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

Newsletter

Vol. 35 No. 3, July 2004

Information Exchange

Working Together to Improve Efficiencies

IR-4 and Agriculture and Agri-Food Canada (AAFC) are cooperating jointly in generating data on specialty crops and are now recognized as members of the North American Free Trade Agreement (NAFTA) Technical Working Group (TWG) on Pesticides. The main goal of this cooperation is to provide reduced risk pest control products to specialty crop growers as well as reduced trade barriers in order for commodities to be shared by consumers across the borders. The recognition of the working partnership of these two groups was highlighted at the December 5, 2003 NAFTA TWG on Pesticides meeting, held in Vancouver, BC. Members of the NAFTA TWG on Pesticides Executive Committee include: EPA Director of the Office of Pesticide Program, Jim Jones; PMRA Acting Executive Director, Wendy Sexsmith, and Mexico's Director General of CICOPLAFEST, Miguel Lombera. This recognition is a formal agreement of the governments to harmonize regulatory requirements on agrochemicals.



The partnership between the US IR-4 Project and the Canadians began in 1996 and over the past eight years has contributed to over 175 joint residue trials conducted in Canada. Members of the AAFC Pest Management Center have been active participants in annual IR-4 Food Use Workshops and National Research Planning Meetings. In 2002, the Canadian government made a significant funding commitment to minor or specialty crop growers. For AAFC this funding commitment resulted in the establishment of ten Good Laboratory Practices (GLP) Field Research Centers and a pest management centre similar to IR-4 Headquarters. Funding provided to PMRA is for review of registration submissions. Having these new resources in place allowed the AAFC Team to volunteer for 61 field trials in 2003 and a planned 56 field trials in 2004 as part of the IR-4 prioritization program, which should lead to more registrations for both US and Canadian specialty crop growers.

About NAFTA and the TWG on Pesticides

NAFTA was created to remove most barriers to trade among the US,

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Biopesticide Demonstration Projects Award Winners

IR-4 along with EPA's Biopesticide and Pollution Prevention Division (BPPD) are pleased to announce that joint grants totaling $102,000 have been awarded to nine projects designed to demonstrate the effective use of biological pesticides, or biopesticides, to promote their adoption in production agriculture. The grants have been awarded based on demonstrated product effectiveness, their potential to be adopted into an IPM program, and the potential for overall risk reduction.

Farmers base their pest control choices on a variety of criteria. Seeing products work effectively in demonstration plots is recognized as an important step in gaining recognition of a product. While there are many good biopesticides on the market, some of the small companies that manufacture them do not have the means to fund

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Inside this issue...

Meet the PMC and Administrative Advisors

Due to its unique collaboration of agencies and universities, the IR-4 Program is managed through a Project Management Committee (PMC). The PMC's role is to review the status of ongoing programs, develop policies and procedures, set operational budgets, develop strategic plans, and insure that IR-4's overall goals are being met.

PMC members include: the IR-4 Executive Director, the four Regional Directors, the ARS IR-4 Coordinator, the Chair of the Administrative Advisers (one for each of the four regions in addition to the USDA/CSREES and USDA/ARS Administrators), the USDA-CSREES IR-4 National Program Leader and the Chair of the Commodity Liaison Committee (CLC).

The Administrative Advisor Chair, CLC Chair, and the USDA/CSREES representative positions are non-voting. A Chair for the PMC is elected from the voting members and is usually one of the Regional Directors or the ARS IR-4 Coordinator.

The PMC meets three to four times a year.

The Project Management and Administrative Advisor (AA) Committee members include: (l-r back row) David Soderland, Northeast Regional Director; Michael Parrella, Western Region Administrative Advisor; Gary Lemme, North Central Administrative Advisor and Chair of the Administrative Advisory Committee; Dan Rossi, Northeast Administrative Advisor; Bob Holm, IR-4 Executive Director; Bob Hollingworth, Chair of the PMC and Northcentral Regional Director; and Paul Schwartz, ARS IR-4 Coordinator. PMC and AA members in the front row include: (l-r) James Parochetti, USDA/CSREES National Program Leader; Marion Miller, Western Regional Director; Rocky Lundy, Commodity Liaison Committee Chair; and Mary Duryea, Southern Region Administrative Advisor. Nancy Ragsdale, (not a committee member) seated next to Mary Duryea, is the USDA/ARS National Research Planning Program Leader, and a strong supporter of IR-4. Not pictured is the Southern Regional Director, Marty Marshall.

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Editor: Sherrilynn Novack
IR-4 Publications Communications Coordinator 732.932.9575 x 632,
novack@aesop.rutgers.edu

Newsletter Committee:
> Northeast Regional Field Coordinator, Edith Lurvey, 315.787.2308
> Western Regional Assistant Field Coordinator, Stephen Flanagan, 541.752.9291
> Southern Regional Field Coordinator, Charlie Meister, 352.392.2399
> Northcentral Regional Director and Chair of the IR-4 Project Management Committee, Bob Hollingworth, 517.432.7718
> USDA/ARS Field Representative, Ben Fraelich, 229.386.3609
> Commodity Liaison Committee member, Dave Trinka of MBG Marketing, 269.434.6791
> IR-4 HQ, Assistant Research Scientist, Diane Infante and Weed Science Coordinator, Fred Salzman, 732.932.9575

Visit the IR-4 website at www.ir4.rutgers.edu

The IR-4 Newsletter will be following a study throughout its 30-month life in order to give our audience a better understanding of all phases involved in a study. IR-4 Study Director, Ken Samoil will be working closely with the editor in providing facts and information as well as partnering in writing this series that follows the Acetamidprid study on strawberries. This study was chosen because it can be tracked in all regions and ARS.

The Life of a Study: Acetamiprid/Strawberry

Part I — The Request

All IR-4 studies begin with a project clearance request (PCR). IR-4 received an initial request for an ACETAMIPRID/STRAWBERRY study from John Wise of Michigan State University, which stated that acetamiprid was needed on strawberries for the control of aphids, plant bugs, and Japanese beetles, noting that limited non-organophosphate alternatives exist. This request was received by Headquarters' Diane Infante, who assigned it Project Request (PR) number 09058. She then copied the request and emailed it to the regions for the purpose of soliciting more state requests, and to the registrant for the purpose of receiving their support of the study. The request was coded 06, which meant it was under evaluation by the registrant, and it was included in the studies that needed further discussion at the IR-4 2003 Food Use Workshop (FUW), where studies are prioritized. During the workshop Greg Krawczyk, of Penn State University, seconded the request and the registrant, who was also in attendance, verbally committed to registering the requested product and use. The Pennsylvania request mentioned Japanese beetles as the pest of interest, and resistance management as the reason for needing the compound. Even though PCRs may include specific pests, the registrant has the final word on which pests are listed on the product label after registration. The study was assigned a "B" priority at the workshop. One measure of the importance of a request is the number of states that respond to needing the product and use pattern. Following the workshop, a third request came from Ken Sorensen in North Carolina.

Acetamiprid is a chloronicotinyl insecticide, in the same class as imidacloprid and thiamethoxam. It is owned by Nisso America, Inc., but the registration rights to agricultural uses (except greenhouse and cotton) in the U.S. belong to Cerexagri, Inc. In Canada, the agricultural registration rights belong to DuPont. The end use product for agricultural uses is Assail 70 WP, a wettable powder that is registered in the U.S. on cotton, leafy vegetables, cole crops, fruiting vegetables (except cucurbits), citrus fruits, and pome fruits. Insects that are currently on the label for this product include aphids, whiteflies, plant bugs, Colorado potato beetle, citrus thrips, glassy-winged sharpshooter, red scale, psylla, and codling moth.

In October 2003, this study was tentatively assigned to Ken Samoil for protocol writing. For continuity, multiple studies with the same product are often assigned to the same person. This allows the study director to become knowledgeable about that product and develop a good working relationship with the registrant. Since Ken worked on the Acetamiprid greenhouse tomato study, initiated in 2002, he was also given the strawberry study. Ken drafted a protocol based on the information in the PCR from Michigan - two applications at 0.13 lbs. active ingredient per acre, at an interval of seven (±1) days, with the last application one day before harvest.

The next step in beginning the study process takes place at the National Research Planning Meeting (NRPM), where field trials are selected and an analytical laboratory is identified. Because this study was now deemed important by three regions (Northeast, Northcentral, and Southern), it was given a regional upgrade and made an "A" priority. (IR-4 permits a limited number of priority upgrades each year at the NRPM.) This meant that IR-4 would commit to initiating a residue study in 2005 with a completion goal of 2007, unless there are unforeseen regulatory delays or problems with completion of the field trials. All workshop commitments and any regional upgrades must meet the required number and location of trials for crop groups as required in the Code for Federal

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Contact Information for IR-4 Regional Field Coordinators

Northeast Region
Ms. Edith Lurvey
315.787.2308
ell10@cornell.edu

Northcentral Region
Dr. Satoru Miyazaki
517.432.3100 ext. 150
ncrir4@msu.edu

Southern Region
Dr. Charles Meister
352.392.2399
cmeister@mail.ifas.ufl.edu

Western Region
Ms. Rebecca Sisco
530.752.7634
rsisco@ucdavis.edu

USDA-ARS
Dr. Paul H. Schwartz
301.504.8256
schwartp@ba.ars.usda.gov

Focus on RAREC

— by Edith Lurvey, IR-4 Northeastern Regional Field Coordinator

The IR-4 Field Research center at Rutgers Agricultural Research and Extension Center (RAREC), located in Upper Deerfield, NJ, is the largest in the Northeast region. It currently conducts 35 to 40 magnitude of residue studies each year, 40% to 50% of the region's GLP work. The center is doubly important as its location is on the border between EPA Regions one and two. This allows the center to accept trials for both regions. As a result, RAREC conducts a major portion of the tree fruit and small fruit residue work for the northeast, in addition to the usual vegetable crops. Two or three greenhouse trials are also conducted at the center each spring, along with ornamentals trials and insecticide trials, as needed.

Larry Rossell (kneeling), Jessie Smith, and Erin Hitchner planting a new IR-4 peach orchard

Dr. Jerry Ghidiu (in the hat), Specialist in Vegetable Entomology, and Dr. Brad Majek, Specialist in Weed Science transplant pepper seedlings for a trial

This volume of work could not be completed without RAREC's dedicated personnel. In the 80's and early 90's, residue work was done by discipline: Dr. Jerry Ghidiu (entomology), Dr. Steve Johnston (plant pathology) and Dr. Brad Majek (weed science). Last year, Steve was tragically killed and he has been greatly missed. Drs. Ghidiu and Majek continue to be active in supporting IR-4 along with other researchers at RAREC, including, Dr. W. F. Nicholson, the director, Dr. Norm Lalancette, tree fruit pathology, and Dr. Peter Shearer, tree fruit entomology.

Larry Rossell became the first center Field Research Director (FRD) in 1995, when all GLP work was combined under one director. Larry came to RAREC in 1991, bringing 30 years of small plot research and crop production experience to the program. He ran the IR-4 Program by himself for eight years, with summer student help. Under his direction the program grew to its current size, and the perennial fruit plantations dedicated to IR-4 trials were established.

Erin Hitchner joined the team in 1999, after her graduation from Rutgers with a B.S. emphasis in entomology. In 2000, Larry happily turned over

Field Research Director, Erin Hitchner

FRD responsibility, i.e. the "book work" to Erin, making her the youngest FRD in IR-4. With Erin's hard work on GLP's and record keeping and Larry's crop production wizardry, the RAREC center has become a major asset to IR-4.

Erin and Larry have been active ambassadors for IR-4, hosting visits from growers, IR-4 personnel and foreign dignitaries.

Unfortunately, RAREC will be losing Erin who will be leaving in August to further her studies. She has accepted an offer to attend graduate school at VPI. We are sorry to see her go, but wish her the best of luck.

New to the team is Melissa Zimmerman, who will be joining the team full time in the summer. Melissa has been a pathology technician at RAREC since 2000. She and Meredith Fogg, a grad student, took over the program last spring, to complete Steve Johnston's research. Melissa is currently working on a M.S. in ecology at Rutgers. We welcome her to the program.

About The Farm

The IR-4 Program is well equipped and can make applications with airblast, tractor mounted or backpack sprayers. The IR-4 Program at RAREC works on nine to ten acres of open plot land in three blocks, which allow a three year rotation for annual crops. The center maintains six acres of trees, including apples, peaches, sweet and sour cherries, nectarines, pears and apricots, and has access to additional plantations of apples, peaches and nectarines when needed. There are two acres of brambles, blueberries, strawberries and grapes with additional blueberries and cranberries at other remote sites. All the station plantings are under irrigation.

The Newsletter Committee is interested in focusing on IR-4 research centers. If your center would like to be highlighted, contact your region's Newsletter Committee member or the editor, Sherrilynn Novack at 732.932.9575 x 632 or email her at novack@aesop.rutgers.edu

The IR-4 Program was instrumental in getting imidacloprid (Provado 1.6) labeled to help US peach and nectarine growers overcome problems with various pests, such as the green peach aphid, a vector of the plum pox virus

Research Reduces Forestry Agrochemical Use

— by Dr. Michael Braverman, Manager, IR-4 Biopesticide Program

Most agricultural research plots are usually far less than an acre in size due to space or labor limitations. When research is conducted on close to 500 acres, big things can happen. Such is the case of research conducted by Dr. John Brown and Dr. Doug Walsh of Washington State University at the Potlatch and Boise Corporation poplar plantations in Boardman, Oregon. Their research has led them to finding an environmentally friendly way to control the Western Poplar Clearwing Moth larvae while at the same time it allowed them to abandon their use of over 44,000 pounds of the insecticide chlorpyrifos, commonly known as Lorsban.™

The Western Poplar Clearwing Moth mimics a wasp as a survival mechanism.

The Western Poplar Clearwing Moths lay eggs in the Poplar trees. When the eggs become larvae, they bore into the heart of the trees creating holes in what could have been quality lumber and destroying the trees themselves. The larvae cannot be controlled effectively with conventional insecticides, but an experimental biopesticide sex pheromone from Suttera Corporation has shown surprising results in eliminating this problem. The sex pheromone doesn't kill the moths but confuses the male moths so they can't use natural scent to find their mate. The following comparison explains how this system works. A man's wife wears a certain perfume; one with which he is very familiar. He and his wife are out in a thick forest and he can't see her. All around him the air smells like his wife's perfume. Since the "perfume scent" is everywhere, he no longer use scent as a cue to locate her. The result is similar using the sex pheromone to confuse male moths. They cannot find the female and therefore, the unmated moths do not produce viable eggs, and destructive larvae never develop. These "scents" are strong attractants and are slowly released over time; using just three grams per acre results in season long control.

This is one success story that exemplifies the need for

biopesticides. However, this kind of research would not have been possible without cooperation. This project was accomplished through the cooperative efforts of the EPA, which was instrumental in issuing a permit, known as a Section 18, to allow the scent to be tested on these large plots; IR-4's Biopesticide Program and the Washington State Commission on Pesticide Registration, which assisted by partially funding the research; the research efforts of Drs. John Brown and Doug Walsh of Washington State and the Suttera Corp., for its technical expertise.

IR-4, working collaboratively with industry leaders, USDA and EPA is committed to funding biopesticide research. For more information about programs such as this or for information on Biopesticide Grants, contact IR-4's Michael Braverman at Braverman@aesop.rutgers.edu.

GLP Lab Training

— by Dr. Wayne Jiang, Northcentral Regional Laboratory Coordinator

On June 7-9, twenty-five laboratory researchers from the US and Canada met at the National Food Safety & Toxicology Center at Michigan State University to attend IR-4's Good Laboratory Practices (GLP) Training for Analytical Laboratories. The purpose of the training was to promote interactions among IR-4 laboratories and provide professional GLP training.

The training was conducted in two sessions. The first session was facilitated by Harvey Mathason and Deepak Doshi from Training by Design (TBD) Enterprises. The trainers explained the basics of GLP's, which include: the importance of documentation, compliance, and SOP writing/review. It explained

Training By Design's Deepak Doshi explains, How to Make a GLP Program Work.

the value of adherence to GLPs, in order to assure IR-4 labs are being operated with qualified personnel, under appropriate direction, using adequate facilities, and calibrated and maintained equipment. Trainers also pointed out the importance of clear SOPs that reflect proper science, documentation, in-process inspection, and QA review.

The second session, facilitated by EPA's Daniel Myers, covered Analytical Laboratory GLP Inspections, Computer Systems and GLP Compliance, Michael Doherty, also from EPA, presented a training

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Emerging Insec West Reg

— by Stephen the IR-4 West Assistant Regi Coordinator b Corvallis, Ore work focuses efficacy and fo aspects of the integrating the Western Spec Growers.

Photos by: W J Umble, and

Agricultural biology is an environment characterized by a host of moving targets. One driving force for the IR-4 Program is the fact that pest problems faced by specialty crop growers are constantly shifting and re-aligning as the pests and the compounds used to control these pests change.

In the West there are three excellent examples of how the changing playing field of pest control complicates the task of developing appropriate tools for specialty crop growers. These three example pests are Katydids, Garden Symphylans, and June beetles.

Katydids
The first example is an emerging pest for stone fruit growers (peaches, plums, nectarines and cherries), the Fork-tailed Bush Katydid (*Scudderia furcata*). This particular insect is becoming a perennial pest in California's San Joaquin Valley where the shift from organophosphate and carbamate insecticides to reduced risk insecticides is well underway. Newer, reduced risk compounds like insect growth regulators, insect sex pheromones, and biorational insecticides such as spinosad target specific insect pests while protecting beneficial insect populations.

This use of reduced risk compounds is a significant component of modern Integrated Pest Management (IPM) practices. The down side of these new techniques lies with pests like the fork-tailed katydids that in the past were controlled with broad spectrum insecticides. In nectarines, katydids are a particular problem because they feed directly on immature fruit and mar the fruit making it unmarketable.

Every crop and growing region has its own unique spectrum of pests. Stone fruit are no exception to this phenomenon and university extension research previously focused on the predominant stone fruit insect pests: Peach Twig Borer, Omnivorous Leaf Roller, Oriental Fruit Moth, and mites. Now with the shift in insecticide usage leading to a rise in the katydid population, a new unique pest garners attention. The katydids were likely always a part of the orchard system in the past, but little research effort was directed toward them because they were controlled with broad spectrum insecticide sprays targeted toward Peach Twig Borer or Oriental Fruit Moth.

University extension and research now has the task of catching up with this new pest. Walt Bentley, an extension entomologist at the Kearney Agricultural Center in Parlier, California, is researching the basic biology of katydids and screening appropriate insecticides for their control. Bentley's research in the 2002 season showed the effectiveness of spinosad to control nymphal growth stages of katydids and his 2004 trials will examine additional reduced risk materials in cooperation with IR-4. Bentley's screening work will identify candidate insecticides that can be pursued through IR-4 for registration on nectarines and other stone fruit. This particular study is funded with grant monies from the California Department of Food and Agriculture's (CDFA) "Buy California" initiative that supports research for problem solving in California specialty crops.

Garden Symphylans:
The second example of a newly emerging pest might appear to be an insect but in actuality the Garden Symphylan *(Scutigerella immaculta*) is a non-insect arthropod. Stretching back to grade school or eighth grade science, you might recall that all insects are arthropods but not all arthropods are insects. Which is an entomologist's answer to why organisms with a whole lot of paired legs (spiders, centipedes, millipedes, sow bugs, and garden symphylans) are not technically insects. Though technically not an insect, these soil dwelling arthropods can be devastating feeders on young plant roots leading to significant losses in peppers, tomatoes, strawberries, mint, hops and many other western specialty crops.

Symphylans are fairly small (up to 5/16 inch long in North America) arthropods that do not burrow through the soil. As such they are more prevalent in fine textured soils with well-developed soil structure. The symphylans use soil pores, earthworm tunnels and other natural structures to travel through the soil. The pest occurs throughout the West and Pacific Northwest and can be a particular problem during plant establishment, and in perennial crops like hops where the soil structure is not disturbed.

Garden symphylans are an increasing problem due to some of the exact same reasons katydids emerged as a nectarine pest. Although not technically an insect, symphylans have traditionally been controlled with various broad-spectrum soil applied insecticides. The complex soil environment is a difficult medium in which to control pests. Historically the use of methyl-bromide and other soil applied insecticides controlled pests like symphylans. Newer replacement soil insecticides do not move as readily through the soil and often times are not as efficacious as methyl-bromide. Garden symphylans are particularly difficult to control due to their vertical movement through the soil profile driven by temperature, moisture and internal biological cycles.

Symphylans were historically a problem in California and the Pacific Northwest and were characterized by A.E. Michelbacher at UC Berkeley in the 1930's. Symphylans caused serious

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Bentley, M. Johnson

damage to asparagus and other crops, but relatively little work followed Michelbacher's early screening and characterization studies. In Oregon, symphylans have been a more consistent problem and were generally controlled with broad spectrum compounds like Dyfonate® (Fonofos). The cancellation of Dyfonate® uses in key Oregon crops, along with crop rotation changes such as shifting to perennial seed grasses, has likely increased symphylan populations. Current efforts in Oregon by OSU researchers Glenn Fisher and Jon Umble are focusing on understanding the pest biology and screening reduced risk compounds for potential crop registrations.

Symphylan populations can be managed with crop cultural methods such as flooding fields, cultivation, and compacting soils. Beyond the limited success of these measures, and various biological controls, the pest is controlled chemically. Results from 2002 tomato trials conducted by Benny Fouche in Stanislaus County, California provided a starting point for identifying new control materials. These studies will be followed by additional work in Monterey County with Bill Chaney this season. The Salinas studies are also supported with CDFA's "Buy California" Initiative grant monies and will examine symphylan control on peppers and spinach.

As a result of these studies appropriate priorities for registration will be pursued by IR4.

Tenlined June Beetles

The Tenlined June beetle (*Polyphylla decimlineata*) is so named for its distinctive white and black lines running down the

hard wing covers (termed "elytra") of this large scarab beetle. Scarab beetles are a diverse group of insects known for their often colorful elytra and the serious interest of many hobbyist entomologists. On any given night in California's Central Valley, male Tenlined June beetles are regularly seen around lights and are very easy to capture with conventional light traps. Tenlined June beetles were a minor problem in a limited area of San Joaquin County in the San Joaquin Valley in the late 1980's, but recently have become a significant problem in several counties of the San Joaquin Valley.

The San Joaquin Valley has recently seen an increase in new almond orchards. These new orchards are often developed with micro-sprinkler irrigation systems that efficiently deliver precise amounts of irrigation water. There seems to be some evidence [it's more a hypothesis] that Tenlined June beetle infestations are more significant on these types of plantings. In addition, the infestations are usually associated with sandier soils. The exact interactions among the beetle, trees and environmental factors like soils and irrigation stress is a complex and poorly understood dynamic.

Specific damage from the Tenlined June beetle is caused by the larval stage (i.e., grub) of the pest that can be up to one inch in length. This large larva spends its developmental time underground (up to 5 feet below the surface) feeding on tree roots that eventually stunts or kills mature trees. Besides almonds, Tenlined June beetles feed on apple, cherry, walnut, and prune trees. Why the beetle has recently become an increased pest problem is unclear although some reports suggest that the problem is more severe with certain almond rootstocks. Rootstocks are used in almond and other orchard crops to overcome soil disease and insect problems (like soil dwelling nematodes.) In the case of Tenlined June beetles, it appears that the commonly used nematode resistant rootstock, Nemaguard®, is more susceptible to damage from beetle feeding.

Understanding the biology and ecology of an emerging pest like the Tenlined June Beetle is critical for developing effective control strategies. Marshall Johnson, UC Riverside, at Kearney Agricultural Center in Parlier, California, is currently following up previous work on the insect's basic biology by Robert Van Steenwyk at UC Berkeley. Dr. Johnson's work is also supported with California Almond Research Board grant monies. Dr. Johnson will be surveying growers to discover the current extent of beetle infestations, developing sampling guidelines for grower and field scouts, and evaluating various chemical and biological controls for the Tenlined June beetle.

Continued Research Identifies New Solutions

The integrated control of agricultural pests is a delicate balance of understanding the pest and environmental biology while judiciously selecting and using control measures. The Fork-tailed Bush Katydids, Garden Symphylans, and Tenlined June Beetles, are classic examples of this biological balance.

Specialty crop growers are interested in economically producing a crop with a minimum of costly chemical inputs, but their pest species are a constantly moving target. The target may have moved because of a shift in chemical use allowing new pests to fill the void as with katydids and symphylans, or the biological shift may be unknown as in the case with the Tenlined June beetle. Regardless of the shifts in the agricultural environment, specialty crop growers will inevitably need new tools in their crop protection strategies. IR-4 is uniquely qualified to work cooperatively with extension and university colleagues to identify appropriate new pest control tools for specialty crop growers.

Award Winners

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university demonstration projects.

BPPD has granted $80,000 to the IR-4 Project which was supplemented with over $20,000 from IR-4 to develop a joint program to promote the adoption of biopesticides. This joint program has been utilized to fund projects designed to demonstrate the effective use of biopesticides to the agricultural community.

The nine awardees were selected from more than 40 proposals evaluated jointly for technical merits by both BPPD and the IR-4 Project. A wide range of specialty crops, nursery crops, rangeland and turf were represented in the proposals. With more than 30 biopesticides included in the proposals, innovative measures include promoting rotations between reduced risk conventional pest management tools and using novel combinations of biopesticides as part of biologically-intensive Integrated Pest Management (IPM) systems were proposed.

Recipients of biopesticide demonstration grants are:

- Michigan State University for a Biopesticide-based, Area-wide Approach to Managing Codling Moth in Michigan Apple;

- Cornell University for Effectiveness of the Biological Pesticide Serenade (*Bacillus subtilis*) within an Apple IPM System to Control Major Diseases;

- University of Wyoming for Evaluation of Mycotrol O® (*Beauveria bassiana*, GHA strain) Application enhanced with Canola Oil to Prevent Grasshopper Infestation of Improved Pastures and Irrigated Fields;

- University of Maine for Effective Tactics for the Biopesticide Botanigard Alone and in Conjunction with Spintor for Control of the Blueberry Flea Beetle;

- Colorado State University for Incorporating Nuclear Polyhedrosis Virus into an IPM Program for Corn Earworm;

- Cornell University for Evaluating Several Biopesticides for Powdery Mildew in Cucurbit Crops;

- University of California-Davis/AgraQuest, Inc. for Effectiveness of Serenade, *Bacillus subtilis*, within a Grape IPM Program to Control Powdery Mildew and Botrytis bunch rot;

- University of Arizona for Effectiveness of Contans and Serenade within a Biologically Intensive Integrated Pest Management System for Sclerotinia Drop on Lettuce; and

- Mississippi State University for a Trial of Bio-Fungicides with Efficacy for Controlling Dollar Spot in Turfgrasses.

More information on EPA's regulation of biopesticides is available at: www.epa.gov/pesticides/biopesticides.

Study

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Regulations [(40 CFR 180.1(h)] (see pgs. 441-451 in the second edition *"Food and Feed Crops of the United States"*). A total of seven field trials were assigned to New Jersey, Wisconsin, Florida, Oregon, and California. The three trials in California were divided between the USDA-ARS (2 trials) and the land-grant system (1 trial). The Canadian representatives indicated that they will schedule several trials in Canada as well; these will operate under the same protocol as the U.S. trials. The EPA's suggested distribution of field trials for strawberry residue studies will be met as long as Canada supplies at least one trial in Region 1, which includes the eastern-most part of Canada as well as the northeastern U.S. The laboratory at Michigan State University, headed by Dr. Wayne Jiang, volunteered to handle the residue analysis for this study.

Although IR-4 was hit with an unexpected 10% budget cut in December 2003, which resulted in the unprecedented cancellation of some of the scheduled "A" priority studies, the acetamiprid/strawberry study was not affected. The protocol was refined by designating one of the California ARS trials as a decline trial, which means in addition to collecting samples at one day after the last application, the cooperator will collect additional treated samples at three days, six (±1) days, and nine (±1) days after the last application. This sampling schedule helps track the decline rate of residues. The EPA often requires this information to be tracked on the larger minor crops before a registration will be permitted. The registrant reviewed the draft protocol, and did not request any additional changes. Dan Kunkel and Ken Samoil signed the protocol on January 28, 2004, marking the start of the Good Laboratory Practices (GLP) residue study and the beginning of the 30-month timeline. Since the Canadian trials had not yet been assigned, they will be added to the study via a protocol amendment.The GLP-characterized test substance was ordered from Cerexagri for each of the U.S. field trials, and was scheduled for delivery in time for the 2004 growing season.

Field trials will be discussed in Part II of this series.

Clearances
March 2004 - May 2004

Product Name: Pyriproxyfen
Trade Name: Knack
Crop: Celery
PR# 08975
Federal Register: March 10, 2004
(TLT until June 30, 2007)

Product Name: Carfentrazone-ethyl
Trade Name: Aim
Crops: Fruiting Vegetables
PR# 07959, 07960, 07961
Federal Register: May 24, 2004
(Extension of TLT until June 30, 2007)

Product Name: Coumaphos
Trade Name: Bayer Bee Strips
Commodity: Beehives
PR# 07371
Federal Register: May 24, 2004
(Extension of TLT until December 31, 2007)

Product Name: Diflubenzuron
Trade Name: Dimilin
Crop: Alfalfa
PR# 08678
Federal Register: May 24, 2004
(Extension of TLT until June 30, 2007)

Product Name: Dimethenamid
Trade Name: Frontier
Crops: Onions (Dry Bulb) and Sugar Beets
PR# 06337, 07702
Federal Register: May 24, 2004
(Extension of TLTs until December 31, 2007)

Product Name: Fenbuconazole
Trade Names: Indar, Enable
Crop: Blueberry
PR# 06368
Federal Register: May 24, 2004
(Extension of TLT until December 31, 2007)

Product Name: Indoxacarb
Trade Name: Avaunt
Crop: Cranberry
PR# 08127
Federal Register: May 24, 2004
(Extension of TLT until December 31, 2007)

Product Name: Mancozeb
Trade Names: Dithane, Manzate, Penncozeb
Crop: Ginseng
PR# 00992
Federal Register: May 24, 2004
(Extension of TLT until December 31, 2006)

Product Name: Myclobutanil
Trade Names: Nova, Rally, Laredo
Crop: Sugar Beet
PR# 07998
Federal Register: May 24, 2004
(Extension of TLT until December 31, 2007)

Product Name: Pyriproxyfen
Trade Name: Esteem
Crop: Strawberry
PR# 08106
Federal Register: May 24, 2004
(Extension of TLT until December 31, 2007)

Product Name: S-Metolachlor
Trade Name: Dual Magnum
Crop: Sweet Potato
PR# 05413
Federal Register: May 24, 2004
(Extension of TLT until December 31, 2007)

Product Name: Sulfentrazone
Trade Name: Authority, Spartan
Crops: Flax and Strawberry
PR# 07584, 07044
Federal Register: May 24, 2004
(Extension of TLTs until December 31, 2007)

Training

continued from page 5

module on Data Review in OPP/HED. IR-4's Johannes Corley gave a presentation on the Magnitude of Residue Studies-Perspectives, Review & Reporting, which was followed by an open discussion and lab tour.

All trainers emphasized the key points in IR-4 laboratory work from EPA Inspector and Study Director's point of view.

The training explained that adherence to GLPs will ensure IR-4 analytical work is being performed with excellence.
The attendees noted that the contents of the training was well organized, thorough, and broad in scope. They also appreciated that the trainers made the training "full of fun" and included valuable interactions.

In feedback remarks, attendees strongly recommended to the PMC and Training Committee that this kind of training should be conducted more often and they valued this interaction among research chemists. They also suggested an IR-4 guideline be established to make IR-4 work more standardized and efficient.

Did You Know?

The Operational Handbook

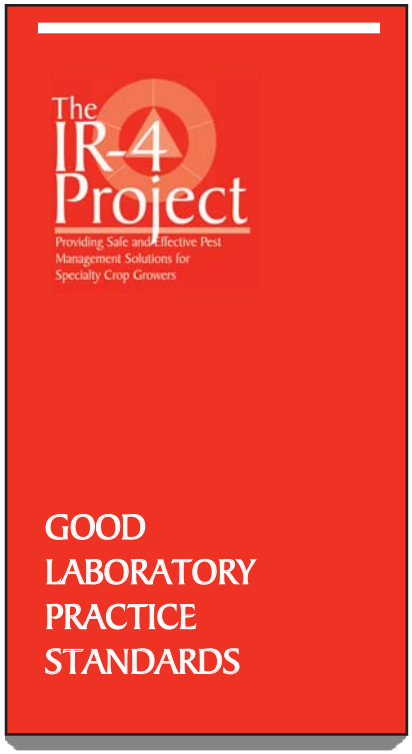
of IR-4 to fulfill EPA requirements is now available on the website at ir4.rutgers.edu/Binars/operationalhandbook.pdf

New State Report Cards

are now found on the IR-4 website at www.ir4.rutgers.edu. The report cards have been simplified to include some important crops from each state and if there was available data, some report cards contain Section 18 economic loss information. The color report cards are in a pdf format and can easily be printed. If you have a correction to a report card or have more updated information regarding Section 18 economic data, please contact: Sherrilynn Novack at 732.932.9575 x 632 or email her at novack@aesop.rutgers.edu.

New GLP Booklets

IR-4 is redesigning the current GLP booklets to make them easier to read. They will include an increased font size, a heavier cover, a place for notes, a section on common equivalents, and IR-4 contact information.



HQ will initially print 500 copies of the booklet. They will be be available the end of July. If you would like to have one or more mailed to your office, contact: Tammy White at 732.932.9575 x 607 or email her at white@aesop.rutgers.edu.

In Memoriam

In Memoriam:

It is with great sadness that we inform you of the passing of **Dr. Sridhar Polavarapu** on Friday, May 7, 2004 and **Dr. Ronald J. Prokopy** who passed away on May 14, 2004.

Dr. Sridhar Polavarapu was a respected faculty member at Cook College, and the New Jersey agricultural community. Dr. Polavarapu was born in India and came to Rutgers as an extension specialist in 1994. He received many honors during his career, and was recently honored by the New Jersey State Board of Agriculture with a resolution thanking him for his service to New Jersey agriculture and the blueberry and cranberry industries. Sridhar's primary research dealt with insect control in blueberry and cranberry bogs. He was a regular attendee at IR-4 Food Use Workshops, where he held priority setting meetings in advance of the workshops for the cranberry growers. He was instrumental in pushing IR-4 to obtain a clearance for imidacloprid on blueberries. Dr. Polavarupu was 43 years old. He is survived by his wife and two children.

Dr. Ronald J. Prokopy, a scientist whose research on fruit flies in apple orchards led to environmental pest control programs, died in Greenfield, MA at the age of 68. Dr. Prokopy, who taught at the University of Massachusetts Amherst, studied the behavior of the apple maggot fly, a parasite that bores into fruit and destroys it. Early in his career, he helped to develop the sticky sphere trap. The device, about the size of a croquet ball, mimics the apples hanging beside it. The traps are placed in trees around the perimeter of an orchard to protect the crop. His later work investigated odors, colors and shapes that attract maggot flies for the purpose of finding an ecological solutions for blocking these parasites. He also studied blueberry maggot fly and plum curculio, a type of beetle. Dr. Prokopy was born in Danbury, CT and earned his doctorate in entomology at Cornell in 1964. He received a Guggenheim fellowship and Fulbright research award and sat on many editorial boards of the journals, Protection Ecology and Chemical Ecology. He is survived by his wife, two sons and one grandchild.

Working Together

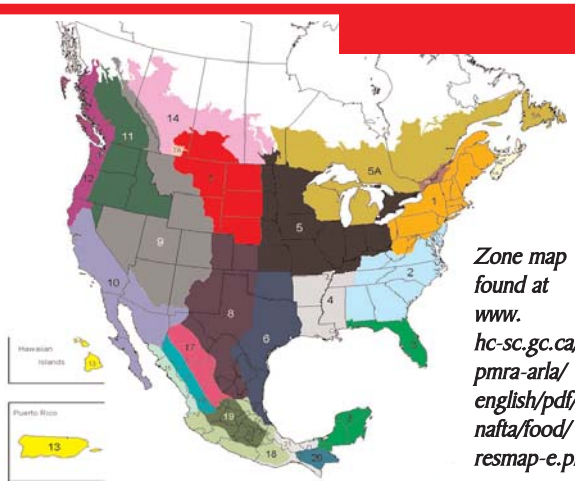
continued from page 1

Canada and Mexico and was implemented in January of 1994. The NAFTA Technical Working Group (TWG) on Pesticides was formed to establish and address pest control issues while recognizing the environmental and human health objectives that arose from liberalized trade. Its vision is to make the North American region a world model for common approaches to pest control regulation and free trade in pest control chemicals and food.

A major objective of the NAFTA TWG is to provide equal access to markets and pest control tools, including lower-risk alternatives that are essential for promoting trade, improving pest management and supporting sustainable agricultural initiatives. By harmonizing data requirements, reducing duplicative efforts and minimizing trade barriers, the TWG works to ensure that trade is done in a way that protects human health and the environment throughout North America.

Zone Maps

One of the first steps toward removing agricultural trade barriers came with the development of crop zone maps, which determine the number of field trials that are required to produce sufficient residue data for a particular geographical zone. NAFTA crop zones were approved by the TWG in December of 2001.



Zone map found at www.hc-sc.gc.ca/pmra-arla/english/pdf/nafta/food/resmap-e.png

The Process

In the past four years, IR-4 supported over 2400 new uses that were registered in the US but only a few of these uses were made available to growers in Canada. The recognition of the cooperative projects will allow the EPA and PMRA to simultaneously review submissions to be accepted in the US and Canada. This allows AAFC's Pest Management Centre (PMC) to perform a specified number of field trials in a particular zone to fulfill trial distribution requirements for regulatory clearance. Petitions for clearances are then submitted by IR-4 and AAFC concurrently to EPA and PMRA where the two regulatory agencies work together to decide which of the core analysis each agency will perform. This provides for streamlined processing and approval. Over the last five years, the US and Canada have coordinated the development of residue data to support the registration of minor use products and have jointly registered the first minor use product, fenhexamid, on caneberries, in 2002. This year, AAFC and IR-4 will work to submit joint petitions to PMRA and the EPA for: fenhexamid on pome fruit (postharvest) and ginseng; acetamiprid on greenhouse tomatoes and S-metolachlor on squash as approved by the NAFTA TWG Executive Committee at the December 2003 meeting in Vancouver.

In addition to these joint projects, several manufacturers and AAFC have requested IR-4 data be used in preparation of submissions to PMRA. It is IR-4's intent that these data will be used to establish Maximum Residue Limits (MRLs) in Canada.

The Mexican Cooperative

IR-4 and Mexican researchers have planned a research program for Spinosad on pineapple and a project of Imidacloprid on papaya was recently completed with an MRL established on June 13, 2003. The NAFTA TWG on Pesticides five-year strategy calls for Mexico to continue its participation in work sharing in order to facilitate Mexico's participation. It also calls for Canada and the US to share data reviews with Mexican regulators and scientists and to seek opportunities for sharing pesticide regulatory knowledge and expertise with Mexico. In addition, the NAFTA countries will continue to collaborate and re-evaluate re-registration assessments. The TWG will also explore ways in which Canada, Mexico and the US can become more involved in each other's minor use processes.

Working in collaboration has allowed the NAFTA TWG on Pesticides to: accomplish harmonization of data requirements between the countries, provide greater access to pest control tools for minor use or specialty crops, increase the availability of lower risk pest management products, promote integrated pest management programs for crops of special interest, and establish a worker safety training program. These accomplishments have contributed to providing a wide range of safe and effective pest management tools for North American growers. By having these tools at their disposal, growers will be better equipped to combat pests and protect the continent's food supply as well as allow for greater ease of imports and exports.

For more information about IR-4 and NAFTA contact Dan Kunkel at 732.932.3575 x 616 or kunkel@aesop.rutgers.edu

Calendar of Events

August 3-4
Northcentral Regional Meeting, Chicago, IL
Contact: Satoru Miyazaki
517.432.3100 ext 150

August 17-18, 2004
Southern Regional Meeting, Wilmington, NC
Contact: Robin Adkins
352.392.1978

September 22-24, 2004
IR-4 Food Use Workshop, Orlando, FL
Contact: Cheryl Ferrazoli
732.932.9575 x 601

October 6-8, 2004
PMC- California:
UC Davis

October 13-14, 2004
Western Region SLR Meeting Davis, CA

October 26-27, 2004
National Research Planning Meeting, North Brunswick, NJ Contact: Cheryl Ferrazoli
732.932.9575 x 601

November 9-11, 2004
IR-4 Ornamentals Workshop, Orlando, FL
Contact: Cheryl Ferrazoli
732.932.9575 x 601

IR-4 Workshops In Orlando, FL

Food Use Workshop
September 22-24, 2004
Ornamentals Workshop
November 9-11, 2004

Register Today for Special Rosen Plaza Hotel Rates

Contact Cheryl Ferrazoli
732.932.9575 x 601

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

IR-4 Headquarters
Rutgers, The State University of New Jersey
681 Highway 1 South
North Brunswick, NJ 08902-3390
www.ir4.rutgers.edu

Agricultural Research Service USDA

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