



Benefiting Specialty Crop Growers & the General Public

Facilitating registration of sustainable pest management technology for specialty crops and minor uses



IR-4
Year
End
Summary
2010



A Word About YES...



Dear IR-4 Friends,

It is with great pleasure that I present the 2010 IR-4 Year End Summary (YES). This YES document captures IR-4's accomplishments, successes and challenges from 2010.

YES, IR-4 Benefits Specialty Crop Growers — In 2010, the Food Program, working with US Environmental Protection Agency (EPA) established numerous new permanent pesticide tolerances which supported 786 new uses. A new Oil Seed Crop Group was established and the existing Fruiting Vegetable, Citrus and Pome Fruit Crop groups were enhanced. IR-4 also benefited growers interested in using biopesticides and those who grow organically, by facilitating several new products, which supports numerous new uses.

YES, IR-4 Benefits Ornamental Horticulture growers too — This year, IR-4 data was used to support new registrations and label amendments for these growers, positively impacting thousands of ornamental uses.

YES, IR-4 Benefited Specialty Crop Growers by working to reduce international trade barriers through submitting IR-4 data to International agencies and conducting global studies.

YES, IR-4 Benefits the General Public — IR-4 completed its first public health pesticide study - a residue study to allow control of adult mosquitoes near food crops. When the news focuses on a famous celebrity (George Clooney) contracting malaria, the public once again realizes the need to eradicate this disease and IR-4 can play a role.

Challenges? YES, IR-4 Has These Too — IR-4 faced two specific challenges in 2010, and expects these challenges to follow us into 2011.

- Research timelines are a broad challenge that will take program-wide cooperation, flexibility and resources to tackle.
- Funding is also a huge challenge as IR-4 is being called upon to provide faster data submissions that involve more complex analysis and in some cases an increased number of trials; all this when Congress is tightening its funding and host institutions are decreasing in-kind and infrastructure support.

Are we optimistic? YES! — IR-4 receives strong support from US specialty crop growers - specifically members of the IR-4 Commodity Liaison Committee and the Minor Crop Farmers Alliance. We anticipate that the new Congress will listen to the concerns expressed by US specialty crop grower groups about the impact of cutting IR-4's resources and will minimize potential funding cuts. This will allow IR-4 to remain a productive organization that continues to address its mission.

On behalf of the IR-4 Project Management Committee, I thank our numerous stakeholders for continual support in our efforts to facilitate the regulatory approval of appropriate pest management technology for specialty crop growers and other minor use stakeholders.

IR-4 Executive Director
Jerry J. Baron



YES... IR-4's Food Use Program Benefits Growers

In 2010, IR-4's data was used, by the U.S. Environmental Protection Agency (EPA), to established **219** new permanent pesticide tolerances which supported **786** new uses. This brings the overall total of IR-4 Food Use Program successes to over 13,000.

In order for IR-4 to help growers, its residue research involves hundreds of field trials and takes many months before the data

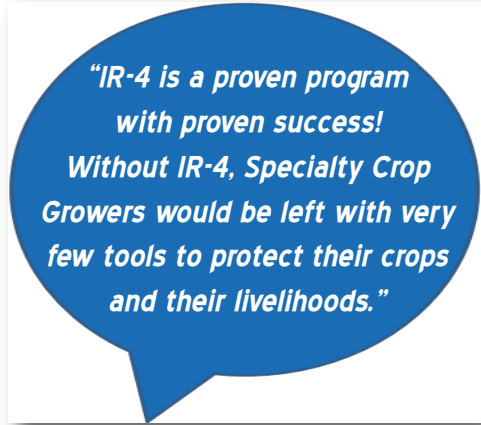
collected can be assembled into submission packages requesting EPA new use tolerances.

These new uses help growers defend themselves from pests that could severely damage their crops and jeopardize their livelihoods. For example, with the help of IR-4, a new herbicide is expected to be used on 65% of the lentil acres in Idaho. This herbicide provides a 20% yield increase for the producer. At today's prices this 20 % yield

bump is valued at \$2,000,000 for the state.

Another Way IR-4 Helps

Often research begins by growers discovering a new or emerging pest. Many times the pest threat is so serious, growers can't wait. In cases like this, IR-4 is asked to provide targeted funding for efficacy tests, to discover what could work using already registered or unregistered compounds.



"IR-4 is a proven program with proven success! Without IR-4, Specialty Crop Growers would be left with very few tools to protect their crops and their livelihoods."

**— Ray Ratto,
Ratto Bros. Farms,
Modesto, CA**

Benefiting Specialty Crop Growers

One such project impacted Specialty Crop Growers in the Western U.S., yet the research will help growers throughout the country and Canada. The pest...the Spotted Wing *Drosophila* (*Drosophila suzukii*). This pest, also known as SWD affects blueberries, strawberries, caneberrries, stone fruit and other crops.

Growers were using various techniques to combat this



pest. IR-4, working with researchers at Oregon State University, University of Washington and the University of California were able to refine growers' pest control practices by illustrating the effectiveness of registered products and examined

unregistered products that may be project requests for future IR-4 residue research.

The Ornamental Horticulture Program benefits domestic growers by fostering a balanced approach to integrated pest management (IPM). This approach tests biological and chemical products for efficacy and crop safety in managing pests and plant growth.

IR-4 conducted **1473** field trials on Ornamental crops in 2010 to collect efficacy/crop safety data. This research has contributed to EPA registrations of **41** products (since 2003), which enhances grower productivity and crop value. Crop safety research through IR-4 helped domestic growers avoid crop loss on impatiens, a bedding plant commonly planted in gardens and containers.



In addition to examining what products will manage pests and be safe for crops, IR-4 is studying the impact of products on beneficial insects and mites. This will aid growers in making wise choices to integrate biological control and pesticides.

IR-4... Over-The-Top

One product introduced over the last couple of years has created the most labor savings benefit for

woody ornamental growers. This new herbicide can be used over-the-top on many woody ornamental species and is a good rotational partner to reduce resistance development in weeds.



The IR-4 Ornamental Horticulture Program also studies non-native invasive species like Japanese Beetle, *Phytophthora ramorum* Blight, Gladiolus Rust, and Q-Biotype Whitefly. This research provides information on registered products that can be used to ameliorate or eradicate exotic pests.

YES...IR-4 benefits Specialty Crop Growers...but this work is only achieved through the unique collaboration of IR-4 and its

partners. IR-4's partnership includes: the USDA, regulatory agencies, chemical companies, specialty crop growers and grower groups, and universities.

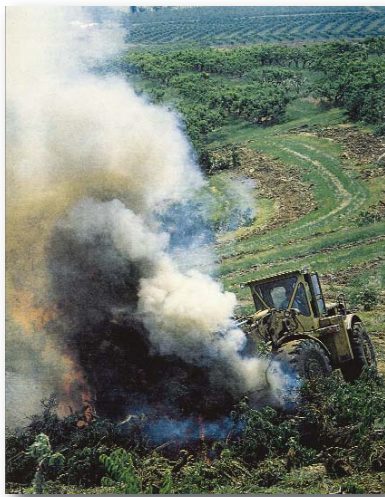
Specifically, USDA provides major funding; EPA meets regularly with IR-4 to discuss how data can be used most efficiently; chemical companies provide IR-4 access to their latest generation of lower or reduced-risk pesticides and provide supplemental funding. But before all this begins, growers

bring their pest issues to IR-4 directly or through liaisons at state experiment stations.

In fact, IR-4 works with a Land Grant University in almost every State to conduct research. In addition to the USDA's direct funding, these Land Grant Universities, EPA, and chemical companies provide significant in-kind support that matches USDA funding.

No other public sector research program can mirror IR-4's results.

Benefiting Specialty Crop Growers...



Large orchards had to be bulldozed and burned in order to quarantine PPV

YES... IR-4 Helps With Biopesticide Support
IR-4 efforts facilitated **3 new biopesticide registrations** in 2010.

1) Plum Pox Virus (PPV) is a plant disease that infects stone fruit trees including peach, nectarine, plum, apricot and cherries. The disease is considered the most serious viral disease of stone fruit trees. In the early 1990's Dr. Ralph Scorza of USDA-ARS, successfully transformed plum with the coat

protein of PPV, enabling the plum to resist the virus through post-transcriptional gene silencing. The EPA considers plants that include Viral Coat Proteins to be biopesticides.

IR-4 made a regulatory submission to the Biopesticides and Pollution Prevention Division of EPA, and in May 2010, the EPA approved the registration of the HoneySweet Plum tree. This is the first fruit tree that has gone through the full EPA regulatory

framework and the first tree of any kind that has been registered solely through the efforts of governmental organizations.

2) *Trichoderma hamatum* isolate 382 is a soil dwelling beneficial organism to enhance disease resistance in ornamentals. It is designed to treat potting mixes and prevent the infection of soil borne diseases, and was registered for use in all Food and Ornamental crops.

YES... IR-4 Helps Support Organic Growers

One of the greatest difficulties in organic crop production has been weed management.

3) Acetic acid is the active ingredient in vinegar, but at a higher concentration, it can effectively control small emerged weeds. It is not selective so it has to be directed away from the crop to avoid crop injury. This registration presents a significant opportunity for organic growers.

Yes...IR-4 Helps U.S. Growers Compete Globally

Many "orphan"(not belonging to a crop group) and new ethnic crops are of increasing economic importance, or have great potential to be grown on a larger scale in the future due to their nutritional content, or the increased market demand driven



by growing ethnic populations.

Since these commodities are not members of crop groups, tolerances requested for these commodities would have to be established based on separate residue studies. Without a doubt the inclusion of commodities in crop groups/subgroups benefits growers and consumers: saves time and tax payer money on residue studies; saves government agencies' time in review of residue data; and facilitates the establishment of tolerances.

One success that exemplifies the value of crop group expansion was IR-4's work on chlorantraniliprole, also known as RYNAXYPYR. This new reduced-risk insecticide effectively controls caterpillars, which infest hundreds of specialty crops. IR-4's data supported global registration of this product in more than **60 countries**, including important U.S. trading partners.

The combination of extensive global registrations, wide safety margins for man and the



"The IR-4 program is instrumental in helping our growers and producers have the best insecticides, fungicides and growth regulators available. This enables us to do the best job possible growing our crops and helps us be competitive in global markets."

— Bill Cook, VP, Southern Growers Wholesale Nurseries and Greenhouses

Benefiting Growers in an International Arena...

environment, and excellent efficacy resulted in rapid adoption by growers. It also represents a new mode of action, making chlorantraniliprole a very useful rotation partner with other reduced-risk insecticides. This product has been a boon to world-wide insecticide resistance management programs.

IR-4 played a key role in the rapid adoption of this important new insecticide by working closely with the registrant and EPA on a plan to expedite specialty crop

registrations. IR-4 proposed extrapolations from existing data sets to cover crops for which residue data were lacking. This shaved several years off the registration process for dozens of crops. Reducing the number of future field trials (which was also proposed) will reduced the time, effort and money required to gain even more registrations.

IR-4's efforts resulted in the initial registration of over 300 specialty crops in record breaking time!

IR-4's data supported global registration of this product in more than 60 countries...

IR-4's Ornamental Horticulture Program benefits international growers through:

- 1) collaborative efforts with university professors in developing insect management plans
- 2) sharing crop safety and efficacy data to support international registrations
- 3) close collaboration with Canadian counterparts whose growers share similar pest problems.



YES...IR-4 Benefits the General Public

IR-4 efforts provide tangible benefits to the general public. Throughout the year, consumers can purchase an endless supply of high quality, reasonably priced, fruits, vegetables, herb and other specialty food crops that provide essential nutrition for a healthy diet.

IR-4's work on Ornamental Horticulture also benefits the general public by helping to ensure a healthy selection of plants, which enrich the

environment by recycling oxygen, sequestering carbon, reducing air pollution, absorbing impurities in water, and improve the quality of life.



One example of IR-4 research that benefits the general public is the work being

conducted on the Brown Marmorated Stink Bug (BMSB). This pest has already damaged crops and has infested countless homes throughout the U.S.

IR-4 benefits the general public, with safe, high quality, and economical food and horticulture crops.

IR-4 is working with research and regulatory authorities to provide growers and homeowners with options to manage BMSB.

YES...IR-4's PHP Program Benefits the General Public

The IR-4 Public Health Pesticides (PHP) Program

promotes the development and registration of materials that protect the public from vector-borne diseases such as West Nile Virus or Lyme Disease. During its first full year, the PHP has built links to major user

groups and pesticide developers, launched the first public access database of chemicals used to combat disease-carrying arthropods, initiated regulatory approval processes for a wide portfolio of novel pesticide products, and facilitated efforts to retain existing products facing cancellation due to regulatory costs that exceed market revenues.

Although malaria and many other arthropod-borne diseases have apparently been eradicated from

Benefiting the General Public

U.S. soil, the public remains at risk both from reintroduction and the emergence of novel diseases spread by mosquitoes, ticks, sand-flies, and other vectors. In recent years, major outbreaks of West Nile Virus and Lyme Disease have reminded us of the need for vector control. More vividly, localized outbreaks of dengue fever in Florida, Rocky Mountain spotted fever in Arizona, and chikungunya fever in Italy, have also brought suffering and death. The IR-4 PHP program,

which was built on IR-4's traditional expertise in supporting pest management in small markets, has become a key player in linking researchers, commercial partners, and regulators in the development of new chemical tools, including toxicants, repellents, and baited traps.

The IR-4 PHP program has also worked to retain existing tools which might be repurposed effectively for vector control at relatively low regulatory cost.

The IR-4 PHP program is primarily funded by the U.S. Department of Defense and USDA-ARS, with the goal of protecting deployed troops from the risk of arthropod-borne diseases and IR-4 has been named the regulatory agent for the Armed Forces Pest Management Board for some regulatory actions with EPA.

Some of IR-4's PHP deliberations with these agencies have focused on policy changes needed to allow pesticide registrations for

use in combat zones, areas with humanitarian operations, and other overseas bases. Other discussions have focused on pest control and the development of appropriate risk assessments.

While the primary goal of this work is protection of American military men and women, this work could also lead to major civilian spin-offs, bringing significant value to people throughout the world.



Direct Support

USDA-NIFA (Improved Pest Management)	\$ 12,180,000	
USDA-ARS	\$ 4,000,000	
USDA-FAS (TASC Grant)	\$ 500,000	
USDA-APHIS (Invasive Species)	\$ 172,000	
Hatch Grant (Multi State Research)	\$ 481,182	
Dept. of Defense/USDA-ARS (Public Health)	\$ 250,000	
Industry Grants	\$ 1,100,000	

Over \$18 million direct



In-Kind Support

Land Grant Universities and/or State Agriculture Experiment Stations	~\$10,000,000	
Crop Protection Industry	~\$ 3,000,000	
Regulatory Authorities (EPA, CA-DPR)	~\$ 4,200,000	
Agriculture and Ag-Food Canada	~\$ 800,000	

~\$18 million indirect



YES...IR-4 faced major challenges in 2010 relating to research timelines and resources. **The challenge of research timelines** has taken a more prominent role in IR-4 due to procedural changes within EPA and within registrant companies. The timelines are being affected on a routine basis as IR-4 is being asked to coordinate submissions of its data for a specific active ingredient to align with schedules established by registrants or EPA.

18 to 24 months to synchronize with other actions within the regulatory authority. This is of critical importance - if IR-4 misses the submission window, the submission may be delayed for one or more years awaiting the next opportunity. IR-4 has established a workgroup to examine how processes can be improved to reduce the time it takes to complete IR-4 studies. Since there is no "magic bullet" solution, the workgroup will focus on multiple aspects of IR-4

IR-4 is often asked to develop/submit data in

Benefiting the General Public...YES...but IR-4 Faces New Challenges



research which must collaboratively adjust to meet timeline demands.

Also, there may be significant cuts of funding to discretionary programs within agriculture. Any funding cuts are likely to result in a reduction of IR-4's ability to conduct necessary research to help specialty crop growers gain the tools they need to control pests on their crops. Equally worrisome are the budget situations of the host institutions

that support and house IR-4 research centers, laboratories and offices. IR-4 currently receives significant in-kind and direct support from State Agricultural Experiment Stations/Land Grant Universities. Any reduction of the existing support will also directly impact IR-4's research capacity.

IR-4 continues to receive strong support from U.S. specialty crop growers - specifically:

- the IR-4 Commodity Liaison Committee, and

- the Minor Crop Farmers Alliance who take great interest in IR-4's work.

Despite these challenges, we remain optimistic about the future and will continue our mission—to facilitate registrations of sustainable pest management technology for specialty crops and minor uses—in 2011 and beyond!

"I would score the IR-4 program as an invaluable, irreplaceable part of our production program. Without it, growers would not have products labeled for specialty crops, and the public would miss out on locally grown fruits, vegetables and ornamental crops."

— Steve Little, Manager, Farm Operations, The Pictsweet Company

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