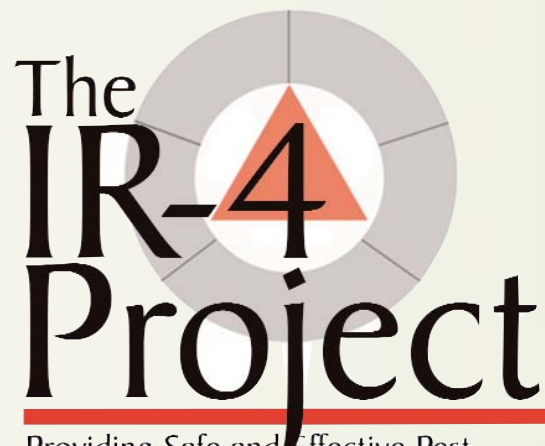


# 2006 YEAR IN REVIEW



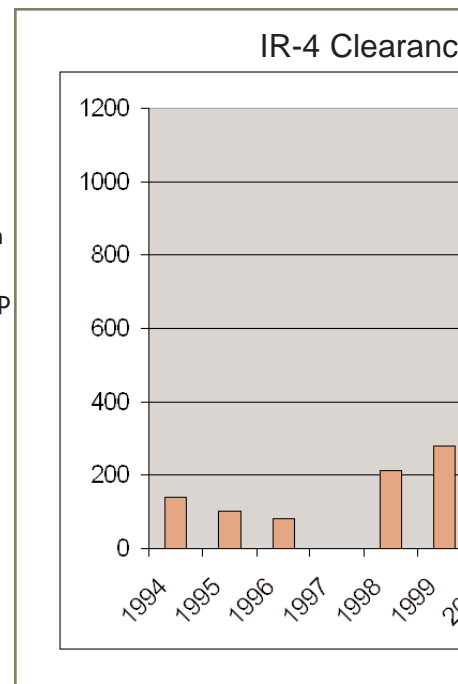
Providing Safe and Effective Pest  
Management Solutions for  
Specialty Crop Growers

# IR-4 2006 ACCOMPLISHMENTS

## A MESSAGE FROM IR-4'S EXECUTIVE DIRECTOR...

On behalf of 125 employees involved with the IR-4 Project at the State Agricultural Experiments Stations and USDA-ARS, I am happy to share that 2006 was another highly successful year for the IR-4 Project. Our 2006 accomplishments were many and include:

- 189 new tolerances were approved through US EPA. IR-4 data supported 804 clearances for conventional crop protection products. These clearances support 156 priority project clearance requests submitted by IR-4 Project stakeholders.
- IR-4 data supported 21 Emergency Exemptions (Section 18 clearances). These are ongoing research projects but due to the critical nature of the pest management void, immediate short term approvals were requested by the states and granted by EPA.
- IR-4 Headquarters Study Directors submitted 175 data packages and/or petitions to EPA. This is a single year record number of submissions.
- IR-4 Regional/ARS and other cooperating analytical laboratories completed 80 analytical summary reports.
- The IR-4 Field Research Centers and other research sites successfully completed 650 field trials with the shipment of residue samples.
- IR-4 Quality Assurance Unit completed reviews on 98 Final Study reports.
- EPA Biopesticide and Pollution Prevention Division approved 2 packages that support registrations on 306 food crops and numerous ornamental crops. This, together with the 804 clearances on conventional crops made 2006 a record year for IR-4 clearances, a total of 1,110 new uses!
- Six biopesticide petitions, amendments or data submissions were made to EPA .
- IR-4 received 113 Biopesticide Research Funding Proposals. These were reviewed and 44 proposals were funded.
- EPA Health Effects Division reviewed and approved three crop group expansion documents. Additionally, three proposals to modify and expand the established crop groups were submitted.
- IR-4 conducted over 1,300 trials with greenhouse and field ornamental.
- IR-4 has submitted eight ornamental data packages to registrants.



# IR-4 Providing Safe and Effective Pest Management Solutions for Specialty Crop Growers

The IR-4 Project was able to accomplish all this based on federal funding through USDA-CSREES at \$10.667 million, through USDA-ARS at \$3.92 million, through the state Agricultural Experiment Stations at \$0.481 million and gifts/grants from industry totaling approximately \$2.0 million. Additionally, both the State Agricultural Experiment Stations and the crop protection industry provided a significant amount of "in-kind" resources to further assist in the efforts of IR-4. It has been estimated that these "in-kind" contributions total over \$10 million.

The IR-4 Project has established a proposed research plan for 2007. In the Food Program, this plan includes 644 field trials associated with 87 studies. This effort starts the process to answer the critical pest management voids identified by the 220 stakeholders at the 2006 IR-4 Food Use Workshop in Indianapolis, IN. Data from this research is intended to be submitted to EPA during 2009. IR-4 continues to do several North American Free Trade Agreement (NAFTA) projects in cooperation with the Minor Use Program of Agriculture and Agri-Food Canada. New for 2007 is the first tri-lateral cooperative research project. It is anticipated that Canada and Australia will conduct field trials using the same protocol as used in an IR-4 study.

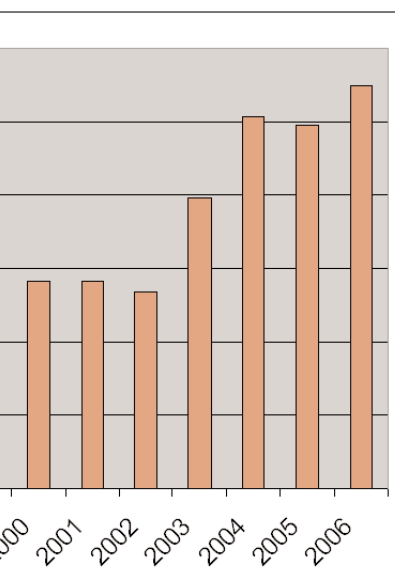
In the Ornamental Horticulture area, IR-4 is intending to conduct another 1,200 research trials in 2007 in association with the priorities identified at the 2006 Ornamental Workshop in Denver, CO.

The Biopesticide Program is well on the way to finalizing its research plan. Biopesticide Research Funding Proposals for the Early, Advance and Demonstration programs are in and under review. Final decision of projects funded will be made by March 1, 2007.

IR-4 continues to be involved in international harmonization of pesticide regulations that will allow US growers increased access to foreign markets. To this end, we will continue to submit IR-4 data to foreign regulatory bodies in order to establish harmonized Maximum Residue Levels. IR-4 is taking the lead on harmonization of crop groups and revisiting the concept of global zoning/harmonized residue data requirements. IR-4 is a co-sponsor of the First Global Minor Use Summit which is scheduled to take place December 2007 in Rome, Italy.

Federal funding for the IR-4 Project in FY 2007 is expected to stay at FY 2006 levels. It is anticipated that the 110th Congress of the United States will complete FY 2007 on a Continuing Resolution.

es Since 1994



In closing, I want to personally thank and acknowledge the efforts of many who make the IR-4 Project a successful, functional national research program. This includes IR-4 Field Research Directors and their assistants, IR-4 Regional Field Research Coordinators, IR-4 Laboratory Research Directors and their team of chemists, the IR-4 Quality Assurance Unit, IR-4 Headquarters, and IR-4 Management (the Project Management Committee and Administrative Advisors). I want to also thank members of the IR-4 Commodity Liaison Committee for their continued support.

*Jerry J. Brown*

Accomplishment details can be found in the 2006 IR-4 Project Annual Report at [www.ir4.rutgers.edu](http://www.ir4.rutgers.edu)

## North Central Region 2006 Highlights

The IR-4 North Central Region (NCR) supports Field Research Centers at Michigan State University (MSU) and the University of Wisconsin and has one analytical laboratory at MSU. This year, the region completed 84 field data packages and 12 Analytical Summary Reports. As a result of the 2005 IR-4 NCR State Liaison meeting, the IR-4 Food Use Workshop and the National Research Planning Meeting, 91 food use field trials (90 GLP [Good Laboratory Practice] and one efficacy) were conducted in 2006. The MSU lab was assigned analytical responsibility for 93 residue trials. To support this work, the NCR Quality Assurance Unit was busy auditing 169 field trials and 50 laboratory analytical trials in NCR university and USDA / ARS facilities.

The NCR is able to support an ornamental Research Center at the University of Illinois and in 2006, 204 pesticide efficacy and crop safety studies were completed.

In addition to these food use and ornamental trials, the NCR also supported 11 biopesticide development studies and three biopesticide demonstration projects, which were co-funded by US EPA.

The NCR is home to a unique specialty crop, ginseng. On June 10, 2006, a group of Wisconsin ginseng growers visited with MSU field and laboratory scientists and observed the IR-4 trials being conducted to support the registration of fungicides for sustained ginseng production. MSU's Mary Hausbeck, Department of Plant Pathology, and Field Research

Coordinator, Satoru Miyazaki attended the 2005 Wisconsin Ginseng Growers meeting to present the ginseng research results as well as provide information on the petition status of the fungicides. Based on 2002 IR-4 field trials, EPA granted a tolerance for fenhexamid in March, 2006. The ginseng growers are anxiously awaiting labels for ginseng disease control and are very active in getting the word out to the Wisconsin federal and state legislators.

As a result of regional meetings like these, the NCR can learn first hand of their grower's needs. In 2006, they learned their multiple vegetable growers have a critical need for herbicides to alleviate expensive hand weeding. This need will be reflected in IR-4 NCR project prioritization for next year.

## Northeast Region 2006 Highlights

The Northeast Region (NER) successfully completed its mission of developing data to support pest management product registrations for specialty crops. This was done with the good will and cooperation of field researchers at land-grant universities and state experiment stations, as well as private crop consultants who were willing to help get the job done. The NER lab also contributed to IR-4's success by completing analysis of 138 residue trials (18 studies) with samples received from all over the US and Canada.

The Northeast initiated 83 magnitude of residue trials. Despite the cold, wet spring and extremely hot summer, which resulted in crop losses, the majority of the trials were completed, and only a few had to be rescheduled for next year. The majority of the NER residue work is conducted at one of three centers in the region.

The IR-4 field research center in Salisbury, MD took on a new crop this

year in a GLP trial. Marylee Ross, working closely with personnel at Lambert Spawn, was able to successfully complete one of NER's trials for the magnitude of residues in mushroom, a specialty crop of great importance to the region.



Several field researchers had trials using the ePen. This was the second year of participation for a few of those researchers. The QAU conducted 17 field in-life audits this year, driving from Maine to Maryland to complete.

The Northeast region also funded trials for 11 ornamental protocols including: efficacy work on *Phytophthora* in rhododendrons/azaleas and *Pythium* in impatiens; control of foliar and root feeding beetle control, especially of the *Viburnum* leaf beetle, of particular importance in New England; management of thrips and Q-biotype whiteflies in ornamental greenhouses; efficacy of growth regulators in geranium and tulip storage; and crop safety of several herbicides in ferns, herbaceous and woody perennials. Eight biopesticide projects were also funded in the northeast.

## Southern Region 2006 Highlights

The IR4 Southern Region (SOR) expanded all phases of its operation in 2006. The field research centers were increased to seven with the addition of two private consultants. This enabled the SOR to conduct 118 magnitude of residue trials in compliance with GLP's. Sam Fernando, Regional Quality Assurance Coordinator, continued his Herculean efforts by



# THE FIELD AND LABORATORY WORK

making 29 on-site visits and reviewing 75 Field Data Books to assure all work complied with GLP requirements.

Jau Yoh and her University of Florida laboratory team continued their exemplary work and produced 125 residue analytical reports for the IR-4 national program, an increase of 36 from the previous year.

By combining funds from the SOR food use, ornamental and biopesticide programs, the IR-4 southern region performance program was able to fund a record number of efficacy/crop safety trials in 2006. Data developed in this program was used to support 27 Food Use Projects that will be researched in 2007. Commitments were made to collect ornamental data on more than 409 pest product/commodity combinations. Nearly half of the 113 Biopesticide Proposals submitted for funding came from the southern region. More than 64 university research scientists in every southern region state were funded to do IR-4 efficacy/crop safety studies. This was made possible due to the matching support of monies raised from 39 businesses outside the IR-4 Project.

## Western Region 2006 Highlights

The Western Region IR-4 experienced excellent cooperation between all sectors of the project to accomplish its work this past year. This cooperation started with protocol development and review early in the year with field researchers and extension specialists. The field researchers continued this cooperation with a busy spring and summer field season to implement the research projects. The Regional lab cranked out its analysis of samples arriving from throughout the national project.

224 magnitude of residue trials were conducted by the Western Region in 2006. These trials were conducted at

thirteen different field research centers spread from Hawaii to Colorado and



throughout the west. Our Quality Assurance Unit valiantly covered this far flung territory conducting critical phase and facility inspections. Beyond the field research cadre the program conducted 238 ornamental program trials and funded 14 biopesticide research grants.

At the behest of California permanent crop growers the program participated in a seminar examining the need and regulatory hurdles for registering ant bait stations. Dr. Keith Dorschner from IR-4 HQ joined us in February for this symposium held at the Kearney Research Center and his efforts have been instrumental toward the EPA's acceptance and registration of this technology. The cooperation at this meeting showcased IR-4's interaction with registrants and regulators to address a specific pest control need for specialty crop growers.

Along with everyday field and laboratory activities the Western Region participated in the national ePen training held in Phoenix, Arizona. Along with a bevy of Good Laboratory Practice (GLP) training this meeting initiated the group to the electronic pen Field Data Books. This pilot project was introduced to ten field researchers conducting twenty-six electronic pen trials. Preliminary experience from these trials will contribute to an understanding of this tool's applicability for the national program.

In all, 2006 was a typical year for the Western Region, juggling one year's active schedule of lab, QA and field activities with our ongoing work alongside growers and specialists to represent pest control needs. This dedicated group of scientists,

technicians and growers cooperated to tame the complex and challenging geography of Western Region agriculture.

## USDA/ARS 2006 Highlights

The USDA/ARS field program is conducted at sites in Charleston, SC; Salinas, CA; Tifton, GA; Wapato, WA; Weslaco, TX; and Wooster, OH where 101 GLP residue trials were initiated in 2006.

ARS also conducts laboratory analysis and undertook 145 residue trials in its three ARS analytical laboratories.

This represents a 25% increase over 2005.



In the ornamental program, ARS cooperators at centers in Charleston, SC; Prosser, WA; Tifton, GA; Wapato, WA; and Wooster, OH initiated 271 ornamental trials. ARS also funded nearly 50 ornamental trials at the Northeast Region's field research center in Cream Ridge, NJ. In 2006, ARS developed a cooperative agreement with the University of Maryland to conduct ornamental trials at their Salisbury facility.

Since its inception, the pilot ePen project has been fully funded through ARS and in 2006, ARS continued its support by conducting 10 digital pen trials. This program, when fully implemented, could result in considerable savings to the IR-4 program.

New in 2006 was the ARS field research center at Maricopa, AZ. The center will conduct magnitude of the residue and ornamental studies.

# ABOUT IR-4, Q&As AND NEW INITIATIVES

For over forty years, the IR-4 Project has been the major resource for supplying pest management tools for specialty crops by developing research data to support registration clearances.

IR-4 operates as a unique partnership between the State Agricultural Experiment Stations and the USDA (ARS and CSREES) to accomplish its goal. The Headquarters staff is located at New Jersey's Agricultural Experiment Station at Rutgers

University, the USDA / ARS management is located at Beltsville, Maryland and the four regional staffs are located at the University of California / Davis; University of Florida / Gainesville; Michigan State University / East Lansing; and Cornell University / Geneva, New York. All of these units operate independently under the umbrella of the Project Management Committee (PMC).

The PMC meets three times a year to review the status of ongoing programs, develop policy and procedures, set operational budgets, develop strategic plans, and ensure that the program's overall goals are being met. Its members include the IR-4 Executive Director, the four Regional Directors, the ARS National IR-4 Director, the Administrative Advisers (one for each of the four regions and the USDA / ARS Advisor), the USDA / CSREES IR-4 National Program Leader and the Chair of the Commodity Liaison Committee (CLC).

The IR-4 CLC serves as a bridge between IR-4 and the growers of

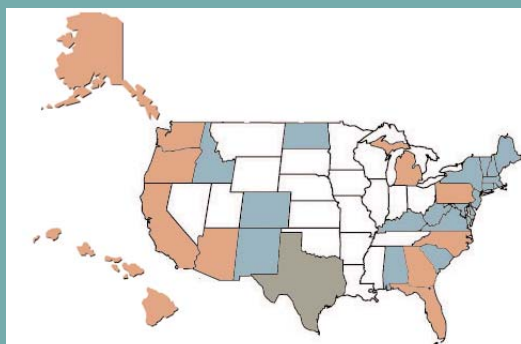
specialty crops to make sure that the program continues to focus on significant pest management problems. They provide guidance and advice and encourage their members, other commodity organizations and specialty crop growers to submit Project Clearance Requests (PCR's) to define

Agrichemical companies focus their efforts on high acreage crops where potential sales of their products result in an adequate return on investment. Traditionally, these companies conduct only limited research on specialty crops, which results in few pest management options being labeled for

## Factoid:

Even though these crops are classified low acreage, their value is substantial. They make up about 46% of U.S. agricultural crop production and \$43 billion in sales.

Specialty crops are grown throughout the US and twenty-six states derive more than 50% of their agricultural crop sales from specialty crops.



- Leading specialty crop production states (over \$1 billion) that also represents at least half the value of all crops grown in that state.
- States where specialty crops represent about half the total value of all crops grown in the state.
- Texas is a leading specialty crop state where specialty crops represent less than half the value of all crops produced in the state.

pest control problems needing IR-4 support. Another important CLC role is to support federal IR-4 funding and budget initiatives and to help secure other sources of extramural funding.

IR-4 Headquarters provides overall program coordination with various internal and external partners.

Regional Directors are responsible for the staff and programs in their regions, which are managed by Regional Field Coordinators, Regional Laboratory Coordinators and Regional Quality Assurance Coordinators.

With an average of 100 residue projects, nearly 700 field trials, over 1,300 (in 2006) ornamental efficacy and crop tolerance trials and nearly 50 Biopesticide Program projects, the collaborative coordination of these projects and trials is remarkable.

## Q. Why is Specialty Crop Pest Management Different From Major Crop Pest Management?

A. Economics, pure and simple.

specialty crop growers. High value, low acreage specialty crops need pest management tools; pest damage is very costly.

## Q. What has been done to help Specialty Crop Growers?

A. In 1963, the State Agricultural Experiment Stations and the USDA recognized this need and established the IR-4 Project to provide a means for US growers to have specialty crops included on pesticide labels. For over forty years, the IR-4 Project has been the major resource for supporting pest control agrichemicals and biopesticides for food and non-food specialty crops by developing residue and performance data to support product registrations by EPA.

## Q. How Does IR-4 Decide on What to Research

A. IR-4 uses an extensive stakeholder driven process to prioritize research to ensure that it is focusing on the most critical pest management needs of specialty crop producers. The priority

setting process engages representatives from state and federal agricultural scientific communities, state extension systems, commodity and grower groups, the crop protection industry, food processors, and state and federal regulators.

### **Q. How Does IR-4 Work with Conventional and Organic Based Crop Protection Companies?**

**A.** IR-4 recognizes that without access to new crop protection technologies, it can not assist specialty crop growers. IR-4 scientists approach companies and encourage them to work with IR-4 on new product development strategies. This results in the companies including more specialty crops in their development plans. Often IR-4 and companies work collaboratively on new products. Companies develop supporting data on major crops and IR-4 develops data on specialty crops. Then the entire data package is submitted to the EPA. For the first time, specialty crop growers have access to new product technology at the same time as major crop growers. Since 2000, over 80% of IR-4's research effort has involved new pest management technologies with biopesticides and lower risk chemistries. This new technology effort is accomplished through partnering with the agricultural chemical companies, and working in close cooperation with the Environmental Protection Agency (EPA) to facilitate specialty crop registrations for conventional and organic growers

### **Q. How Does IR-4 Work to Gain Registrations for Specialty Crops?**

**A.** IR-4 is a partnership between USDA (CSREES & ARS), the State Agricultural Experiment Stations, agrichemical and biopesticide registrants, growers, commodity groups, food processors and US EPA. This partnership has allowed IR-4 to successfully achieve over 20,000 clearances (about 10,000 food and

10,000 non-food) for products that could be labeled for specialty crops.

IR-4 and the Environmental Protection Agency (EPA) formed the IR-4 / EPA Technical Working Group (TWG), which began in 1999 for the purpose of enhanced coordination. This cooperation has benefitted specialty crop growers and both organizations by allowing enhanced efficiency in data development and review.

### **Q. Who Benefits from this Success?**

**A.** Growers are the primary beneficiary by having legal access to these products. The general public also benefits by having a safe, healthy and reasonably priced food supply.

### **Q. Is That Where the Story Ends?**

**A. No,** US specialty crop growers have new challenges in pest management. US specialty crop growers sometimes have problems exporting because international Maximum Residue Limits for the pesticides they use have not been established.

Newly emerging invasive insect and disease species have become a serious issue in some crops and in many areas of the US.

### **Q. How Can IR-4 Help With These New Problems?**

**A.** IR-4's Global Specialty Crop Initiative/Global Vision is providing expertise to minimize trade issues and support international harmonization of product registrations. By taking IR-4's existing data, formatting it per specific requirements, and submitting it to foreign regulatory bodies to establish harmonized MRLs, US specialty crop producers will have access to more export markets and become more competitive in global trade.

**Additionally,** the IR-4 Project is uniquely qualified to develop a program to address the issue of invasive pests that attack specialty crops. IR-4's network of state university and USDA researchers located throughout the US is capable of identifying solutions for invasive pests. IR-4, with its close association to the crop protection industry, has access to the newest pest management chemicals. This, combined with IR-4's network of analytical laboratories and partnerships with EPA and other regulatory agencies, could expedite the regulatory clearance of the most promising pest management tools.

### **Q. How is IR-4 Funded?**

**A.** The IR-4 Project is currently funded at \$10,677,000 and \$3,881,000 from CSREES and ARS, respectively.

### **Q. What Does IR-4 Need To Continue to Help Specialty Crop Growers?**

**A.** To address the new problems facing specialty crop growers, plus maintain the original core objectives, IR-4 requires \$20.5 million (\$16.0 M for CSREES activities & \$4.5 M for ARS activities).

The IR-4 Project is a model Federal/State/Private industry program with proven success in helping specialty crop growers.

To learn more about IR-4, visit our website at [ir4.rutgers.edu](http://ir4.rutgers.edu)

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