systemic insecticides are used during production to deal with insect pests?.” The research team is answering these questions by screening the most popular annuals and perennials for their attractiveness to bees and determining the residues of systemic insecticides in model plants such as rhododendrons, sunflowers, and snapdragons. The team is comparing alternative pest management strategies, studying how people select plants that may be beneficial to bees, and developing best management practices for growers and landscape managers to grow and maintain healthy plants while fostering habitat for bees. The team includes university researchers from across the country who focus on how to manage pests, with researchers who study bee health, and researchers who specialize in consumer behavior (how and why people purchase plants) and grower adoption of new pest management strategies.

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