

2005 IR-4 ANNUAL REPORT



Providing Safe and Effective Pest
Management Solutions for
Specialty Crop Growers

ANNUAL REPORT OF THE IR-4 PROJECT (NRSP-4/IR-4)

January 1, 2005 - December 31, 2005

INTRODUCTION

BACKGROUND

The Interregional Research Project No. 4 (IR-4 Project) was organized 42 years ago by the Directors of the State Agricultural Experiment Stations (SAES) to obtain regulatory clearances for crop protection chemicals on specialty or minor food crops when the economic incentives for the registrants precluded private sector investment. IR-4 has been administered by the United States Department of Agriculture's (USDA's) Cooperative State Research, Education, and Extension Service (CSREES) since its inception in 1963. The Agricultural Research Service (ARS) component of the USDA established a companion minor use program in 1976 to provide further program support. The objectives of the IR-4 Project were expanded in 1977 to include registration of pest control products for the protection of nursery, floral, Christmas tree, and turf crops and again in 1982 when the objective of clearance of biological control agents or biopesticides was added. The IR-4 Project works as a model government program due to unique partnerships formed between the USDA (CSREES and ARS), the IR-4 Headquarters and Regional staff, the land grant university system, the crop protection industry, commodity and grower groups, the Environmental Protection Agency (EPA), and the California Department of Pesticide Regulation (CDPR) to bring crop protection solutions to specialty crop growers.

PROGRAMS

Food Use Program

In order for the program to respond to the pest control needs of specialty crop growers, project requests are received from growers, commodity groups, university researchers and extension personnel, USDA researchers and other interested parties and are prioritized at the Food Use Workshop held in September of each year. The Workshop high priority projects are finalized at the October National Research Planning Meeting where field residue and analytical laboratory assignments are made for the following year based on the best use of available USDA-ARS and land grant university personnel within the funding provided by Congress. In 2005, the program scheduled 95 projects with 674 residue field trials. Additionally, IR-4 scheduled 150 efficacy/crop safety trials as part of the pilot performance program.

Legislative initiatives have played an important role in the strategies for the program over the past 17 years. The 1988 amendments to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA

88) required a focused program on developing new data to support reregistration of existing products at that time because many of the older products did not have sufficient sales on minor crops to justify industry supporting them on those crops. Between 1989 and 1996, the IR-4 FIFRA 88 initiative led to the successful defense of over 700 minor crop registrations.

The passage of the Food Quality Protection Act (FQPA) in 1996 set in motion a new set of challenges which had been foreseen, in part, by the 1996 Strategic Plan. That plan recognized the trend of new, safer, reduced risk chemistries and biological control agents being developed by the crop protection industry. These products are extremely safe, making them ideal for use in integrated pest management (IPM) systems. IR-4 started integrating these new products into the 1997 program and has maintained the 70-80% level since 2000. This focused effort has given the program a high level of credibility with the EPA in partnering with them to implement the mandates of the FQPA as noted in the Program Cooperation and Coordination Section. The impact of the FQPA has become clearer in recent years. Residues of the older products in foods have been confirmed to be low or non-detectable and not a major health concern. However, some of these products have been shown to have levels of exposure to farm workers and applicators leading to label restrictions, especially for specialty crops. The impact of the cumulative risk assessment on the organophosphate and carbamate insecticides will likely impose additional specialty crop label restrictions. Fortunately, the EPA has worked closely with specialty crop growers and commodity groups to preserve critical uses of certain older products while working with IR-4 and crop protection companies to rapidly make available the new products.

Ornamental Horticulture and Biopesticide Program

The ornamental industry is an extremely important component of specialty crop agriculture with over \$15 billion in annual sales which comprise over 35% of all specialty crop sales. The research to develop efficacy and crop safety data to support registration of both traditional chemicals and biopesticides as pest control tools on ornamentals continues to be an important component of our overall program. The industry presents a formidable challenge since it involves a diverse array of crops in various markets such as floral, bulbs, forestry seedlings, Christmas trees, nursery, turf, commercial and interior landscapes, greenhouses, etc. Our focus

since 1996 on biopesticides and reduced risk, safer chemistries for the food use program has also been implemented in the ornamental program with comparable success, since the objective of developing pest control solutions that are safe for workers, adaptable to existing cultural practices, and effective in IPM programs is clearly compatible for both programs.

FY 2005 Budget

After a number of years of increased funding by Congress for both the ARS and CSREES budgets, the FY 2004 CSREES appropriation for the IR-4 Project was reduced by 10.59% from \$10.673 to \$9.549 million. Fortunately, in FY 2004 the crop protection industry and commodity stakeholders stepped up with additional financial support to dramatically lessen the negative impact. As a result of a concerted effort by the IR-4 Commodity Liaison Committee (CLC) chaired by Rocky Lundy, Executive Director of the Mint Industry Research Council, the FY 2005 Congressional CSREES appropriation was increased to \$11.135 million. IR-4 is fortunate to have the backing of stakeholder groups like the CLC and crop protection industry companies who support funding increases through their Congressional contacts and provide additional funding to accomplish an aggressive ongoing program.

FUTURE DIRECTIONS

The IR-4 Project Management Committee (PMC) has been proactive in implementing the current 2001 to 2005 Strategic Plan which is focused on the latest crop protection chemistries and biopesticides as specialty crop pest control solutions. The 30 month completion schedule from project initiation to EPA petition submission is also a key part of that Plan and the success rate continues around 70% due to EPA scheduling capacity limitations. IR-4 considers this level as extremely successful given the fact that IR-4's petitions have accounted for over 50% of the Agency's new uses for existing products for the past four years. The PMC scheduled a Strategic Planning Conference for February 15 and 16, 2005 to obtain stakeholder input for the next planning period (2006-2008).

The 2006 to 2008 Strategic Plan continues to target additional support for and emphasis on the Food Use and Ornamental Horticulture Programs. Other new 2006 to 2008 Strategic Plan Initiatives will include an Aquatic Herbicide Program, a Seed

Technology Program and a Global Specialty Crop Initiative.

The Biopesticide Research Program continued its eighth year of competitive grant funding of projects for \$475,000 and amounting to over \$3,325,000 since its inception. In addition to funding projects that have focused in recent years on the biopesticides considered Advanced Stage (near commercialization or commercialized but expanding uses to specialty crops), IR-4 has continued to help biopesticide registrants with regulatory advice and petition preparation help, if requested. IR-4 has supported the growth of the Biopesticides Industry Alliance (BPIA) as a trade association of biopesticide companies. IR-4 is working closely with BPIA and the EPA's Biopesticides and Pollution Prevention Division (BPPD) who regulate biopesticides to speed the registration and grower acceptance of these crop protection tools. BPPD provided major funding (\$100,000) to IR-4 in 2005 for a Biopesticide Demonstration Program with \$200,000 in total funding. The purpose of this program was to support grower use and university extension recommendations of currently registered biopesticides in combination and/or rotation with traditional chemistries for pest control on specialty crops in IPM systems. The demonstration program supported 16 grants in 2005 and a total of 56 across all grant stages.

The outreach/communications program expanded significantly in 2005. The IR-4 Newsletter is now an impressive glossy communication that provides articles of general interest to IR-4 stakeholders. Also improved and updated were the brochures as well as the IR-4 website and state specific communication pieces. A new publication, 2004 Year in Review, was published in 2005 as an easy to read, shorter version of the 2004 Annual Report. It was so successful that it will be continued for reporting 2005 successes in 2006.

This 2005 Annual Report highlights the progress of IR-4 toward achieving the goal of providing safe and effective chemical and biopesticide options for specialty crop growers which are compatible with IPM programs. The clearances were the second highest on record with 991 food use clearances including biopesticide food use clearances (compared to the record of 1,014 in 2004).

PROJECT: National Research Service Project No. 4 (NRSP/IR-4). A National Agricultural Program to Clear Pest Control Agents for Minor Uses. January 1, 2005 to December 31, 2005.

COOPERATING AGENCIES AND PRINCIPAL LEADERS: Cooperating agencies, principal leaders of the project, support groups and IR-4 State and Federal Liaison Representatives are shown in Attachment 1. Scientists participating in the project are shown in Attachment 2.

PROGRESS of WORK and PRINCIPAL ACCOMPLISHMENTS

FOOD USE RESEARCH PROJECTS

Since 1963, there have been 9727 IR-4 food-use requests submitted by stakeholders. In 2005, there were 301 requests submitted. Of these, 743 are researchable projects while the remainder have been addressed through research programs and clearances. In 2005, SAES and USDA-ARS cooperators scheduled research on 95 requested clearance projects (studies) which represented 674 field trials. Research protocols were prepared or revised for each study as required by EPA Good Laboratory Practice Standards. The chemicals and commodities researched in 2005 are shown in Attachment 3.

Additionally in 2005, IR-4 funded a pilot performance program to identify potential products that effectively managed certain critical pests on specialty crops or provided crop safety data. Three research studies were identified: the management of thrips on onion, the management of *Phytophthora capsici* on squash and pepper, and the identification of non-phytotoxic herbicides for leafy vegetables and herbs. For the management of onion thrips, two products had excellent performance and will be part of IR-4's 2006 residue research program. The participants recommended a second year of data were needed for the *Phytophthora* and herbicide crop safety projects.

FOOD USE REGULATORY ACCOMPLISHMENTS

Background of 2005. IR-4 had another outstanding year in 2005 by obtaining 991 clearances for specialty crops. As IR-4 implemented the new procedures resulting from the Pesticide Registration Improvement Act (PRIA) of 2004 (aka Fee for Service) and the EPA hired their new Minor Use Team Leader, progress for new clearances continued at a high pace. The EPA also issued their multi-year workplan (<http://www.epa.gov/opprd001/workplan/newuse.htm>) in 2005 as required by PRIA which indicates that IR-4 has 154 reports scheduled for review in 2006. Overall, the Agency should be maintaining its level of 50% of the overall workplan related to the number of IR-4 new uses. The workplan also goes a long way in resolving the backlog of projects currently at the EPA. It is likely that by 2008 this backlog will be eliminated.

The California Department of Pesticide Regulation (CDPR) continues to provide support to the workshare program and many of these new uses (nearly 30%) were a result of CDPR's review of residue chemistry data for the EPA. The CDPR has actually increased the number of IR-4 reviews from approximately 25 reports annually in recent years to nearly 50 reports in 2005. With regard to NAFTA joint reviews, a new framework for joint minor crop reviews between the EPA and Canada's Pest Management Regulatory Agency (PMRA) was implemented in 2005. One submission was completed in Canada in 2005 and should also be completed soon in the US. As well, there is one pending use and another eight submissions that will be made to the regulatory agencies in 2006. The frame work for minor use joint reviews stipulates an eight month review timeline that should greatly increase the number of minor use approvals and reduce the time from submission to final label. It is expected that as many as 15 joint minor use reviews will eventually take place each year between the EPA and Canada's PMRA, with the final result of providing simultaneous registrations on new products in both countries.

IR-4 continues to look at new efficiencies to gain greater numbers of registrations. The Registration Team at IR-4 Headquarters is now submitting nearly all new petitions electronically to the EPA and are using the EPA requested format for final reports. It is anticipated that using electronic submissions and the EPA requested formatting may save as much as 35% of the Agency's review time. Finally, there will still be a number of challenges in 2006 with one being the relocation of the entire EPA OPP workforce to a new building, which may have some impact on the overall accomplishments for 2006.

New Uses in 2005. The EPA continues to review and grant decisions on a large number of IR-4 submissions. Nine hundred and ninety one potential new uses were realized in 2005. These uses were based on 201 permanent tolerances, exemptions, label amendments, and temporary tolerances based on IR-4 data. This actually translates to over 50% of the new tolerances issued by EPA in 2005. New chemical clearances accounted for 659 of these uses while Section 18 uses account for 293 of the uses. These new uses reflect EPA work on 37 different products which is a significant increase over the 33 products reviewed last year. IR-4 was also responsible for eliminating 43 of the 67 tolerances associated with Section 18's in 2005.

IR-4 data also supported 39 new biopesticide food uses in 2005. These include: *Reynoutria sachalinensis* (Milsana) on all food commodities for 28 new food uses; AgriPhage on tomato and pepper; Polyoxin-D(Endorse) on ginseng; *Bacillus subtilis* (Serenade) on horseradish; *Pseudomonas syringae* (Bio Save ESC11) on sweet potato; *Muscodor albus* (Arabesque) on orange, cherry, and grape; *Paecilomyces lilacinus* strain 251 (MeloCon) on tomato and pepper; and *Alternaria destruens* Strain 059 (Smolder) for control of dodder (*Cuscutta spp.*) in cranberry.

In summary, the total new food use clearances supported by IR-4 research in 2005 include: 659 new chemical clearances, 293 Section 18 uses, 39 new biopesticide clearances and for a total of 991 new uses. A complete list of these new uses can be found in Attachment 4.

Crop Grouping Project

The following crop group petitions were submitted to the EPA in 2005: Bulb Vegetables, Berries and Small Fruits, Edible Fungi, and Fruiting Vegetables. Attachment 5 summarizes the proposed new groups. EPA has approved the expanded Bulb Vegetables Group, and is preparing a Reviewer's Guide for using this new group in tolerance petitions. It is anticipated that EPA will codify the new bulb vegetable group and other approvals in 2006.

In 2005, the International Crop Grouping Consulting Committee (ICGCC) continued to grow to over 170 members representing over 30 countries. In September, the first ICGCC meeting was held in association with the IR-4 Food Use Workshop in San Diego, CA and was attended by around 60 members from nine countries. Led by Hong Chen, the theme of the meeting was the world harmonization of crop classification. The revision project for Codex Classification of Food and Animal Feed has noticed the activities of the US Crop Grouping Project and the ICGCC. The leading person in the Codex revision project, Erica Muller, a member of the Delegation of the Netherlands to CCPR, attended the San Diego ICGCC meeting.

REGULATORY PROGRESS

IR-4 staff adapted to the new submission procedure of the EPA in 2005 that now requires IR-4 to submit the registration package and draft Notice of Filing at the time the petition is submitted. IR-4 is still anticipating that the new law will hold significant potential for increased crop protection product registrations as well as better predictability and increased accountability in registration decisions from the EPA. As noted earlier, IR-4 is now submitting nearly all petitions electronically to the EPA. These submissions also assist with the joint reviews with California's Department of Pesticide Regulation (CDPR) and Canada's Pest Management Regulatory Agency (PMRA). These submissions enable the EPA to review IR-4 petitions more rapidly and with fewer resources. IR-4 submissions are also now in a

new format known as the “EPA Recommended Format” which again should help the Agency review IR-4 petitions more rapidly.

Data Package Development

IR-4 submitted 115 data packages to the EPA or the registrants for new specialty crop registrations in 2005 (see Attachment 6) which was slightly higher than the 111 packages submitted in 2004. However, the number was still lower than the record number of 150 data packages submitted in 2002. This decrease is entirely due to adapting to the new requirements of PRIA as well as spending time “activating” or notifying the EPA of existing (backlog) submissions so they could build their multi-year PRIA workplan. It should also be noted that IR-4 completed and signed an additional 27 reports but were not able to submit those reports to the Agency because IR-4 is either still waiting for information from the registrant (registration package) or is waiting to build a larger bundle of reports before making the submission for a given product. Therefore, there should be a significantly higher number of submissions in 2006. As well, IR-4 is still expecting to maintain the high numbers of new uses from the EPA (50% of total uses) in the next few years because of the large number of “activated” submissions that were backlogged at the Agency which will now be acted upon resulting in an increase in the overall number of clearances. The current number of projects in line for report writing in 2006 is 397 (see Attachment 7).

ORNAMENTAL HORTICULTURE RESEARCH AND CLEARANCES

In 2005, IR-4 conducted over 1200 ornamental horticulture research trials to support registrations in the greenhouse, nursery, landscape, Christmas tree, and forestry industries. Of these, 186 efficacy trials were with tools to manage insects and mites; 224 efficacy trials were with fungicides; 8 plant response trials for plant growth regulators; and the remaining trials were conducted to determine the level of phytotoxicity to crops with herbicides used to manage common weeds in and around nurseries.

During 2005, one new label registration was granted for use on ornamental horticulture crops from data generated through the Ornamental Horticulture Program: Endorse (Polyoxin D). From 2002 to 2004, 194 trials were conducted with Endorse to demonstrate safety on 91 different annuals, herbaceous perennials, and woody ornamentals. Although 1226 trials were submitted to manufacturers during 2003 and 2004, no other new registrations or label amendments were granted in 2005 directly related to IR-4 activities. The primary reason for this is that most fungicide and insecticide labels for ornamental horticulture crops only list those crops where injury has been observed.

Due to the proliferation of open labels during the past decade, the number of IR-4 regulatory successes in the ornamental horticulture program has declined even while the number of trials conducted has increased. Therefore, a new way of accounting the numerical successes of the program is being introduced which will demonstrate the volume of research through this program as well as clearly show the number of new product registrations or label amendments of existing products aided by IR-4 activities. This would include new registrations where IR-4 assisted in developing either crop safety or efficacy data as well as label amendments where the changes are directly related to IR-4 generated data. If IR-4 generates crop safety or efficacy data for a product that does not result in a label change, it will not be accounted for in these categories, but it will be taken into consideration in the number of completed trials.

Category	2004			2005		
	Efficacy	Crop Safety	Total	Efficacy	Crop Safety	Total
Number of Studies (PR Numbers) with Planned Trials	61	505	566	319	582	901
Number of Planned Trials	105	724	829	411	913	1324
Number of Cancelled Trials ^a	-- ^b	-- ^b	-- ^b	33	0	33
Number of Trials in Progress ^a	64	147	211	227	446	673

Number of Completed Trials ^a	41	577	618	151	467	618
Number of New Product Registrations ^c	0	3	3	0	1	1
Number of Label Amendments ^d	0	2	2	0	0	0

^a Known when this report was compiled, 2/3/06.

^b Prior to 2005, cancelled trials were deleted from the database.

^c New products for the ornamental horticulture industry based on data collected through IR-4 and submitted to manufacturers in previous years. In 2004, IR-4 data contributed to crop safety information for two new products: Rhapsody Biofungicide (*Bacillus subtilis* QST 713) and Aria (flonicamid); in 2005 IR-4 data contributed to crop safety information for one new product: Endorse (polyoxin-D).

^d Label updates on existing products for the ornamental horticulture industry based on data collected through IR-4 and submitted to manufacturers in previous years.

Other program activities for 2005 include:

- Placing IR-4 in the forefront of efficacy testing for *Bemisia tabaci* Q biotype, a newly introduced whitefly with a unique resistance profile
- Introducing an alternative method for grower input – an annual survey of disease, insect, and weed management tools
- Establishing a new process to discuss and prioritize research activities at the annual workshop resulting in those top projects: *Phytophthora* efficacy, *Pythium* efficacy, Thrips efficacy, Coleopteran efficacy; Broadleaf weed and sedge management tools crop safety
- Refocusing the discussion and prioritization of Plant Growth Regulator (PGR) research with the researchers conducting trials with PGRs
- revising the registrant report format for data in high priority projects
- Publishing several articles containing general information about the ornamental horticulture program and laying the groundwork to write articles about specific research activities.
 - Palmer, C. L. NMPro Q&A about the IR-4 Ornamental Horticulture Program (NMPro, August 2005)
 - Palmer, C. L. GMPro Q&A about the IR-4 Ornamental Horticulture Program (GMPro, September 2005)
 - Lightbourne, N. and C. L. Palmer. The IR-4 Ornamental Horticulture Program 2005 Grower Survey Assists in Determining the 2006 Research Priorities (GMPro, January 2006)
- Polling the advisory teams on several key topics and directions for program:
 - Strategic plan
 - Data collection sheets
 - New system for establishing research priorities
 - 2005 annual workshop agenda
 - Reclassification of ornamental horticulture use sites under EPA general use patterns

BIOPESTICIDE RESEARCH AND REGISTRATIONS

In 2005, the following biopesticide research projects were funded. *Early stage* projects included: Biopesticides Plus Fallow for Management of Replant Disease in Stone Fruits; Evaluation of a Biopesticide, *Pichia anomala* to Control *Aspergillus flavus* for Reducing Aflatoxin in Pistachio; Evaluating the Effectiveness of *Bacillus thuringiensis* (strain SDS-502, cry8Da gene) for control of Japanese Beetle Adults in Blueberries; Field Testing *Bacillus mycoides* Isolate BMJ for Control of Anthracnose and Angular Leaf Spot of Cucurbits, Cercospora Leaf Spot of Table Beet and Botrytis Blight and Leaf Mold of Greenhouse Tomato; Enhancement of Baits for the European Fire Ant with Pheromone; and Biological Control of Crown Gall in Grapevine.

Advanced stage projects included: Screening Endorse For Efficacy Against Alternaria Blight of Ginseng; Evaluation of *Pantoea agglomerans* C9-1 to Manage the Blossom Blight Phase of Fire Blight on Apple; Screening Endorse for Efficacy Against Fusarium and Cythrocarpus Root Rots of Ginseng; Management of *P. capsici* in Summer Squash with a Mycofumigant and Biopesticides; Control of Postharvest Decay Table Grapes with Arabesque (*Muscodor albus*); Evaluating the Effectiveness of Citrex for Disease Control in Blueberries and Grapes; Evaluation of *Pantoea agglomerans* C9-1 to Manage the Blossom Blight Phase of Fire Blight on Apple; Biocontrol of Internal Discoloration of Horseradish Root; Evaluation of EcoGuard for Efficacy Against Fungal Pathogens of Ornamentals; Biopesticides as Replacements or Rotation Partners for Oxytetracycline Against Bacterial Spot of Peach During the Cover Sprays; Biopesticides for the Management of Soilborne Diseases of Radish; Testing Efficacy of Bio-Save 10 LP and 11 LP Against Soft Rot of Sweetpotato; Efficacy Trials Using Facin EC25 With the Citrus Mealybug, *Planococcus citri* on Greenhouse Ornamentals; Evaluation and Comparison of Biofungicides and Fungicides for the Control of Post Harvest Potato Tuber Diseases; Evaluation of Agriphage, Copper Products, Phosphites, Terpenes, and Disinfectants Alone and in Rotations for Controlling Bacterial Spot of Bell Pepper in the Field and Greenhouse Transplants; Evaluation of Alternative Fungicides for Control of Phytophthora Blight on Pepper; Control of Brown Rot and Mucor Rot of Cherries with Arabesque (*Muscodor albus*); Evaluation of Canola Oil for Management of Hop Powdery Mildew; Expanded Demonstration of Codling Moth Granulosis Virus to Control Codling Moth in Pear Orchards; Evaluation of Agriphage for the Control of Bacterial Canker in Greenhouse Tomatoes, 2004-2005; Bio-fungicides for the Control of Botrytis Gray Mold in Greenhouse Tomatoes, 2004-2005; Biological Control of Invasive Wood Weeds in Parks, Urban Areas and Landscapes with *Chondrostereum purpureum*; Management of Summer Diseases on Apples with Phosphonate Fungicides; Protection of Watermelon Blossoms to Prevent Seed Infestation by the Pathogen *Acidovorax avenae* subsp. *Citrulli*; Evaluation of Biofungicides and Copper to Control Bacterial Leaf Spot on Turnip Greens; Biopesticides for the Management of Soilborne Diseases of Vegetables; Efficacy and Compatibility of Biofungicides with Commonly Used Soil Fungicides in Production of Herbaceous Perennials; Evaluation of New Miticides for Control of Mite Pests in Peaches; Biopesticide Control of Citrus Red Mite, Citrus Rust Mite, and Soft-Bodied Insects in Satsuma Citrus; Evaluation of the PGR Auxigro on Pistachios for Enhanced Yield and Quality; Evaluating the Effectiveness of Serenade for Control of Fruit Rot in Cranberries; Management of Rice Water Weevil with Neemazal™ 0.1%G Azadirachtin; Bio-Fungicides for the Control of Pythium Root Rot in Greenhouse Tomatoes, 2004-2005; and Efficacy of Biophos in an Integrated Management System for Potato Late Blight.

A demonstration program was initiated in 2004 through a cooperative between IR-4 and Biopesticides and Pollution Prevention Division of EPA. IR-4 and EPA continued this project in 2005 with a total of \$200,000 in funding. Proposals funded under this program included: Biopesticide-Based Area-Wide Approach to Managing Codling Moth in Michigan Apple; Control of Septoria and Anthracnose Blueberry Leaf Spot Diseases Through Use of Foliar-Applied Phosphite-Containing Biopesticides; Reduced-Risk Management of Peach Rusty Spot: Demonstration of Improved Timing and Integration of Biofungicides; Effectiveness of Contans and Serenade within a Biologically Intensive Integrated Pest Management System for Sclerotinia Drop on Lettuce; Evaluating Several Biopesticides for Powdery Mildew in Cucurbit Crops; Field Demonstration of Reduced Conventional Pesticide Use in Snap Beans by the Effective Utilization of Biopesticides; Demonstration of the Effectiveness of Sonata, *Bacillus pumilis*, Strain 2808, in a Wine Grape IPM Program to Control Powdery Mildew, *Erysiphe necator*; Effectiveness of Serenade and Sonata within a Biologically Intensive Integrated Pest Management System for Downy Mildew on Broccoli; Demonstrating the Role of Phostrol For *Phytophthora* Management in Ginseng; Effectiveness of *Metarhizium anisopliae* as a Biopesticide Against Oriental and Japanese Beetles; Application of Biopesticides for the Control of Mummyberry and Powdery Mildew; Efficacy of Oxidate for Control of Sour Rot and Powdery Mildew on Vinifera Grapevines; Improving The Field Performance and Adoption of Codling Moth Granulovirus in Organic and Conventional Orchards; Demonstration of Companion and PlantShield for Greenhouse Tomato; Demonstrate the Effectiveness of Serenade, *Bacillus subtilis*, Strain 0713, for Control of Fire Blight (*Erwinia amylovora*) in Apples and Its Utilization Within an Apple IPM Program in The State of Washington; and Demonstration of the Effectiveness of Serenade, *Bacillus subtilis*, Strain 0713, for Control of Silver Scuff (*Helminthosporium solani*) in Stored Potatoes.

In 2005, 4 biopesticide petitions, amendments or data submissions were made to the EPA. These are listed in Attachment 8.

METHYL BROMIDE ALTERNATIVES (MBA) PROGRAM

With the phaseout of methyl bromide in 2005, IR-4 has turned its focus to a field program much more limited in scope compared to previous years, and more to a supporting role for critical use exemptions (CUE's) for various specialty crops. IR-4 continues to support the transition away from methyl bromide through participation in the USDA National Methyl Bromide Management Plan.

The IR-4 Methyl Bromide Alternatives (MBA) program began in the fall of 1998 and since then many field trials have been run in the states where methyl bromide is an important product for the protection of tomato and strawberry crops from weed competition, and attack by plant parasitic nematodes and phytopathogenic fungi. The program was expanded in 2003 to include peppers, eggplant, cucurbit vegetables, cut flowers, ornamental bulb crops, and turf. Trial locations, in addition to those in CA and FL, included large scale programs in AL, MI, and NC. To a lesser extent, IR-4 has also been involved in finding and assisting in the development of products to protect specialty products in storage. Beginning in 2002, IR-4 provided data and other support in efforts to help commodity organizations obtain critical use exemptions (CUE's) to enable the continued use of methyl bromide until economical and technically viable alternatives can be registered and phased into grower practice.

IR-4 SEED TREATMENT TECHNOLOGIES PROGRAM

IR-4 initiated a new program in 2005 involving collaboration with agricultural chemical companies, university researchers, and the EPA on the development and registration of products useful in the protection of germinating seedlings/early season pest control by virtue of seed treatment. A number of companies are working with IR-4 on this new initiative and others are joining as the program develops. Companies currently involved in the seed treatment technology program include Bayer CropScience, BASF Corporation, Syngenta Crop Protection and DuPont Crop Protection. Products under evaluation include clothianidin from Bayer CropScience, fipronil, pyraclostrobin and boscalid from BASF Corporation, abamectin, mefenoxam, fludioxonil and thiamethoxam from Syngenta Crop Protection, and methomyl and oxamyl from DuPont Crop Protection. Researchers involved in extensive field programs in 2005 and/or to be involved in 2006 include John Palumbo, University of Arizona; Lindsey DuToit, Washington State University; Allen Straw, Virginia Polytechnic Institute and State University; T. X- Liu, Texas A&M University; Celeste Welty, Casey Hoy, Jim Jasinski, and others, Ohio State University; Brian Nault and Anthony Shelton, Cornell University; Kenneth Sorensen and Frank Louws, North Carolina State University; Frank Hale, University of Tennessee; Paul McLeod, University of Arkansas; Mary Hausbeck, Michigan State University; Tom Kuhar, University of Maryland; Jim Gilreath, University of Florida; and Rodriguez Kabana, Auburn University. Dr. Alan Taylor, Cornell University, is treating specialty crop seed sent to him by IR-4 cooperators and he has also agreed to using his laboratory to treat seed for GLP-compliant residue programs for IR-4 if so requested.

Regulatory support from the newly formed initiative involves working to acquire special local need labeling for thiabendazole for control of Black Leg (*Phoma* spp.) of crucifers in Washington and California, and Section 18 emergency use of clothianidin to treat dry bulb onion seed in NJ, CA, and WA, for control of resistant/tolerant onion maggot.

QUALITY ASSURANCE (QA)

The IR-4 Project's Quality Assurance Unit (QAU) continues to provide monitoring and support of cooperating scientists throughout the United States. Quality Assurance Coordinators have continued conducting on-site facility compliance inspections, in-life critical phase inspections, and raw data and final report audits as required by the Good Laboratory Practice Standards, 40 CFR 160 (GLPs). QA

findings, recommendations and documentation of corrective actions (160.35b(3)) were forwarded to the Study Directors and Testing Facility Management.

In addition to their standard duties, members of the IR-4 QAU were involved in US EPA GLP compliance inspections. Six IR-4 participating field testing sites and two IR-4 analytical laboratories were audited in 2005 by the US EPA for GLP compliance and data integrity. A total of 65 IR-4 related facilities have been inspected for GLP compliance since April 27, 1997.

The IR-4 QAU is comprised of HQ QA officers, Regional QA Coordinators, cooperating university QA Officers and USDA-ARS QA Officers. The IR-4 QAU functions under a set of mutually accepted Standard Operating Procedures (SOPs) by which it maintains consistent monitoring activities of IR-4 GLP research studies.

The IR-4 QAU is a cooperative unit. Representatives mutually monitor studies and coordinate activities in an efficient manner. In 2005, regular inspections included 25 facility inspections, over 200 field in-life inspections, 84 analytical in-life inspections, 83 analytical summary report/data audits and 631 field data book audits. There were over 80 final reports completed during the 2005 calendar year and approximately 75 final reports and amended reports were audited.

The Annual QA Planning Meeting was held on March 15-16, 2005 in Davis, CA. We were joined by Ms. H. Penny of Agriculture and Agri-Food Canada (AAFC), who represented the Canadian QA/GLP monitoring program.

PROGRAM COOPERATION AND COORDINATION

The IR-4 Program continues to pride itself as being a model of interagency cooperation for a federally funded program by forming partnerships with the crop protection industry, the land grant university system, commodity organizations, specialty crop groups, our USDA funding agencies (ARS and CSREES), regulatory agencies (the EPA, California's Department of Pesticide Regulation and Canada's Pest Management Regulatory Agency) as well as Agriculture and Agri-Food Canada to provide the latest pest control tools to specialty crop growers. The various partnership initiatives with the organizations noted are discussed below for 2005:

- **Crop Protection Industry.** Without the cooperation of the biopesticide and chemical companies who discover, develop, register, and market their new technologies, IR-4 would not have the newest crop protection products to provide our specialty crop stakeholders. We have continued and expanded our senior management and technical review meetings with crop protection industry companies this year. Over 30 meetings were held with 20 different companies. The visits to Japan by Drs. Bob Holm, Executive Director, and Jerry Baron, Associate Director, in 2004 strengthened IR-4's credibility with U.S. affiliates and gave the companies additional confidence in IR-4 working on their products with third party licensees. IR-4 is also encouraged that the new product pipeline restriction noted the past few years continues to be easing. In 2002 and 2003, the industry submitted only 9 new chemistries each year for EPA review compared to 20 in 1999. However, IR-4 came across at least 15 new products being commercialized by the crop protection industry in 2004/2005. IR-4 formed unique partnerships with at least three companies on their new molecules at a stage shortly after the commercialization decision was made. An outstanding example of this partnership initiative has been with Dupont Crop Protection and their exciting new insecticide DPX-E2Y45. DuPont and IR-4 worked together to develop a specialty crop strategy. Dupont used this opportunity to introduce DPX-E2Y45 at the 2004 Food Use Workshop rather than the traditional launch at a scientific society meeting. This approach allowed the university researchers working with the insecticide in recent years under confidentiality agreements to submit Project Clearance Requests for prioritization. The end result was two DPX-E2Y45 projects for the 2005 field research program. This is just one example of

many that typify the excellent partnerships developed between IR-4 and crop protection industry companies.

- **EPA**. Four meetings of the EPA/IR-4 Technical Working Group (TWG) were held this past year bringing the total to 27 held since the TWG was formed in 1999. The TWG has expanded in recent years to include California's Department of Pesticide Regulation, Canada's Pest Management Regulatory Agency, and Agriculture and Agri-Food Canada. The day long TWG Meetings consist of a morning session with EPA and IR-4 staff to discuss new regulatory approaches and ways to enhance the ongoing petition submission and review process. The afternoon session is open to all TWG partners in discussing U.S. and NAFTA regulatory efficiencies. IR-4 also sponsored a tour for EPA staff in the summer highlighting IPM production practices and organic farming.

EPA management support continued to be excellent at all levels in the Agency from Jim Jones/OPP Director and his senior management staff of Division Directors: Lois Rossi/Registration Division, Tina Levine/Health Effects Division and Debbie Edwards/Special Review and Reregistration Division. Jeff Herndon, Deputy HED Director and longtime TWG leader, continues to be a proactive EPA partner. Dan Rosenblatt, Risk Mitigation, Minor Use and Emergency Response Branch Chief with oversight management for the IR-4 petitions in RD, has also been a very supportive EPA manager. Dan led a search effort that resulted in the naming of Barbara Madden to replace Hoyt Jamerson as the Minor Use Officer. Barbara has worked closely with Dan Kunkel, Assistant Director Registrations, to coordinate IR-4 petition submissions and the new requirements under the Pesticide Registration Improvement Act (PRIA). She was also an active participant in IR-4 meetings attending the Food Use and Ornamental Workshops and a PMC Meeting.

In spite of the challenges faced by PRIA and personnel shifts/retirements, the Agency regulatory tolerance approvals of IR-4 submitted petitions resulted in the second highest number of food use clearances (991) compared to the previous record of 1,014 recorded in 2004.

- **California's Department of Pesticide Regulation (CDPR)**. CDPR has been a member of the TWG since 2000 and has been an active and productive contributor to the overall accomplishments as noted in the EPA section through a work share program on IR-4 petitions. In 2005, CDPR continued its commitment to provide the residue chemistry and risk assessment reviews for approximately 50 IR-4 petitions which accounted for approximately half of the total IR-4 petition reviews and 25% of the entire EPA workload. This was in spite of the continual state budget pressures thanks to strong management support from Mary-Ann Warmerdam, new CDPR Director, and senior management staff which included Paul Gosselin, Tobi Jones and Barry Cortez as well as David Supkoff, Senior Regulatory Specialist, who manages the program. David and the CDPR team actively participated in the TWG meetings and hosted a meeting for Headquarters and Western Region IR-4 staff at their offices in Sacramento in January to discuss additional partnership initiatives with Mary-Ann Warmerdam.
- **Health Canada's Pest Management Regulatory Agency (PMRA)**. PMRA staff, especially Doug Rothwell, continued their active participation in the Food Use Workshop and National Research Planning Meeting to facilitate the regulatory discussion on projects that AAFC selected to partner with IR-4 for joint resource sharing. The PMRA/EPA NAFTA workshare project on four IR-4 petitions for joint review that was approved by the December 2003 NAFTA Technical Working Group has progressed to the petition submission phase. The December 2005 NAFTA Technical Working Group approved an expansion of the program to 8 IR-4 petitions for joint review in 2006.
- **Agriculture and Agri-Food Canada (AAFC)**. The partnership between IR-4 and AAFC'S Pest Management Centre in Ottawa continued to flourish in 2005. IR-4 staff, at the invitation of AAFC, participated in the March 2005 Canadian Minor Use Workshop to explore ways to work jointly on

projects of mutual interest to U.S. and Canadian specialty crop growers. Shirley Archambault, AAFC IR-4 Coordinator, has done an excellent job in facilitating communications between our teams. Shirley and Ken Campbell, Acting Director, attended the summer PMC Meeting in Burlington, VT to explore means to expand cooperation efforts. Shirley and several AAFC team members attended the Food Use and Ornamental Workshops as well as the National Research Planning Meeting. AAFC will continue to conduct food use residue trials in 2006 as part of their partnership interest on projects prioritized by IR-4 stakeholders.

- **Commodity Liaison Committee (CLC)**. The CLC under the proactive leadership of Rocky Lundy, CLC Chair and the Mint Industry Research Council Executive Director, continued to provide stakeholder input on behalf of commodity groups and specialty crop growers to the PMC on overall operations and program direction. They also were responsible for actively addressing with Congress the negative impact of the 10.59% (from \$10.6 million in FY2003 to \$9.5 million for FY 2004) reduction in funding through USDA-CSREES. Their efforts were extremely successful as the result of numerous contacts with Congressional representatives and their agriculture staff leadership that resulted in a final CSREES appropriation of \$11.135 million for FY 2005. The entire program is grateful for their efforts which resulted in increased funding for the Food Use and Ornamental Horticulture Programs, the Biopesticide Program and special initiatives such as the Crop Grouping Project.

USEFULNESS OF FINDINGS

IR-4 goes through an extensive process each year to obtain input on the most critical pest control needs of specialty crop producers and to prioritize those research needs using committees of regional and national level agriculture experts to best match the program's resources with the current unmet needs. IR-4 provides program coordination, technical guidance and funding for both field and laboratory research to develop residue and other data required by the EPA to register specialty crop pest control solutions. All IR-4 food use residue research is carried out by EPA approved GLP's with coordination and implementation by the QAU. Annual training of the Field Research Directors, laboratory personnel and other support staff involved in the conduct of work is essential to the success of the IR-4 Project. A major GLP training meeting, the National Education Conference, is scheduled to be held from February 28th to March 2nd, 2006 in Phoenix. The Training Committee under the leadership of Van Starner spent considerable time this year planning for the 2006 event. GLP compliance audits of facilities and of ongoing field and laboratory procedures, provides assurance that IR-4 food safety data will be accepted by the crop protection industry, growers and the Agency. Without the existence of the IR-4 Project, fewer safe and effective crop protection chemicals and biological alternatives would be available for use on specialty crops today.

WORK PLANNED FOR 2006

IR-4 will continue to seek input and technical guidance from all of its stakeholders, including state and federal agricultural scientists and state extension agents and specialists, commodity groups, growers, the crop protection industry, food processors, CDPR and the EPA to insure the program maintains its focus on important specialty crop needs. Established partnerships will be enhanced while new partnerships will be explored.

The research program for year 2006 will consist of approximately 110 studies supported by 701 field trials, 27 more trials than scheduled in 2005. One Hundred and six of these studies will require the collection of residue samples and 4 studies will be for collecting efficacy and/or crop safety data to support specific data needs. The smaller efficacy program in 2006 is a result of the reduced budget in 2006 thereby eliminating the pilot efficacy program. Five hundred and twenty-eight of the field trials

(528) will be conducted by regional state agricultural research stations, while USDA-ARS will be conducting 115 field trials and Canada has agreed to cooperate on 58 trials.

IR-4 will continue its commitment to producing high quality, compliant scientific data in order to meet EPA's GLP requirements. IR-4 will continue to hold GLP and/or QA training sessions for IR-4 personnel and cooperators, audit data and reports, review and revise SOP's and strive to further enhance our effectiveness and efficiency.

The IR-4 QAU will meet on March 14-15, 2006 in Raleigh, North Carolina to conduct the annual QA Planning Meeting. The continued implementation of the IR-4 30 month time-line for study completion and the EPA review plan will be the major focuses as QA assignments are planned for year 2006. Coordination of the field research monitoring season with our Canadian QA partners continues to be a productive addition to the QA work plan.

For the 2006 Biopesticide Research Program, IR-4 received a total of 113 proposals requesting approximately 1.2 million dollars. Out of the 113 proposals 21 are Early Stage, 64 are Advanced Stage and 28 are Demonstration Stage proposals. Of the 113 proposals 70 involved disease management, 24 were for insect/mite management, 5 were for weed control, 11 are for nematode control, two are plant growth regulators and one involves bird management.

The IR-4 Methyl Bromide Alternatives field trial program in 2006/2007 is much more limited than in past years but it does involve continued research in CA cut flowers through support of the CA Cut Flower Commission, and a large field program in strawberries in CA with the Driscolls Company. These tests will be used to support CUE's for these commodities.

Ornamental Horticulture: In 2006, the research program will focus on the high priority projects established at the annual workshop: *Phytophthora* Efficacy, *Pythium* Efficacy, Thrips Efficacy, Coleopteran Efficacy, and Broadleaf Weed and Sedge Management Tools Crop Safety. The 2006 research program also enables each regional coordinator to focus some discretionary funds on trials of specific regional interest. The Northeast and Southern regions are coordinating their funding on herbicide fern safety, while the Western region enhanced the testing program for the high priority herbicide project.

IMPACT

The successes/accomplishments of the IR-4 Program have been documented by the food use and ornamental horticulture clearances obtained as noted in the Food Use New Tolerances and Approvals and Ornamental Horticulture Pest Control Clearances sections, respectively. With the help of Dan Rosenblatt, EPA Minor Use, Risk Mitigation and Emergency Response Branch Chief, and his staff, IR-4 continued the Section 18 Economic Benefits/Loss Avoidance Project initiated in 1998 to document potential economic impact (loss) data from state submitted Section 18's approved by the EPA and supported by IR-4 residue data. The 2005 data were summarized and resulted in a \$1.1 billion impact with 196 Section 18's. The total over the eight year period from 1998 to 2005 where the data are available bring the total economic impact/loss avoidance to \$12.589 billion from 1,229 Section 18's covering 47 states. In 2002 and 2003, the EPA credited IR-4 with eliminating 112 Section 18's by conversion to full Section 3 labels. Since 1998, 205 Section 18's have been converted to full Section 3 labels. This is the result of the high rate of Section 18 to Section 3 conversions and IR-4's 30-month completion goal which minimizes the number of years that Section 18's are needed on new crop protection products before Section 3 labels are approved by the EPA.

OVERALL SUMMARY

When the record of 1,014 food use clearances was set in 2004, it was believed that this number would be difficult to surpass since it represented an increase over the previous record of 793 in 2003. However,

the 991 food use clearances obtained in 2005 boosted the 43 year total to over 9,300 clearances. It is interesting to note that 53% (4,949) of all clearances in the program's history have been obtained in the last 8 years. This remarkable accomplishment is due to the dedication and hard work of our Regional and Headquarters staff, the ARS staff, the entire land grant university system, and of course our regulatory partners, the EPA and California Department of Pesticide Regulation, who have done an excellent job of reviewing our petitions and approving these uses. It has become increasingly clear that our NAFTA partnership with Agriculture and Agri-Food Canada and Health Canada's Pest Management Regulatory Agency, the intense interest of over 170 scientists from over 30 countries in the Crop Grouping Project and our visits with European Union representatives that the IR-4 Project is viewed as an important and unique global model for specialty crop agriculture's pest control solutions. The crop protection industry has continued to be an excellent partner in working with IR-4 to provide their latest technologies, both chemical and biological, for specialty crop uses. However, the Project must continue to evolve in order to stay relevant. To this end, the importance of the 2006 to 2008 Strategic Plan, its funding and implementation will be critical to the future of IR-4.

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December 31, 2005

R.E. Holm, Executive Director
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Approved:

M.R. Marshall, Chair, Project Management
Committee
University of Florida

D. Rossi, Chair, Administrative Advisers
Rutgers, The State University of New Jersey

Attachments:

1. Cooperating Personnel, Departments and Agencies
2. Field and Laboratory Research Cooperators
3. Food Use Research Projects
4. New Tolerances and Approvals
5. Crop Groups/Definitions
6. Data Packages Completed
7. Regulatory Documents in Preparation
8. Biopesticide Research and Development

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New Jersey Agricultural Experiment Station Publication No. P-27200-05-06, supported by State,
U.S. Hatch Act and other U.S. Department of Agriculture funds

ATTACHMENT 1

COOPERATING DEPARTMENTS AND AGENCIES

Agriculture and Agri-Food Canada
California Department of Pesticide Regulation
Canadian Horticultural Council
Canadian Pest Management Regulatory Agency
U.S. Department of Agriculture, Agricultural Research Service
U.S. Department of Agriculture, Animal and Plant Health Inspection Service
U.S. Department of Agriculture, Cooperative State Research Education and Extension Service
U.S. Department of Agriculture, Office of Pest Management Policy
U.S. Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances

PRINCIPAL LEADERS

Administrative Advisers (AA's):

Dr. M. Duryea, <i>University of Florida</i>	Representing Southern Region
Dr. C. Hefferan, <i>U.S. Department of Agriculture</i>	USDA-CSREES
Dr. G. Lemme, <i>Michigan State University, Chair (until March)</i>	Northcentral Region
Dr. M. Parrella, <i>University of California, Davis</i>	Western Region
Dr. N. Ragsdale, <i>U.S. Department of Agriculture (until November)</i>	USDA-ARS
Dr. D. Rossi, <i>Rutgers University, Chair (after March)</i>	Northeast Region

Project Management Committee (PMC):

Dr. M. Duryea, <i>University of Florida</i>	Southern Region
Dr. R. Hollingworth, <i>Michigan State University, Chair (until November)</i>	Northcentral Region
Dr. R. Holm, <i>Rutgers University, Executive Director</i>	IR-4 Headquarters
Dr. M. Johnson, <i>U.S. Department of Agriculture (after June)</i>	USDAS-CSREES
Dr. D. Kopp, <i>U.S. Department of Agriculture (until June)</i>	USDA-CSREES
Dr. G. Lemme, <i>Michigan State University (until March)</i>	AA Chair
Mr. R. Lundy, <i>Mint Industry Research Council</i>	CLC Chair
Dr. M. Marshall, <i>University of Florida, Chair (after November)</i>	Southern Region
Dr. M. Miller, <i>University of California, Davis</i>	Western Region
Dr. M. Parrella, <i>University of California, Davis</i>	Western Region
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SUPPORT GROUPS

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Dr. M. Arsenovic, *Coordinator*
Mr. W. Barney, *Coordinator*
Dr. J. Baron, *Associate Director*
Dr. M. Braverman, *Manager, Biopesticides*
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Dr. H. Chen, *Coordinator*
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ATTACHMENT 1 (Continued)

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Ms. J. Yoh, <i>Regional Laboratory Coordinator</i>	Southern Region
Mr. S. Fernando, <i>Regional Quality Assurance Coordinator</i>	Southern Region
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Ms. R. Sisco, <i>Regional Field Coordinator</i>	Western Region
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Mr. G. Herndon, *EPA-OPP-HED*
Mr. E. Maurer, *CropLife America Representative*
Dr. B. Schneider, *EPA-OPP-HED*

Commodity Liaison Committee (CLC):

Mr. M. Aerts, <i>Florida Fruit and Vegetable Association</i>	Orlando, FL
Mr. M. Arney, <i>National Watermelon Promotion Board</i>	Orlando, FL
Dr. A. Bonanno, <i>Bonanno Farm Trust</i>	Methuen, MA
Mr. B. Buurma, <i>Buurma Farms, Inc.</i>	Willard, OH
Dr. H. Ewart, <i>California Citrus Quality Council</i>	Auburn, CA
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Mr. P. Korson, <i>Cherry Marketing Institute</i>	Lansing, MI
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Mr. E. Maurer, <i>Valent USA Corporation</i>	Washington, DC
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Mr. R. Olszack, <i>Tropical Fruit Growers of South Florida, Inc.</i>	Homestead, FL
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ATTACHMENT 1 (Continued)

Commodity Liaison Committee (CLC) (continued):

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Ms. P. Messick	NC
Ms. M. Ralat	FL

Northeastern Region

Ms. B. Anderson	NY
Consultants	
Ms. D. Johnston	DE
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Ms. E. Lopez	DE

Western Region

Mr. M. Beran	CA
Ms. D. Bradway	OR
Ms. J. Campbell	ID
Mr. J. McFarland	CA
Consultants	
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Mr. J. Obrist	CA
Ms. T. Witter	NM

State and Federal IR-4 Liaison Representatives

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Dr. R. Hartzler	IA
Dr. S. Kamble	NE
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Dr. C. Marr	KS
Dr. S. Miyazaki	MI
Dr. M. Reding	USDA-ARS, OH
Dr. G. Smith	MO
Dr. D. Williams	IL
Dr. L. Wrage	SD
Dr. J. Wyman	WI
Dr. A. York	IN
Dr. R. Zollinger	ND

Northeast Region

Dr. J. Allen	DC
Dr. R. Ashley	CT
Dr. E. Beste	MD
Dr. F. Caruso	MA
Dr. R. Chandran	WV
Dr. G. Ghidui	NJ
Dr. R. Grube	NH
Dr. A. Hazelrigg	VT
Dr. P. Heller	PA
Ms. E. Lurvey	NY
Ms. E. Pfeil	USDA-ARS MD
Dr. W. Reissig	NY
Mr. W. Smith	NY
Dr. R. Webb	USDA-ARS MD
Dr. S. Whitney King	DE
Dr. D. Yarborough	ME

ATTACHMENT 1 (Continued)

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Ms. N. Acin	PR
Dr. R. Bellinger	SC
Dr. R. Bessin	KY
Dr. N. Burgos	AR
Dr. C. Collison	MS
Dr. S. Culpepper	GA
Dr. R. Davis	USDA-ARS GA
Mr. B. Fraelich	USDA-ARS GA
Dr. M. Grodner	LA
Dr. H. Harrison	USDA-ARS SC
Mr. T. Hendricks	USDA-ARS GA
Dr. J. Kemble	AL
Mr. C. Luper	OK
Mr. M. Matocha	TX
Dr. C. Meister	FL
Dr. D. Monks	NC
Dr. A. Simmons	USDA-ARS SC
Dr. A. Thompson	TN
Dr. M. Weaver	VA
Vacant	VI

Western Region

Dr. R. Boydston	USDA-ARS WA
Mr. J. Davison	NV
Dr. H. Deer	UT
Dr. M. Ferrell	WY
Dr. R. Hirnyck	ID
Dr. T. Jahns	AK
Dr. J. Jenkins	OR
Dr. M. Kawate	HI
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Dr. R. Linderman	USDA-ARS OR
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Dr. R. Petroff	MT
Dr. M. Renz	NM
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ATTACHMENT 2

FIELD AND LABORATORY RESEARCH COOPERATORS - 2005

The IR-4 Project is grateful to the many agricultural scientists who participated in the field and laboratory research phases of the program in 2005. Although their efforts frequently are unrecognized, their cooperation is the essential element in producing the data, field residue samples and laboratory analyses which meet EPA data requirements and conform to Good Laboratory Practice Standards. The continuing association with the minor use program of many state and federal scientists not only enhances the quality of the data but adds credibility that the objectives of the program are being met.

NORTHCENTRAL REGION

Dr. J. Baldock	WI	Mr. B. Jenks	ND
Dr. S. Chapman	WI	Dr. W. Jiang	MI
Mr. M. Ciernia	ND	Ms. J. Knodel	ND
Dr. S. Clay	SD	Mr. C. Lee	ND
Dr. J. Fleeker	ND	Dr. R. Wilson	NE
Dr. M. Hausbeck	MI	Dr. J. Wise	MI
Mr. D. Heider	WI	Dr. B. Zandstra	MI
Dr. C. Hoy	OH		

NORTHEAST REGION

Dr. R. Bellinder	NY	Mr. W. Palmer	NY
Dr. F. Drummond	ME	Ms. M. Ross	MD
Mr. H. Humphreys	NY	Ms. M. Sylvia	MA
Dr. G. Jordan	NY	Dr. D. Yarborough	ME
Dr. P. Larsson-Kovach	NY	Ms. M. Zimmerman	NJ

SOUTHERN REGION

Mr. R. Batts	NC	Mr. B. Tanner	FL
Dr. J. Crane	FL	Dr. A. Thompson	TN
Ms. L. Gregg	TX	Ms. J. Yoh	FL
Dr. W. Stall	FL		

WESTERN REGION

Mr. J. Attaway	CA	Ms. G. Koskela	OR
Dr. M. Bari	CA	Dr. Q. Li	HI
Mr. B. Boutwell	CA	Mr. S. Mangini	CA
Mr. D. Cervantes	ID	Mr. W. Meeks	ID
Mr. M. Craig	NM	Mr. M. Miller	CA
Mr. J. DeFrancesco	OR	Ms. M. Mitchell	CA
Mr. D. Ennes	CA	Mr. C. Oman	CO
Mr. C. Farrar	CA	Mr. J. Roncoroni	CA
Dr. M. Hengel	CA	Mr. S. Scheufele	CA
Mr. P. Jones	CA	Mr. B. Turner	CA
Dr. M. Kawate	HI	Mr. R. Wight	WA
Ms. D. Keenan	CA		

Attachment 2 (Continued)

USDA-ARS

Ms. S. Benzen	CA	Ms. E. Pfeil	MD
Mr. B. Fraelich	GA	Mr. D. Roys	WA
Ms. M. Giovannini	OH	Dr. A. Simmons	SC
Mr. T. Hendricks	GA	Mr. T. Wixson	WA
Mr. D. McCommas	TX		

CANADA

Ms. K. Bedford	BC	Mr. M. Pogoda	ON
Ms. S. Bouffard	QC	Mr. B. Rancourt	QC
Ms. V. Brookes	BC	Mr. G. Riddle	ON
Ms. H. Peill	NS	Mr. P. White	ON
Ms. J. Penner	ON		

2005 IR-4 Ornamental Horticulture Researchers

NORTHCENTRAL REGION

Dr. L. Canas	OH
Mr. T. Davis	MI
Dr. M. Hausbeck	MI
Dr. H. Mathers	OH
Dr. D. Nielsen	OH
Dr. D. Williams	IL

NORTHEAST REGION

Dr. J. Ahrens	CT
Dr. C. Becker	NY
Dr. R. Chandran	WV
Dr. R. Cowles	CT
Mr. T. Freiburger	NJ
Dr. D. Gilrein	NY
Dr. T. Mervosh	CT
Dr. A. Pennucci	NH
Dr. A. Senesac	NY

SOUTHERN REGION

Dr. B. Bellinger	SC
Dr. M. Benson	NC
Dr. J. Buck	GA
Dr. Y. Chen	LA
Dr. M. Czarnota	GA
Dr. J. Derr	VA
Dr. C. Gilliam	AL
Dr. D. Held	MS
Dr. C. Hesselein	AL
Dr. S. Ludwig	TX
Dr. R. Mizell	FL
Dr. J. Neal	NC
Dr. J. Norcini	FL

SOUTHERN REGION (CONTINUED)

Dr. D. Norman	FL
Dr. R. Oetting	GA
Dr. L. Osborne	FL
Dr. M. Reddy	AL
Dr. B. Stamps	FL
Dr. J. Strandberg	FL
Dr. M. Tomaso-Peterson	MS

WESTERN REGION

Dr. J. Altland	OR
Dr. J. Bethke	CA
Dr. G. Chastagner	WA
Dr. K. Evans	UT
Dr. J. Klett	CO
Dr. B. Lambe	WA
Dr. H. Lieth	CA
Dr. M. Parrella	CA
Dr. R. Regan	OR
Dr. K. Robb	CA
Dr. R. Smith	CA
Dr. D. Walsh	WA

USDA-ARS

Dr. E. Beste	MD
Dr. R. Boydston	WA
Mr. B. Fraelich	GA
Mr. K. Lehnert	MD
Dr. R. Linderman	OR
Dr. M. Reding	OH
Dr. D. Roys	WA
Dr. A. Simmons	SC

ATTACHMENT 3**Food Use Research Projects – 2005
Residue Trials**

CHEMICAL	CROP	PR #	CHEMICAL	CROP	PR #
• 2,4-DB + Cyfluthrin	Alfalfa (Mix Stands)	9424	• Fluazinam	Lettuce, head/leaf	6892
• Acequinocyl	Hops	9370	• Fluazinam	Onion, dry bulb	7092
• Acetamiprid	Grape	9057	• Fludioxonil	Ginseng	9349
• Acibenzolar	Onion	9090	• Flumioxazin	Cucumber	8317
• Azoxystrobin	Barley	9088	• Flumioxazin	Hops	9371
• Azoxystrobin	Potato	9224	• Flumioxazin	Peach	9346
• Bifenazate	Bean, dry	8929	• Flumioxazin	Prickly Pear Cactus	8647
• Bifenazate	Sugar apple	8927	• Flutolanil	Cabbage	8840
• Boscalid + Pyraclostrobin	Sweetpotato	9151	• Halosulfuron	Bean, dry	8976
• Bromoxynil	Millet	9338	• Imidacloprid	Papaya	9039
• Buprofezin	Tomato (Field/GH)	8964	• Imidacloprid	Sweetpotato	9331
• Captan	Ginseng	7997	• Indoxacarb	Bean, snap	8574
• Captan	Pear	4335	• Iodomethane	Cucurbits	8787
• Chlorfenapyr	Vegetable Transplants	8746	• Lambda-Cyhalothrin	Carrot	9390
• Chlorothalonil	Strawberry	0577	• Lambda-Cyhalothrin	Radish	9381
• Clethodim	Blueberry	5234	• Lambda-Cyhalothrin	Spinach	9244
• Clothianidin	Cranberry	9399	• Metaldehyde	Grasses (Seed Crop)	6267
• Clothianidin	Mustard greens (Seed Trt)	9070	• Methoxyfenozide	Citrus	9367
• Cyazofamid	Vegetable Transplants (GH)	9385	• Novaluron	Blueberry	9052
• Cyfluthrin	Flax	9026	• Novaluron	Peach	9047
• Cyprodinil + Fludioxonil	Pepper, bell & non-bell (GH)	9140	• Oxyfluorfen	Strawberry (Transplants)	9352
• Cyprodinil + Fludioxonil	Vegetables, Brassica	9126	• Oxyfluorfen	Tomato	4132
• Diflubenzuron	Alfalfa	8678	• Paraquat	Canola	9405
• Dimethenamid-P	Bean, snap	8069	• Paraquat	Oats	9345
• Diuron	Cherry	2399	• Pendimethalin	Grasses, Bermuda	8310
• Diuron	Plum	3071	• Pendimethalin	Strawberry	7719
• DPX-E2Y45	Grape	9388	• Pronamide	Lettuce, leaf	9149
• DPX-E2Y45	Peach	9389	• Propamocarb-Hcl	Bean, lima	7263
• Ethephon	Sweetpotato	8814	• Propiconazole	Bean, lima	9437
• Ethephon	Tomato (GH)	0250	• Propiconazole	Bean, snap	9295
• Ethofumesate	Dill	7703	• Propiconazole	Mint	9419
• Ethoprop	Hops	2734	• Pyraclostrobin	Barley	9089
• Etoxazole	Cucumber	9208	• Pyrimethanil	Peach	8700
• Etoxazole	Peach	9045	• Pyriproxyfen	Celery	8975
• Etoxazole	Plum	9046	• Pyriproxyfen	Kiwifruit	9359
• Etoxazole	Tomato (GH)	9109	• Rimsulfuron	Cantaloupe	7721
• Famoxadone + Cymoxanil	Mustard greens	8759	• S-Metolachlor	Cucumber	6657
• Fenpropathrin	Caneberry	8735	• S-Metolachlor	Mustard greens	2255
• Fenpropathrin	Olive	9374	• S-Metolachlor	Sorghum, sweet	3840
• Fenpropathrin	Tropical fruits	7864	• Spiromesifen	Pea/Bean, dried shelled	9410
• Fenpyroximate	Pepper, bell & non-bell	8617	• Spiromesifen	Pepper, bell & non-bell)	9361
• Fenpyroximate	Tomato (Field/GH)	9027	• Sulfentrazone	Blueberry	9260
• Fenpyroximate	Cantaloupe	9022	• Thidiazuron	Grape	9160
• Fipronil	Cabbage	6885	• Thifensulfuron + Rimsulfuron	Chicory (Roots)	9417
• Fluazinam	Carrot	7094	• Thiophanate Methyl	Pepper (Field/GH)	8614
			• Triflumizole	Lettuce, head/leaf	8993
			• Triflumizole	Papaya	9332
			• Triflumizole	Swiss Chard	8867
			• Triflurosulfuron-methyl	Beet, garden	8043
			• Zeta-Cypermethrin	Artichoke	9365

ATTACHMENT 4

New Tolerances and Approvals - 2005

IR-4 Tolerance Successes – 2005

Totals for 2005: Permanent Tolerances – 659 uses, 136 tolerances

Time-limited Tolerances – 293 uses, 62 tolerances

JANUARY

1A) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	Requested Crop (if different)	PR#	Date	No. of Uses	No. of Tolerances
Thiamethoxam (I)	Vegetable, root, except sugar beet, subgroup 1B	Turnip Garden beet Carrot Radish Oriental radish Rutabaga Parsnip	07428 07467 07468 07677 07678 07679 08026	JAN 05, 2005	18	2
Thiamethoxam (I)	Potato		---	JAN 05, 2005	1	1
Thiamethoxam (I)	Vegetable, legume, group 6	Succulent bean Dry pea Garbanzo Lentil Dry bean Succulent pea Soybean Soybean	07589 07590 07615 07617 07675 07676 08618 08642	JAN 05, 2005	42	1
Thiamethoxam (I)	Mustard		08893	JAN 05, 2005	1	1
Thiamethoxam (I)	Bushberry subgroup 13B, juneberry, lingonberry, and salal	Blueberry	07051	JAN 05, 2005	8	4
Thiamethoxam (I)	Cranberry		07754	JAN 05, 2005	1	1
Thiamethoxam (I)	Strawberry		07989	JAN 05, 2005	1	1
Thiamethoxam (I)	Mint		07362	JAN 05, 2005	2	2
Thiamethoxam (I)	Borage, crambe, flax, rapeseed, and safflower		-----	JAN 05, 2005	5	5
TOTAL					79	18

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Chlorothalonil (F)	Ginseng	00988	JAN 05, 2005	1	1	DEC 31, 2007
Fluroxypyr (H)	Onion	07705	JAN 26, 2005	1	1	JUN 30, 2007
Imidacloprid (I)	Banana	07333	JAN 26, 2005	1	1	DEC 31, 2007
Imidacloprid (I)	Sunflower	08811	JAN 26, 2005	1	1	DEC 31, 2007
Bifenazate (I)	Timothy (hay and forage)	09037	JAN 28, 2005	1	2	DEC 31, 2007
Quinoxifen (F)	Melon subgroup 9A (Cantaloupe)	07252	JAN 28, 2005	3	1	DEC 31, 2007
Quinoxifen (F)	Pumpkin	08639	JAN 28, 2005	1	1	DEC 31, 2007
Quinoxifen (F)	Winter squash	07653	JAN 28, 2005	1	1	DEC 31, 2007
TOTAL				10	9	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

ATTACHMENT 4 (continued)

FEBRUARY

1A) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	Requested Crop (if different)	PR#	Date	No. of Uses	No. of Tolerances
Avermectin (I)	Vegetable, leafy, except Brassica, group 4	Spinach	07270	FEB 16, 2005	29	1
Avermectin (I)	Vegetable, fruiting, group 8	Tomato Eggplant Bell pepper	02550 03114 04014	FEB 16, 2005	9	1
Avermectin (I)	Herbs, subgroup 19A (except chives)	Basil	06755	FEB 16, 2005	39	1
Avermectin (I)	Avocado		07198	FEB 16, 2005	1	1
TOTAL					78	4

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Thiamethoxam (I)	Artichoke, globe	08282	FEB 11, 2005	1	1	JUN 30, 2008
Acibenzolar-S-methyl (P)	Onion, dry bulb Onion, green	09090	FEB 16, 2005	2	2	JUN 30, 2007
TOTAL				3	3	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

MARCH

1A) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
Clofentezine (I)	Persimmon	06601	MAR 09, 2005	1	1
TOTAL				1	1

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
None				0	0	

ATTACHMENT 4 (continued)

APRIL

1A) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	Requested Crop (if different)	PR#	Date	No. of Uses	No. of Tolerances	
Buprofezin (I)	Avocado		07740	APR 08, 2005	1	1	
	Papaya		06972		1	1	
	Star Apple				1	1	
	Black Sapote		06976		1	1	
	Mango				1	1	
	Sapodilla				1	1	
	Canistel				1	1	
Mamey Sapote			1	1			
Buprofezin (I)	Sugar Apple		06979	APR 08, 2005	1	1	
	Cherimoya				1	1	
	Atemoya				1	1	
	Custard Apple				1	1	
	Ilama				1	1	
	Soursop				1	1	
	Biriba				1	1	
Buprofezin (I)	Guava		07403	APR 08, 2005	1	1	
	Feijoa				1	1	
	Jaboticaba				1	1	
	Wax Jambu				1	1	
	Starfruit				1	1	
	Passionfruit				06977	1	1
	Acerola					1	1
Buprofezin (I)	Fruit, pome, group 11	Apple	07516	APR 08, 2005	7	1	
		Pear	07518				
Buprofezin (I)	Peach		07517	APR 08, 2005	2	1	
TOTAL					31	24	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Triflumizole (F)	Dandelion, leaves	08868	APR 08, 2005	1	1	JUN 30, 2008
Triflumizole (F)	Parsley, leaves	08863	APR 08, 2005	1	1	JUN 30, 2008
Triflumizole (F)	Swiss chard	08867	APR 08, 2005	1	1	JUN 30, 2008
Triflumizole (F)	Broccoli	09319	APR 08, 2005	1	1	JUN 30, 2008
Triflumizole (F)	Kohlrabi	08869	APR 08, 2005	1	1	JUN 30, 2008
Triflumizole (F)	Mustard greens	08865	APR 08, 2005	1	1	JUN 30, 2008
Triflumizole (F)	Kale	08866	APR 08, 2005	1	1	JUN 30, 2008
Triflumizole (F)	Coriander, leaves (Cilantro)	08864	APR 08, 2005	1	1	JUN 30, 2008
Propiconazole (F)	Blueberry	03576	APR 20, 2005	1	1	DEC 31, 2007
TOTAL				9	9	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

ATTACHMENT 4 (continued)

MAY

1A) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
Dimethenamid (H)	Horseradish	07942	MAY 11, 2005	1	1
Fludioxonil (F)	Pomegranate	08085	MAY 18, 2005	1	1
TOTAL				2	2

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
None				0	0	

JUNE

1A) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
None				0	0

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Bifenthrin (I)	Sweet Potato	08453	JUN 30, 2005	1	1	DEC 31, 2008
Cyprodinil (F)	Onion, dry bulb and	09386	JUN 30, 2005	4	2	DEC 31, 2007
	Onion, green	05033				
Cyprodinil (F)	Strawberry	06790	JUN 30, 2005	1	1	DEC 31, 2007
Myclobutanil (F)	Pepper (Bell and non-bell) (Non-bell)	06070	JUN 30, 2005	1	1	JUN 30, 2008
		06071				
Pyriproxyfen (I)	Bean, succulent	08802	JUN 30, 2005	14	1	JUN 30, 2008
Tebuconazole (F)	Barley	06513	JUN 30, 2005	1	1	JUN 30, 2008
Terbacil (H)	Watermelon	02841	JUN 30, 2005	1	1	JUN 30, 2007
Thymol (I)	Beehives	08661	JUN 30, 2005	1	1	JUN 30, 2007
TOTAL				24	9	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

ATTACHMENT 4 (continued)

JULY

1A) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
2,4-D (H)	Hops	05024	JUL 27, 2005	1	1
2,4-D (H)	Soybean		JUL 27, 2005	1	1
2,4-D (H)	Wild Rice	01015	JUL 27, 2005	1	1
Pymetrozine (I)	Asparagus	07341	JUL 27, 2005	1	1
TOTAL				4	4

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Fenpropathrin	Currant	06739	JUL 06, 2005	1	1	JUN 30, 2008
TOTAL				1	1	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

ATTACHMENT 4 (continued)

AUGUST

1) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	Requested Crop (if different)	PR#	Date	No. of Uses	No. of Tolerances	
S-Metolachlor (H)	Brassica, head and stem, subgroup 5A	Broccoli	01526	AUG 31, 2005	12	1	
		Cauliflower	01957				
		Cauliflower	03225				
		Broccoli	03226				
		Chinese Broccoli	03247				
	Corn (field, sweet, and pop)				AUG 31, 2005	3	8
	Cotton				AUG 31, 2005	1	2
	Garlic, bulb				AUG 31, 2005	1	1
	Leafy petioles subgroup 4B				AUG 31, 2005	7	1
	Onion, dry bulb and onion, green	Dry bulb onion	02702	AUG 31, 2005	4	2	
		Dry bulb onion	05396				
		Leek	02943				
		Green onion	06717				
	Pea and bean, dried shelled, except soybean, subgroup 6C				AUG 31, 2005	24	1
	Peanut				AUG 31, 2005	1	3
	Safflower, seed				AUG 31, 2005	1	1
	Shallot				AUG 31, 2005	1	1
	Sorghum grain				AUG 31, 2005	1	3
	Soybean				AUG 31, 2005	1	3
	Vegetable, foliage of legume, except soybean, subgroup 7A				AUG 31, 2005	2	1
Vegetable, fruiting, group 8				AUG 31, 2005	9	1	
Vegetable, legume, edible podded, subgroup 6A				AUG 31, 2005	12	1	
Vegetable, root, except sugar beet, subgroup 1B	Oriental radish	02257	AUG 31, 2005	18	1		
	Radish	02988					
	Oriental radish	04348					
	Carrot	06281					
Vegetable, tuberous and corm, subgroup 1C	Sweet potato	05413	AUG 31, 2005	17	1		
	Jicama	06541					
Non-crop uses (cattle, egg, goat, horse, milk, poultry, sheep)				AUG 31, 2005	---	21	
TOTAL					115	53	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

2) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Methoxyfenozide (I)	Sorghum grain	07525	AUG 31, 2005	1	3	DEC 31, 2007
TOTAL				1	3	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

ATTACHMENT 4 (continued)

SEPTEMBER

1) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	Requested Crop (if different)	PR#	Date	No. of Uses	No. of Tolerances
Cyfluthrin (I)	Vegetable, tuberous and corm, subgroup 1C	Sweet potato	08140	SEP 13, 2005	17	1
Cyfluthrin (I)	Turnip greens		07562	SEP 13, 2005	1	1
Cyfluthrin (I)	Grass, forage, fodder, and hay, group 17, forage and hay		06837	SEP 13, 2005	112	2
Cyfluthrin (I)	Pea and bean, dried shelled, except soybean, subgroup 6C			SEP 13, 2005	24	1
Pyridaben (I)	Hop		06705	SEP 23, 2005	1	1
Pyridaben (I)	Papaya		06695	SEP 23, 2005	1	1
	Star Apple				1	1
	Sapote, black				1	1
	Mango		08265		1	1
	Sapodilla				1	1
	Sapote, mamey				1	1
	Canistel				1	1
Pyridaben (I)	Fruit, stone, group 12	Cherry	06737	SEP 23, 2005	1	1
Pyridaben (I)	Strawberry		06902	SEP 23, 2005	1	1
Pyridaben (I)	Tomato		08034	SEP 23, 2005	1	1
Pyriproxyfen (I)	Grass, forage, fodder, and hay, group 17, forage and hay			SEP 23, 2005	112	2
Pyriproxyfen (I)	Vegetable, legume, group 6	Southern pea	07179	SEP 23, 2005	42	1
		Snap bean	08130			
		Lima bean	08802			
Pyriproxyfen (I)	Onion, dry bulb		07886	SEP 23, 2005	3	1
Pyriproxyfen (I)	Grape		07232	SEP 23, 2005	1	1
Pyriproxyfen (I)	Strawberry		08106	SEP 23, 2005	1	1
Pyriproxyfen (I)	Sapote, white			SEP 23, 2005	1	1
Pyriproxyfen (I)	Citrus hybrids			SEP 23, 2005	1	1
Fenpropathrin (I)	Bushberry subgroup 13B	Currant	06739	SEP 23, 2005	5	1
		Blueberry	07815			
	Lingonberry				1	1
	Juneberry				1	1
	Salal				1	1
Fenpropathrin (I)	Pea, succulent		02504	SEP 23, 2005	7	1
Fenpropathrin (I)	Vegetable, fruiting, group 8	Pepper	02503	SEP 23, 2005	8	1
TOTAL					349	30

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

2) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Myclobutanil (F)	Artichoke, globe	07020	SEP. 21, 2005	1	1	DEC. 31, 2007
TOTAL				1	1	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

ATTACHMENT 4 (continued)

OCTOBER

1) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
None				0	0

2) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Imidacloprid (I)	Pomegranate	08254	OCT 12, 2005	1	1	DEC 31, 2008
TOTAL				1	1	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

NOVEMBER

1) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
None				0	0

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

2) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
None				0	0	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

ATTACHMENT 4 (continued)

DECEMBER

1) **Rules - Federal Register (F.R.) – Permanent Tolerances**

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
None				0	0

2) **Rules - Federal Register (F.R.) – Time-Limited Tolerances**

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Bifenazate (I)	Soybean	08291	DEC 16, 2005	1	1	DEC 31, 2009
	Cherry (Tart)	07054	DEC 16, 2005	1	1	DEC 31, 2009
Diflubenzuron (I)	Wheat	08024	DEC 21, 2005	1	5**	DEC 31, 2008
	Barley			1	3**	DEC 31, 2008
Lambda-Cyhalothrin (I)	Barley	06400	DEC 21, 2005	1	4**	DEC 31, 2008
	Grass	09122	DEC 21, 2005	112	2**	DEC 31, 2008
	Wild Rice	08850	DEC 21, 2005	1	1**	DEC 31, 2008
Propiconazole (F)	Cranberry	06320 07359	DEC 21, 2005	1	1**	DEC 31, 2007
Spinosad (I)	Alfalfa	07889	DEC 21, 2005	1	2**	DEC 31, 2008
	Grass	07401	DEC 21, 2005	112	2**	DEC 31, 2008
		07955 08040				
Tebuconazole (F)	Garlic	07197	DEC 21, 2005	1	1**	DEC 31, 2007
	Sunflower	06414	DEC 21, 2005	1	2**	DEC 31, 2007
Thiophanate methyl (F)	Vegetable, fruiting, group 8	06682 08506 08614	DEC 21, 2005	9	1**	DEC 31, 2008
TOTAL				243	26	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscicide, P=plant growth regulator, R=rodenticide

**Extension of existing time-limited tolerances

ATTACHMENT 5

Table 1. IR-4 submitted proposed new crop groups

IR-4 Petition Proposed Crop Groups			
Group # & Name	# of Subgroups	# of Representative Commodities	# of Commodity Entries
Crop Group 3, Bulb Vegetables Group	2	2 (Onion, green; and onion, dry bulb)	25 (Chive; Chive, Chinese; Daylily; Elegans hosta; Fritillaria; Garlic; Garlic Canadian; Garlic, greatheaded; Garlic, Serpent; Kurrat; Leek,; Leek, Lady's; Lily; Onion, Beltsville Bunching; Onion, bulb; Onion, Chinese; Onion, green; Onion, fresh; Onion, Microstem; Onion, pearl; Onion, potato; Onion, tree; Onion, Welsh; Shallot; Wild leek)
Crop Group 8, Fruiting Vegetables (Except Cucurbits)	3	3 (Tomato; bell pepper; one cultivar of non-bell pepper or one cultivar of small variety eggplant)	19 (African Eggplant; Bush Tomato; Cocona; Currant Tomato; Eggplant; Garden Huckleberry; Groundcherry; Martynia; Naranjilla; Okra; Pea Eggplant; Pepino; Peppers; Roselle; Scarlet Eggplant; Sunberry; Tomatillo; Tomatoes; Tree Tomato)
Crop Group 13, Berries and Small Fruits Group	8	8 (Any one blackberry or any one raspberry; blueberry, highbush and/or lowbush; elderberry or mulberry; grape; kiwifruit, fuzzy; strawberry; and cranberry)	44 (Amur River grape; Andean blackberry; Aronia berry; Bayberry; Bearberry; Bilberry; Blackberry; Blueberry, highbush; Blueberry, lowbush; Buffalo currant; Buffaloberry; Che; Chilean guava; Chinese egg gooseberry; Chokecherry; Cloudberry; Cranberry; Currant, black and Currant, red; Elderberry; European barberry; Gooseberry; Grape; Highbush cranberry; Honeysuckle; Huckleberry; Jostaberry; Juneberry and Saskatoon berry; Kiwifruit, fuzzy; Kiwifruit, hardy; Lingonberry; Maypop; Mountain pepper berries; Mulberry; Muntries; Native currant; Partridgeberry; Phalsa; Pincherry; Raspberry; Riberry; Salal; Sea buckthorn; Serviceberry; Strawberry; Wild raspberry)
Edible Fungi Group (# to be assigned)	NA	2	20 (Black Poplar Mushroom; Blewitt; Bunashimeji; Cep; Chanterelle; Chinese Mushroom; Enoke; Hime-Matsutake; Hirneola; Maitake; Morel; Nameko; Net Bearing Dictyophora; Oyster Mushroom; Pom Pom; Reishi Mushroom; Rodman=s Agaricus; Shiitake Mushroom; Shimeji; Stropharia; Truffle; White Button Mushroom; White Jelly Fungi)

Attachment 6

Data Packages Completed in 2005

Product	Crop	PR Number	Reg Type
Agriphage	Tomato & Pepper	372B	Biopesticide
All Pesticides	Crop Group 12, Berries		Crop Group Update
	Crop Group 3. Bulb		Crop Group Update
	Crop Group 8, Fruiting	9719	Crop Group Update
	New Group, Edible Fungi	9716	Crop Group Update
Azoxystrobin	Animal feed, nongrass,	9438	New Registration
	Citrus (PH)	7593	New Registration
	Pea and bean, dried	9440	New Registration
	Pea and bean, succulent	9441	New Registration
	Vegetable, foliage of	9439	New Registration
	Vegetable, fruiting, group 8		New Registration
Bifenazate	Cassava	8277	New Registration
	Pea, succulent	8276	New Registration
	Potato	8278	New Registration
	Sweetpotato	8279	New Registration
	Sweetpotato (GH)	8926	New Registration
	Tomato (storage stability)	7266	Amendment
Boscalid	Apple (PH)	8890	New Registration
	Endive (belgian)	8662	New Registration
	Pear (PH)	9207	New Registration
	Stone fruit (PH)	7922	New Registration
Buprofezin	Black Sapote		New Registration
	Canistel		New Registration
	Cherry	7250	New Registration
	Grape	9478	New Registration
	Mamey Sapote		New Registration
	Mango	6976	New Registration
	Papaya	7024	New Registration
	Plum	7325	New Registration
	Plum	7519	New Registration
	Sapodilla		New Registration
	Stonefruit	7303	New Registration
Cymoxanil	Grape	8774	Regional Registration
	Hops	7796	New Registration

Attachment 6 (continued)

Diflubenzuron	Barley/Wheat (small grain)	8024	New Registration
	Collards	8032	New Registration
	Eggplant	5526	New Registration
	Mustard Greens	8031	New Registration
	Okra	8910	New Registration
	Peanut	7737	New Registration
	Pummelo	9499	New Registration
	Turnip greens	8028	New Registration
Ethofumesate			
	Onion	5398	New Registration
Famoxadone			
	Grape	8774	Regional Registration
	Hops	7796	New Registration
Fenamidone			
	Broccoli	7976	New Registration
	Cabbage	7977	New Registration
	Collard	7963	New Registration
	Mustard Greens	7845	New Registration
	Pepper	7623	New Registration
	Spinach	8894	New Registration
	Sunflower	7999	New Registration
Fenarimol			
	Hops	6940	New Registration
Fenpyroximate			
	Grapefruit	9129	New Registration
	Hops	A8087	New Registration
	Lemon	9128	New Registration
	Mint	8452	New Registration
	Orange	9130	New Registration
	Pecan	8815	New Registration
	Tangerine	9131	New Registration
Foramsulfuron			
	Corn (sweet)/Pop	8970	New Registration
	Popcorn	8904	New Registration
Glyphosate			
	Garbanzo	6141	New Registration
	Indian mulberry	8853	New Registration
	Pea, Dry	6139	New Registration
	Pea, pigeon	2029	New Registration
	Vegetable, legume, group		New Registration
Imidacloprid			
	Banana	7333	New Registration
	Basil	6258	New Registration
	Chives	6259	New Registration
	Coffee	6928	New Registration
	Dill	6251	New Registration
	Mustard seed		New Registration

Attachment 6 (continued)

Imidacloprid (con't)	Pistachio/Tree nut	9220	New Registration
	Plantain	9393	New Registration
	Pomegranate	8254	New Registration
Indoxacarb	Cantaloupe	8339	New Registration
	Celery	9087	New Registration
	Cherry	7235	New Registration
	Cranberry	8127	New Registration
	Cucumber	6985	New Registration
	Mayhaw	8740	New Registration
	Mint	8418	New Registration
	Okra	8633	New Registration
	Pea, southern	6984	New Registration
	Peach	7228	New Registration
	Plum	7234	New Registration
	Spinach	8341	New Registration
	Squash	8340	New Registration
Sweetpotato	8611	New Registration	
Lactofen	Eggplant	6430	Regional Registration
	Pepper	4400	Regional Registration
	Tomato	4163	Regional Registration
Mefenoxam	Caneberry	1169	Conditional Registration
	Kiwi	B3050	Conditional Registration
	Papaya	8449	Conditional Registration
Mefenoxam + Cu	Bean, lima	6776	Conditional Registration
	Bean, snap	8430	Conditional Registration
Mesotrione	Cranberry	8903	New Registration
Pendimethalin	Onion, green	5097	New Registration
	Strawberry	2739	New Registration
Pyraclostrobin	Apple (PH)	8890	New Registration
	Endive (belgian)	8662	New Registration
	Pear (PH)	9207	New Registration
	Stone fruit (PH)	7922	New Registration
Quinoxifen	Cantaloupe	7252	New Registration
	Lettuce	8367	New Registration
	Strawberry	8382	New Registration
<i>Reynoutria sachalinensis</i>	All RACs		Biopesticide

Attachment 6 (continued)

Sethoxydim	Kenaf	6319	Non-Food Use
	Pepper	7722	Label Change
S-Metolachlor	Squash (winter)	6630	New Registration
Spiromesifen	Tomato (GH)	8998	New Registration
Thymol	Honey	8661	Biopesticide
<i>Verticillium</i> WCS 850	American elm	86B	Biopesticide

ATTACHMENT 7

Regulatory Documents in Preparation

Product	Crop	PR#	Product	Crop	PR#
• 2,4-D	Currant	3087	• Captan	Transplants	8370
• Abamectin	Chives	7102	• Captan	Cauliflower	4326
• Acephate	Lettuce, leaf	5164	• Captan	Tomato	6412
• Acephate	Lettuce	594	• Captan	Broccoli	4323
• Acequinocyl	Bean, snap	8673	• Captan	Pepper	6413
• Acequinocyl	Okra	9275	• Captan	Pistachio	8507
• Acequinocyl	Tomato	8356	• Captan	Cabbage	4325
• Acequinocyl	Pepper	8605	• Captan	Tomato	8448
• Acetamiprid	Strawberry	9058	• Captan	Lettuce	8447
• Acifluorfen	Bean, lima	6300	• Captan	Eggplant	3973
• AVG	Peach	8053	• Captan	Brussels Sprouts	4324
• AVG	Cherry	8052	• Chlorimuron-ethyl	Cranberry	3023
• AVG	Plum	8054	• Chlorothalonil	Rhubarb	5410
• Azoxystrobin	Basil	A7104	• Chlorothalonil	Lentil	5422
• Azoxystrobin	Barley	9088	• Chlorothalonil	Okra	353
• Bacillus thuringiensis	Pea, pigeon	2812	• Chlorothalonil	Persimmon	5388
• Bifenazate	Grasses	9037	• Chlorothalonil	Kohlrabi	3169
• Bifenazate	Papaya	8270	• Chlorothalonil	Cucurbits	3950
• Bifenazate	Caneberry	7053	• Chlorothalonil	Lupine	5289
• Bifenazate	Guava	8928	• Chlorothalonil	Balsam Pear	3860
• Bifenazate	Lychee	8268	• Chlorothalonil	Tomato Transplants	6416
• Bifenazate	Bean, succulent	8275	• Chlorothalonil	Eggplant	1154
• Bifenazate	Carambola	8267	• Chlorothalonil	Pepper, bell	32
• Bifenthrin	Celery	4945	• Chlorothalonil	Pepper, non-bell	571
• Bifenthrin	Spinach	8425	• Chlorothalonil	Yam	1414
• Bifenthrin	Blueberry	8736	• Chlorothalonil	Horseradish	2392
• Bifenthrin	Peanut	8584	• Chlorothalonil	Ginseng	988
• Bifenthrin	Radish	8304	• Chlorothalonil	Gourds	3861
• Bifenthrin	Mayhaw	7513	• Chlorpyrifos	Sweetpotato	8293
• Bifenthrin	Beet	7556	• Clethodim	Peach	6875
• Bifenthrin	Pistachio	9219	• Clethodim	Artichoke	9013
• Bifenthrin	Carrot	7089	• Clethodim	Caneberry	6060
• Boscalid + Pyraclostrobin	Mango	8442	• Clethodim	Safflower	8591
• Boscalid + Pyraclostrobin	Tomato (GH)	8374	• Clethodim	Grass	8836
• Boscalid + Pyraclostrobin	Rosemary	8794	• Clomazone	Broccoli	A3569
• Boscalid + Pyraclostrobin	Basil	8792	• Clomazone	Rhubarb	8724
• Boscalid + Pyraclostrobin	Chives	8793	• Clopyralid	Apple	3623
• Boscalid + Pyraclostrobin	Avocado	8446	• Clopyralid	Plum	B3625
• Boscalid + Pyraclostrobin	Turnip, tops	9423	• Clopyralid	Peach	B3621
• Boscalid + Pyraclostrobin	Dill	8691	• Clopyralid	Blueberry	9602
• Boscalid + Pyraclostrobin	Papaya	8400	• Clopyralid	Blueberry	5433
• Buprofezin	Strawberry	8737	• Clopyralid	Pear	3624
• Buprofezin	Spinach	6978	• Clopyralid	Swiss Chard	5435
• Buprofezin	Coffee	8828	• Clothianidin	Peach	8544
• Buprofezin	Olive	9015	• CPPU	Blueberry	8313
• Buprofezin	Pepper	8848	• Cyazofamid	Grape	8773
			• Cyfluthrin	Flax	9026
			• Cyhalofop	Wildrice	8951
			• Cymoxanil + Famoxadone	Hops	7796
			• Cymoxanil + Famoxadone	Onion	8303
			• Cymoxanil + Famoxadone	Grape	8774

Product	Crop	PR#
•Cymoxanil + Famoxadone	Caneberry	8766
•Cymoxanil + Famoxadone	Celery	8758
•Cyprodinil + Fludioxonil	Kiwifruit	8972
•Cyprodinil + Fludioxonil	Avocado	7338
•Cyprodinil + Fludioxonil	Parsley	7130
•Cyprodinil + Fludioxonil	Garlic	9386
•Cyprodinil + Fludioxonil	Tomato	8124
•Cyprodinil + Fludioxonil	Radish	9019
•Cyromazine	Bean, snap	8013
•Cyromazine	Bean, snap	B3909
•DCPA	Carrot	8332
•Deltamethrin	Flax	7666
•Desmedipham	Spinach	1922
•Desmedipham	Beet, garden	337
•Desmedipham	Beet, garden	5265
•Difenoconazole	Mustard Seed/ Rape	
•Dimethenamid	Turnip	7696
•Dimethenamid	Rutabaga	7697
•Dimethenamid	Hops	8705
•Dimethenamid	Squash	6596
•Dimethenamid	Radish	7695
•Dimethomorph	Bean, lima	7261
•Dimethomorph	Ginseng	8958
•Dimethomorph	Turnip tops (and/or cg2)	7599
•Dimethomorph	Grape	6794
•Dinotefuran	Mustard greens	8626
•Dinotefuran	Turnip, tops	8627
•Dinotefuran	Collard	8629
•Emamectin	Cucumber	6987
•Emamectin	Watercress	8897
•Ethalfuralin	Kenaf	4858
•Ethephon	Pear	8734
•Etoxazole	Cantaloupe	9018
•Etoxazole	Cherry	9044
•Etoxazole	Mint	8816
•Etoxazole	Hops	8873
•Famoxadone + Cymoxanil	Lettuce	
•Famoxadone + Cymoxanil	Onion	8303
•Famoxadone + Cymoxanil	Spinach	
•Famoxadone + Cymoxanil	Celery	8758
•Famoxadone + Cymoxanil	Canberry	8766
•Famoxadone + Cymoxanil	Lettuce	8499
•Fenamidone	Carrot	8524
•Fenamidone	Turnip, tops	7975
•Fenamidone	Grape	8164

Product	Crop	PR#
•Fenbuconazole	Pepper	6372
•Fenhexamid	Asparagus	8692
•Fenoxaprop + Ethyl	Grasses	6220
•Fenpropathrin	Mamey Sapote	7863
•Fenpropathrin	Canistel	7862
•Fenpropathrin	Papaya	7856
•Fenpropathrin	Black Sapote	7858
•Fenpropathrin	Star Apple	7857
•Fenpropathrin	Mango	7859
•Fenpropathrin	Sapodilla	7860
•Fenpropathrin	Barley	7667
•Fenpropathrin	Avocado	7861
•Fipronil	Plantain	6712
•Fipronil	Mustard greens	6886
•Fipronil	Carrot	6887
•Fipronil	Popcorn	8424
•Fipronil	Radish	6888
•Flonicamid	Carrot	8754
•Flonicamid	Hops	8706
•Flonicamid	Radish	8753
•Fluazinam	Ginseng	8791
•Fluazinam	Cabbage	8796
•Fluazinam	Mustard greens	8797
•Fluazinam	Blueberry	6129
•Fluazinam	Bean, dry	6369
•Fluazinam	Bean, snap	7602
•Fluazinam	Broccoli	8795
•Fluazinam	Bean, lima	8798
•Flucarbazone	Grasses	9000
•Fludioxonil	Sweetpotato	8402
•Fludioxonil	Asparagus	7257
•Fludioxonil + Cyprodinil	Parsley	7130
•Fludioxonil + Cyprodinil	Avocado	7338
•Fludioxonil + Cyprodinil	Tomato	8124
•Fludioxonil + Cyprodinil	Kiwifruit	8972
•Fludioxonil + Cyprodinil	Garlic	9386
•Flufenacet	Popcorn	8695
•Flufenacet	Potato	8326
•Flufenacet	Bean, snap	8070
•Flumioxazin	Cantaloupe	8316
•Flumioxazin	Blueberry	8331
•Flumioxazin	Bean, dry (harvest aid)	9043
•Flumioxazin	Pepper	8321
•Flumioxazin	Garlic	8055
•Flumioxazin	Pecan	8818
•Flumioxazin	Tomato	8320
•Flumioxazin	Squash	8318
•Flumioxazin	Bean, dry	8058
•Flumioxazin	Asparagus	8059
•Fluroxypyr	Pear	7707
•Fluroxypyr	Millet	9337
•Fluroxypyr	Mint	8569
•Fluroxypyr	Apple	7706
•Glufosinate	Corn, sweet	6515

Product	Crop	PR#
•Glufosinate	Corn, sweet	6953
•Glufosinate	Pistachio	8665
•Glyphosate	Horseradish	A6704
•Glyphosate	Mustard seed	8672
•Glyphosate	Indian mulberry	8853
•Glyphosate	Flax	6156
•Glyphosate	Pea, dry	6139
•Glyphosate	Flax	6115
•Glyphosate	Strawberry	1409
•Halosulfuron	Potato	7281
•Halosulfuron	Pea, succulent	7286
•Hexakis	Pistachio	6617
•Imidacloprid	Peanut	6587
•Imidacloprid	Oat	6397
•Imidacloprid	Caneberry	8257
•Imidacloprid	Mustard	8471
•Imidacloprid	Pearl Millet	9436
•Imidacloprid	Lychee	6676
•Imidacloprid	Kava	8455
•Indoxacarb	Beet	8870
•Indoxacarb	Blueberry	7038
•Iodomethane	Wheat	9118
•Iodomethane	Radish	8886
•Lambda-Cyhalothrin	Asparagus	8742
•Linuron	Celeriac	3557
•Linuron	Fennel	3608
•Linuron	Celery	4936
•Linuron	Dill	1432
•Linuron	Parsley	3035
•Linuron	Coriander	1625
•MCPB	Mint	4757
•Mefenoxam	Mustard Seed/Rape	
•Mefenoxam	Spinach	8431
•Methoxyfenozide	Guava	7064
•Methoxyfenozide	Onion, green	9067
•Methoxyfenozide	Blueberry	7671
•Methoxyfenozide	Grasses	7524
•Methoxyfenozide	Avocado	7060
•Methoxyfenozide	Peanut	8115
•Methoxyfenozide	Bean, dry	7530
•Methoxyfenozide	Sweetpotato	8505
•Metribuzin	Tanier	6459
•Metribuzin	Pea, succulent	6388
•Myclobutanil	Cilantro	7878
•Myclobutanil	Lettuce	7577
•Myclobutanil	Pepper	6070
•Novaluron	Tomato	8419
•Novaluron	Mustard greens	8420
•Oxyfluorfen	Squash, summer	3712
•Oxyfluorfen	Pejibaye	6606
•Oxyfluorfen	Banana	6697
•Oxyfluorfen	Eggplant	4134
•Oxyfluorfen	Pepper	4133
•Oxyfluorfen	Citrus	7801

Product	Crop	PR#
•Oxyfluorfen	Pepper	2125
•Oxyfluorfen	Cucumber	3711
•Oxyfluorfen	TI Palm	7377
•Oxyfluorfen	Rhubarb	6592
•Oxyfluorfen	Kenaf	6318
•Oxyfluorfen	Safflower	5454
•Oxyfluorfen	Articoke	7579
•Oxyfluorfen	Brussel Sprouts	5123
•Oxyfluorfen	Caneberry	3616
•Oxyfluorfen	Cantaloupe	3710
•Paraquat	Cabbage	1479
•Paraquat	Pea, succulent	5193
•Paraquat	Safflower	2939
•Paraquat	Broccoli	1475
•Pendimethalin	Barley	9362
•Pendimethalin	Asparagus	6660
•Pendimethalin	Cabbage	6387
•Pendimethalin	Turnip, tops	1987
•Pendimethalin	Articoke	6623
•Pendimethalin	Cabbage, Chinese	6507
•Pendimethalin	Fig	6607
•Pendimethalin	Kenaf	5208
•Pendimethalin	Broccoli	6505
•Pendimethalin	Grape	5740
•Pendimethalin	Collard	1988
•Pendimethalin	Grass, seed crop	4912
•Pendimethalin	Cauliflower	6504
•Pendimethalin	Kiwi	6681
•Pendimethalin	Mustard greens	1986
•Pendimethalin	Cabbage, Bok Choy	6773
•Pendimethalin	Brussels Sprouts	6506
•Pirimiphos-methyl	Sunflower	8813
•Prometryn	Carrot	1682
•Prometryn	Okra	8575
•Prometryn	Celeriac	3567
•Prometryn	Dill	1630/3040
•Prometryn	Parsley	3618/5160
•Pronamide	Lettuce	8709
•Pronamide	Dandelion	A3488
•Pronamide	Grasses, pasture	2297
•Pronamide	Cranberry	3152
•Pronamide	Safflower	5456
•Pronamide	Caneberry	3593/3201
•Pronamide	Radicchio	4601
•Pronamide	Grasses, orchard	5109
•Pronamide	Chicory	6729
•Pronamide	grasses grown for seed	
•Pronamide	Chicory, tops	5027
•Pronamide	Blackberry	A3201
•Pronamide	Chicory	6474
•Propiconazole	Pineapple	6585
•Propiconazole	Parsley	6351
•Propiconazole	Turnip (roots + tops)	6237
•Propiconazole	Beet, garden	6352
•Pyraclostrobin	Barley	9089
•Pyraclostrobin	Rosemary	8794
	+ Boscalid	

Product	Crop	PR#
•Pyraclostrobin	Basil	8792
+ Boscalid		
•Pyraclostrobin	Dill	8691
+ Boscalid		
•Pyraclostrobin	Tomato (GH)	8374
+ Boscalid		
•Pyraclostrobin	Avocado	8446
+ Boscalid		
•Pyraclostrobin	Chives	8793
+ Boscalid		
•Pyraclostrobin	Radicchio	9302
+ Boscalid		
•Pyraclostrobin	Endive, belgian	8662
+ Boscalid		
•Pyraclostrobin	Pear	9207
+ Boscalid		
•Pyraclostrobin	Stone fruit (PH)	7922
+ Boscalid		
•Pyraclostrobin	Apple	8890
+ Boscalid		
•Pyridaben	Cucumber (GH)	8036
•Pyrimethanil	Peach	8700
•Pyrimethanil	Lemon	9085
•Pyrimethanil	Plum	8702
•Quinoxifen	Peach	8462
•Quinoxifen	Plum	8463
•Quinoxifen	Squash	7653
•Quinoxifen	Artichoke	8817
•Quizalofop	Mustard seed	7340
•Sethoxydim	Mint	7382
•S-Metolachlor	Caneberry	3497
•S-Metolachlor	Sesame	6516
•S-Metolachlor	Squash, winter	6630
•S-Metolachlor	Blueberry	2616
•S-Metolachlor	Cantaloupe	6178
•S-Metolachlor	Caneberry	4994
•Spinosad	Almond	8739
•Spinosad	Dill Seed	7361
•Spirodiclofen	Hops	8968
•Sulfentrazone	Muskmelon	7911
•Sulfentrazone	Mustard greens	7581
•Sulfentrazone	Flax	7584
•Sulfentrazone	Pea, succulent	6520
•Sulfentrazone	Watermelon	7917/8049
•Sulfentrazone	Tomato	7957
•Sulfentrazone	Pepper	8048
•Sulfentrazone	Kale	7914
•Sulfentrazone	Collard	7912
•Sulfentrazone	Cauliflower	8064
•Sulfentrazone	Broccoli	7724
•Sulfentrazone	Cantaloup	8445
•Sulfentrazone	Strawberry	7044
•Sulfentrazone	Brassicas	9355
•Tebuconazole	Garlic	8365
•Tebuconazole	Squash, winter	6322
•Tebuconazole	Collard	6232
•Tebuconazole	Onion, dry bulb	7196
•Tebuconazole	Garlic	7197
•Tebuconazole	Tropical Fruit	
•Tebuconazole	Mustard greens	6233
•Tebuconazole	Onion, green	7245

Product	Crop	PR#
•Tebuconazole	Kale	6510
•Tebuconazole	Asparagus	7991
•Tebuconazole	Beet, garden	6353
•Terbacil	Peach	9017
•Thiacloprid	Blueberry	7813
•Thiamethoxam	Barley	7746
•Thiamethoxam	Canberry	8039
•Thiamethoxam	Hops	8451
•Thiamethoxam	Artichoke	8282
•Thifensulfuron-	Safflower	A3454
methyl		
•Thiophanate-	Tomato	8506
methyl		
•Thiophanate-	Ginseng	6546
methyl		
•Thiophanate-	Collard	8469
methyl		
•Thiophanate-	Mustard Seed	8789
methyl		
•Thiophanate-	Mustard Greens	8468
methyl		
•Thiophanate-	Sweetpotato	9294
methyl		
•Thiophanate-	Blueberry	8309
methyl		
•Thiophanate-	Citrus	8294
methyl		
•Thiophanate-	Turnip Greens	8467
methyl		
•Thiophanate-	Mushroom	8289
methyl		
•Thiophanate-	Caneberry	5039
methyl		
•Thiophanate-	Sunflower/	5352
methyl	Mustard seed	
•Thiophanate-	Pistachio/Almond	8486
methyl		
•Thymol	Honey	8661
•Trifloxystrobin	Papaya	7973
•Trifloxystrobin	Asparagus	8212
•Trifloxystrobin	Radish	8363
•Triflumizole	Cantaloup	9343
•Triflumizole	Pineapple	8830
•Triflumizole	Mustard greens	8865
•Uniconazole	Tomato	4597
•Uniconazole	Pepper, bell	4595
•Zeta-	Orange	8216
Cypermethrin		
•Zeta-	Safflower	8677
Cypermethrin		
•Zeta-	Okra	9656
Cypermethrin		
•Zeta-	Wild Rice	9125
Cypermethrin		
•Zeta-	Barley	8812
Cypermethrin		
•Zeta-	Lemon	8214
Cypermethrin		
•Zeta-	Grapefruit	8215
Cypermethrin		

Attachment 8

Biopesticide Research and Development- 2005

IR-4 petitions/petition amendments submitted

0160B Thymol/Beehives (3 Volumes)

0086B Verticillium isolate WCS850 amendment(4 volumes)

0094B *Chondrostereum purpureum* amendment (1 Volume- Conversion from conditional to permanent registration)

0372 Bacteriophage(Agriphage) Bacteriophages of *Xanthomonas campestris* pv. vesicatoria and *Pseudomonas syringae* pv. (3 volumes)

Regulatory assistance provided, but not associated with an IR-4 Petition

Hydrated lime/Coqui frog Section 18

Cuelure/Fruit Fly Section 3 registration

Clearances from IR-4 Petitions

IR-4 Biopesticide Tolerance Successes – 2005 (January-November)

1) Rules - Federal Register (F.R.) – Permanent Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances
<i>Reynoutria sachalinensis</i> (I) All food commodities	Grapes	0142B	SEP 21, 2005	1	1
	Cucurbits	0142B	SEP 21, 2005	14	1
	Strawberry	0142B	SEP 21, 2005	1	1
	Lettuce	0142B	SEP 21, 2005	2	1
	Pepper and Tomato	0142B	SEP 21, 2005	8	1
	Walnut	0142B	SEP 21, 2005	2	1
Verticillium WCS 850	American elm	0372B	OCT 19, 2005	1	1
AgriPhage Bacteriophages of <i>Xanthomonas campestris</i> pv.	Tomato	0372B	DEC 12, 2005	1	1

vesicatoria and <i>Pseudomonas syringae</i> pv.	Pepper	0372	DEC 12, 2005	1	1
TOTAL				31	9

1B) Rules - Federal Register (F.R.) – Time-Limited Tolerances

Pest Control Agent (Type*)	Commodity or Crop Group	PR#	Date	No. of Uses	No. of Tolerances	Expiration Date
Thymol (I)	Beehives	08661	JUN 30, 2005	1	1	JUN 30, 2007
TOTAL				1	1	

*F=fungicide, H=herbicide, I=insecticide/acaricide, M=molluscide, P=plant growth regulator, R=rodenticide

New uses supported by IR-4 Biopesticide Grant Program efficacy research funds

0289B Polyoxin-D(Endorse)/ Ginseng

Polyoxin-D(Endorse)/Ornamentals

0354B *Bacillus subtilis* (Serenade)/Horseradish

0299B *Pseudomonas syringae* (Bio Save ESC11) /Sweet Potato

0357B *Muscodor albus* (Arabesque)/Orange

Muscodor albus (Arabesque)/Cherry

Muscodor albus (Arabesque)/Grape

0273B *Paecilomyces lilacinus* [strain 251](#)(MeloCon)/Tomato

0273B *Paecilomyces lilacinus* [strain 251](#)(MeloCon)/Pepper

Paecilomyces lilacinus [strain 251](#)(MeloCon)/Ornamentals

0206B [\(Z\)-6-heneicosen-11-one](#)/Douglas fir tussock moth

0036B *Alternaria destruens* Strain 059 (Smolder) for control of Dodder (*Cuscutta* spp.).



2005 Annual Report