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

Newsletter

Vol. 39 No. 3 July 2008

IR-4, DuPont, and Global Cooperation

— by IR-4 Entomology Program Manager, Keith Dorschner and IR-4 Associate Director, Dan Kunkel

Specialty crop growers have new insecticides in their tool boxes this year: DuPont's Altacor® and Coragen® containing chlorantraniliprole as the active ingredient (also known as Rynaxypyr® or DPX-E2Y45) is now registered! IR-4 data was used to support a number of specialty crops that growers may be surprised to find initially appearing on these global labels.

The chlorantraniliprole regulatory package marked the first truly global review of a pest control product which included regulatory bodies of USA, Canada, Ireland, UK, Australia and New Zealand. The registration is now approved in the US and Canada with uses pending in Australia and New Zealand. Each country participated in the review by reviewing certain sections of the package then providing reviews to the other participating countries for peer review. In some cases, if one country fell behind in the review process, other countries stepped up to ensure that the project met timelines. In the end the package, with a global review, beat the US EPA Pesticide Registration Improvement Act (PRIA) mandated timelines. Although it is not likely that all global reviews could meet such an aggressive timeline, the regulatory agencies are confident they can meet mandated timelines like PRIA.

IR-4 was first informed of chlorantraniliprole at a confidential meeting with DuPont personnel in the spring of 2003. The product was still under development but its superior efficacy and wide margins of safety towards man and the environment indicated a good fit for Lepidoptera control in specialty crops. At IR-4 we wanted to do what we could to make sure specialty crop growers would be among the first to take advantage of the benefits of this new class of chemistry.

Under a secrecy agreement, DuPont shared with IR-4 their plans for initial registration. They shared their global strategy and IR-4 shared the needs of specialty crop growers. A partnership was formed to address these needs and provide a new tool for growers.

IR-4 encouraged DuPont to release information on chlorantraniliprole at the Food Use Workshop in September of 2004 where many researchers, extension personnel, and progressive growers were present. DuPont agreed, which marked the first time that the new product was publicly presented. Several entomologists and others familiar with the IR-4 priority setting process were anxious to submit project requests. Requests for peaches and/or grapes came in from Michigan, Pennsylvania, New Jersey, and Georgia. These projects received High Priority ranking from stakeholders.

DuPont agreed to a joint IR-4 research partnership to register chlorantraniliprole on grapes and peaches and assisted in funding field trial sites. IR-4 managed these sites to produce the residue samples which were analyzed in an IR-4 Laboratory (Jau Yoh's Lab at the University of Florida).

The high priority need of these uses was also shared by our partners in Canada. The Agriculture & Agri-Food Canada's Pest Management Centre also provided field sites in Canada to complete the North American registration package. The Canadian sites were managed by IR-4 with the samples also going to the University of Florida analytical laboratory. Canadian participation guaranteed the registration on grapes and peaches would promote trade between the U.S. and Canada.

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Canadian Pesticide Risk Reduction Program Achieving Success

— by Stefan Bussmann, Project Coordinator, PRR Program Leslie Cass, Acting Manager, PRR Program

In 2003, Agriculture and Agri-Food Canada (AAFC) established the Pest Management Centre (PMC) to implement its Pest Management Programs. This was part of a federal government initiative in response to a number of concerns regarding agricultural pest management in Canada. Key issues included the availability of minor use pesticide products to improve the competitive position of Canadian farmers, and the need for strategies to reduce risks to health and the environment from the use of pesticides in Canadian agriculture. The Minor Use Pesticides Program (see IR-4 Newsletter Vol. 39 No1 p. 6-7) was established to address the issue of access to pesticides, while the Pesticide Risk Reduction program, the subject of this article, was designed to support growers' on-going efforts to manage pests. Together, the programs contribute to sustainable pest management strategies, and improve growers' access to reduced risk and minor use pesticides.

The Pesticide Risk Reduction (PRR) program works jointly with Health Canada's Pest Management Regulatory Agency (PMRA) to develop strategies to reduce the risks from pesticides used in the agriculture and agri-food industry.

The PRR Program focuses on priority areas for risk reduction through the use of biological controls and reduced risk pest management approaches. As such, it is similar to the Strategic Agricultural Initiative, and the Pesticide Environmental Stewardship Program of the US-EPA in supporting environmentally sound agricultural and pest management practices.

The Program creates a framework through which growers develop and implement pesticide risk reduction strategies based on input from stakeholders. An initial set of such strategies have advanced to the point where adoption by interested growers is being promoted and supported. Many stakeholder consultations involving grower groups and users, the pesticide industry, other levels of government and a number of public interest groups continue to be undertaken to ensure results are highly focused on the sector's key issues.

Program priorities are based on pesticide risk and the potential for risk reduction through integrated pest management tools and practices. Commonalities among pests, crops and risks are identified and strategies are developed to find alternative solutions, including biopesticides, to issues that may impact a variety of crops and pests.

To date several pest management tools have been made available to growers. As an example, a Grasshopper Identification & Control Methods Handbook was developed to help growers distinguish beneficial grasshoppers from harmful ones. Through the use of color photographs, the handbook displays specific features of grasshopper

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species and categorized them as high threat, low threat or beneficial.

The booklet helps growers make better decisions about when to use pesticides and provides reviews of IPM practices for grasshopper control aimed at reducing the amount of pesticide used and costs to the grower.

The booklet is the result of the collaborative efforts of grower organizations, research, and extension experts who all contributed in its development. A grower survey, revealed that the majority of growers interviewed considered the information valuable, and due to high demand, the handbook was updated and reprinted in May, 2008. The booklet was recognized in 2007 with an Award for Excellence from The Communicator Awards based in New York.

The management of European corn borer (ECB) has also been a target of the PRR program. Funding to AAFC researchers resulted in an alternative approach to manage ECB which has become a severe pest of potatoes in Eastern Canada in recent years. Even when chemical insecticides are used, ECB is difficult to control because larvae enter the potato stems where they are protected from insecticide sprays. The problem arises when larvae over-winter in discarded potato stems and emerge as moths which then lay their eggs on the potato plants, renewing the cycle. A mechanical device was designed to crush the larvae within potato stems at harvest. This device attaches to a harvester just below the conveyer belt that discards the potato stalks back into the field. The "Crusher" was tested on two commercial potato varieties with excellent efficacy shown. Between 80-88% of the larvae inside the stalks were crushed, and more than 95% of ECB larvae failed to over-winter and emerge as moths the next year. The flexible design makes the Crusher easy to build and attach to any harvester by simply adjusting the length of the brushes and rollers. Growers can harvest and control the insect pest simultaneously, eliminating the need for re-entry into the field and reducing pest pressure for the following season.

The PRRP staff work with the biopesticide industry by assisting with registration submissions for products or uses which will provide solutions for pesticide risks identified in strategies. This assistance may range from regulatory path-finding to substantial work toward the completion of dossiers. Presently, 14 product submissions comprising almost 100 uses have been made to PMRA, with numerous more uses and products at various stages of commercialization. In addition, the PMC is in discussion with the US EPA and the IR-4's Biopesticide Program to capitalize on areas of shared priority through collaborative projects.

As new crop protection technologies come on stream, growers benefit by gaining access to more pest management tools and approaches to reduce risks and input expenses. While contributing to innovation for growth, the Program also contributes to improved health and environmental sustainability.

IR-4, DuPont

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The 2005 studies for chlorantraniliprole on peaches and grapes ran smoothly. Field Research Directors, the Laboratory Research Director, IR-4 Quality Assurance personnel, and the IR-4 Study Director, expedited and completed reports on the two studies in November of 2006. This work was completed ahead of IR-4's 30-month schedule in an effort to match DuPont's aggressive timeline for global submission, which occurred in February of 2007.

The cooperative studies for chlorantraniliprole serve as an excellent example of what can be accomplished when registrants, the IR-4 Project, and Canada's Pest Management Centre all work together to benefit North American specialty crop growers. The work continues, as a proposal is now in process for EPA's consideration (as well as those countries participating in the global review) to consider major crop residue data extrapolations that will further extend chlorantraniliprole use to specialty crops by generating minimal residue data. This process, also known as "super crop grouping," saves millions of research dollars as exampled by studies on spinosad, azoxystrobin, glyphosate and carfentrazone.

Chlorantraniliprole is scheduled for JMPR review in September of 2008 and it is hopeful that Codex Maximum Residue Limits (MRLs) will be set by July of 2009. All of these factors illustrate the high level of importance placed on global registrations to insure that produce moving through global trade channels will not be inhibited by pesticide residues.

To learn more on further developments of chlorantraniliprole and other new and exciting reduced risk pest control products, visit the ir4 website at ir4.rutgers.edu.

GLPs: They're Everywhere

— by Barbara Abbot, Wesley College, Associate Professor and IR-4 Technician

I spend my summers working with IR-4 as a technician for University of Maryland Lower Eastern Shore Research and Education Center, and for IR-4 Field Research and Center Director, Marylee Ross. I've worked with Marylee since 2000. During the fall and spring, I'm an Associate Professor at Wesley College, Dover, DE, teaching Exercise Science (Physiology). In working these two diverse careers, I soon noticed one practice in common; the need to follow protocols. The standards in agriculture are guided by Good Laboratory Practices (GLPs), in exercise physiology, the American College of Sports Medicine.

Barbara Abbot, during her summer job assisting with the IR-4 USDA/EPA field tour in 2007

According to the *Operational Handbook of IR-4 to Fulfill the Requirements of EPA for Good Laboratory Practices*, "Good Laboratory Practice (GLP), is what dictates the expected quality and integrity of all data collection associated with all protocols/research conducted through the IR-4 program for submission to EPA for consideration and approval for pesticide registration. GLP establishes the standards to be followed at all levels of the research."

Upholding these standards reduces the chances of incomplete, incorrect, or totally inadmissible data, which will most assuredly delay or prevent the submission of the registration request to EPA. My use of GLPs overlaps my two worlds.

As a professor, my goal is to train students prudently so that they learn to provide the most accurate exercise prescriptions (Ex Rx) for various symptomatic and asymptomatic clienteles. Throughout my exercise physiology classes, I impress upon my students the need for detail, observation/monitoring, protocol compliance, and being able to explain how deviations by them or the subject may impact the final decision concerning the Ex Rx. I emphasize to them this is the basis of GLPs in exercise physiology.

To provide the comparison of my worlds, let's look at one of the above, the importance of protocol compliance. Like IR-4 trials, my students and I must follow an existing protocol as specified. The protocols are provided for the purpose of collecting data to indicate the functional capacity levels and/or symptom onsets of our clients. Carefully followed protocol and data collection renders valuable information for us in knowing the appropriate level of exertion for each client. This can be compared to the results of the residue sampling that drives the decision of whether to move the registration on to EPA.

As a Professional, I must follow standards or I could be responsible for doing more harm than good when I have a client engaged in an inappropriate exercise program. Not following the directives of the protocol will cause erroneous data collected on the subject. This could ultimately lead to misdirected decision making in the formulation of the initial Ex Rx or in the indication of clientele adaptation and overload considerations. Bottom line, failure to follow the protocol could jeopardize the well being of the client. In the case of the cardiac/pulmonary rehabilitation patient, this could be disastrous. Knowing and using GLPs helps me and my students provide quality exercise prescriptions.

Not following an IR-4 protocol may not result in extra sore muscles or possible loss of life, but it may cause a lot of hearts to skip a few beats when the results turn out to be wasted time and resources. My goal in working for Marylee is to assist her in the successful execution of all protocols so the chance for deviation or protocol failure is minimal to nil. To know that my actions could impact the progress of the registration request, positively or negatively, is no different than my actions taken with protocol execution, data collection, and decision making for an Ex Rx.

Following and assuring standards are met in both of my worlds has enhanced my awareness for GLPs. But following GLPs doesn't stop at the classroom door or field site.

They are with us in everyday applications. And when you look at them this way they are not daunting or hard to follow. For example, using its simplest GLPs application, try making a pitcher of Kool-aid™ or lemonade without following the directions. Either too much or too little water can result in some really nasty Kool-aid™. No matter the level of emphasis of GLP, do it right, do it as specified and the outcome will be as expected. Even for what may seem the least essential part of using GLPs, if not followed completely, the outcome could leave a "bad taste".

Partners Against Pests — by Jim Moore

Traditional growers are learning that a program using biopesticides alongside conventional products is often the most effective.

As Researchers and Extension specialists work with growers to reach that perfect balance of efficacy and economy in their pest control programs, many find that the pests themselves aren't the only challenge. Another is the myth that use of conventional chemicals and biopesticides is an either/or proposition.

Integrated Pest Management (IPM) advocates admit it's easy to see how this myth got started. Organic growers use biopesticides as a stand-alone because most products are registered for use on organic crops. So biopesticides are often linked to organic production.

But in reality, only organic growers use biopesticides exclusively. In fact, organic production represents only a small percentage of biopesticide use. All things considered — economics, efficacy, sustainability, and crop quality — traditional growers are learning that a program using biopesticides alongside conventional products is often most effective.

Too Much of a Good Thing

Resistance management is one piece of that puzzle. Hired in 1989 as an entomologist at the University of Georgia, Dr. Alton Sparks works to control diamondback moth in cole crops. At that time, growers were using organophosphates to control diamondback moth, but the pest developed resistance.

A few years later, a new generation of synthetic chemistry came on the market and, as Sparks has observed, "They worked great at first, but now we're seeing resistance to those products."

"In Georgia," explains Dr. George Kennedy, professor of entomology at North Carolina State University, "the growers were using one of the newer products almost exclusively, in spite of the fact the label told them not to." Resistance developed as a result and now, because of its overuse, Kennedy says the manufacturer is considering taking the product off the market in Georgia.

To prolong the efficacy of synthetic pesticides, rotation is mandatory. The recommendation for most products is that they not be used more than twice back to back. The products need to be rotated with a different product containing a different mode of action. "Ideally," says Sparks, "You don't subject subsequent generations to the same mode of action."

Because biopesticides contain multiple modes of action, they are well suited for rotation in pest management programs. For example, a biopesticide like Bt creates holes in the gut of the pest, whereas conventional pesticides are often neurotoxins.

Complementary Effects

Michael Braverman, manager, Biopesticide Program, IR-4 Project, Rutgers University, agrees that the message is simple when encouraging growers to integrate biopesticides into their spray programs. "It is important to understand that it's not biopesticides versus conventional," he points out, "it's biopesticides and conventionals."

Resistance management isn't the only benefit, however. John Francis, director of marketing and technical services at BioWorks, Fairport, NY, says biopesticides can often add a level of control while reducing growers' costs, with a positive impact on crop quality.

In the case of one greenhouse grower, Francis recalls how he used synthetic fungicides to control Pythium, Fusarium, and other diseases in his poinsettias.The grower required 12 pallets a year of the synthetic material to get an acceptable level of control. However, once he mixed a biological fungicide into his program, he now uses only one pallet a year of the synthetic material.

Francis explains that the biological fungicide does a "marvelous" job preventing disease, but it is not systemic. So to ensure initial cleanliness of the crop or to provide control during heavy disease pressure, the synthetic fungicide is applied as a drench to knock out existing diseases.

Application Considerations

Another key benefit that biopesticides offer is in the area of residue management. Many growers like to come in with an application close to harvest to maintain the quality of their mature crop, especially if there is a weather event that would increase pests or diseases. Biopesticides offer growers that flexibility.

In season, however, growers have the option to apply biopesticides as a standalone, tank mixed with a synthetic chemical, or substituting a biological for a synthetic one or more times as part of the spray cycle. Multi-state trial results released in 2007 by Valent BioSciences Corp. found that their Bt-based products worked most efficiently when used in rotation as part of an IPM program.

The trial results showed that tank-mix treatments were more effective than rotational treatments, but also more costly. The important message, says Dr. Ramon Georgis, global business manager microbials for Valent Biosciences and a co-author of the study, is that rotational treatments were found to be less expensive while achieving a better level of control and producing a higher yield than the plots treated with synthetic

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The 2008 Farm Bill: Oppo
Specialty Crops and the

Over the past several years there has been significant debate and discussion of the government legislation, called the 2008 Farm Bill, which shapes America's farm and food policy. The first Farm Bill was enacted by Congress after the Great Depression. Since that time the Farm Bill has been renewed every five to seven years. This spring, a new five year version of the Farm Bill (officially named Food, Energy and Conservation Act of 2008) was passed by Congress. The Bill was not supported by President Bush and was vetoed. However, there was enough support in Congress to override the President's veto and the Farm Bill is now law.

The deliberations on the 2008 Farm Bill officially began with a series of listening sessions arranged by the Secretary of Agriculture. There was at least one listening session held in every state in order to allow stakeholders to express to USDA officials what they believe are the most critical priorities. During many of these sessions, specialty crop growers spoke up and expressed the need for a government investment in specialty crops.

Prior to the listening session, specialty crop commodity organizations joined together to establish the Specialty Crop Farm Bill Alliance (SCFBA). This group consisted of more than 120 organizations representing growers of fruits, vegetables, dried fruit, tree nuts, nursery plants and other products. Many of the provisions desired by the SCFBA were included in a stand alone legislation titled "Equitable Agriculture Today (EAT) for a Healthy American Act". This 2006 Bill included Titles on Conservation, Trade, Invasive Pest and Diseases, Nutrition, Agriculture Research, Commodity-Related provisions as well as Specialty Crop Block Grants. When the provisions of the EAT Healthy Act were bundled with the Farm Bill, members of the SCFBA spoke on behalf of specialty crop provisions.

As with all good politics, the 2008 Farm Bill is a legislation of compromise;a process of give and take for all. Some groups were calling for radical reforms eliminating direct subsidy payments to farmers; but in the end subsidy payments were reformed, not eliminated. The American Farmland Trust noted on their website (www.farmland.org) "The new farm bill provides funding to improve our environment, protect farm and ranch land, make local foods more widely available and dramatically increase food assistance for families struggling with rising food costs. Equally as important, it makes real gains in subsidy reform with the new Average Crop Revenue Election (ACRE) program that fundamentally changes how government support operates." They further note "While the final compromise bill does not include all of the reforms we would like to see, it is a significant improvement in U.S. farm and food policy. We will build off these new programs, better policies and increased funding now and in the future".

The SPCFBA, whose combined voices were heard, did see many, but not all, of their priorities included in the new law. For the first time, horticulture crops received a part of the $300 billion dollar investment to support an industry that accounts for nearly 50% of the farm gate value of crops. There are several programs and provisions which benefit specialty crop producers. These include:

- USDA-Foreign Agriculture Service's Technical Assistance for Specialty Crops (TASC) and Market Access Programs (MAP) which enhances trade assistance by providing resources to help remove trade barriers and enhance market promotion tools that will help grow international markets.
- Specialty Crop Block Grants program to State Departments of Agriculture have been enhanced by $466 million over ten years. This program focuses on local, regional and statewide programs to enhance producers' ability to compete in the marketplace and provide consumers with safe, abundant food.
- Expanding the USDA Fruit & Vegetable Snack Program to all schools in all 50 states. This program provides fresh fruit and vegetable snacks to elementary schools and helps develop lifelong healthy eating habits for children through consumption of fruits and vegetables.
- Establishing a specialty crop research initiative consisting of $230 million of new mandatory funding to support the development and dissemination of science-based solutions and tools to address the needs of specialty crop growers.
- Investing in prevention, early discovery and mitigation programs for invasive pests and diseases.
- Creation of a permanent disaster program for certain specialty crops.
- Creation of a clean plant network for elimination of plant diseases and bacteria during propagation
- Research on the causes of Colony Collapse Disorder which is devastating to honeybees that are important for the pollination of many specialty crops
- Modification of Country of Origin labeling including significantly reduced penalties for mistakes in labeling, new recordkeeping provisions and a provision to allow a state, region or local descriptor to be deemed acceptable.

There were also significant changes to the Research Title of the 2008 Farm Bill. These provisions may fundamentally change the domestic research infrastructure. The modifications include:

- Establishment of the National

rtunities and Challenges for IR-4 Project

— by IR-4 Executive Director, Jerry J. Baron

Institute for Food and Agriculture (NIFA). The purpose of this new Institute is to increase the standing and visibility of USDA's extramural science programs. Essentially, USDA-Cooperative Research, Education and Extension Service (CSREES) will be transformed into the new institute. This change is critically important for the IR-4 Project because a significant amount of IR-4's resources are managed through CSREES. The Farm Bill specified that the NIFA Director will be a distinguished scientist, who must be nominated by the President and confirmed by the US Senate for a once-renewable six-year term.

- The National Research Initiative will be renamed Agriculture and Food Research Initiative (AFRI). Funding can be up to $700 million annually. Of the amount appropriated, 60% will go to basic research and 40% to applied research programs.
- The Under Secretary for Research, Education and Extension will be called USDA's Chief Scientist and will be responsible for Agriculture Research Service, Economic Research Service, and National Agriculture Statistics Service. The Chief Scientist, whose main task is to coordinate actives between NIFA and other research services, will have an expanded staff in the newly created Research, Extension and Education office. There will be six divisions in this new office, one of them being Plant Health and Production.
- The Chief Scientist will be charged with preparing an annual Road Map to guide all USDA research.

How will the Food, Energy and Conservation Act of 2008 affect IR-4? First and foremost, Specialty Crops will have greater importance under the new law. This implies good things for the IR-4 Project and its critical role in providing safe and effective pest management tools for specialty crop growers. Will the 45-year history of multi-disciplinary research and the delivering of needed crop protection products for specialty crop growers translate into increased and necessary funding for the traditional mission of IR-4? This remains to be seen.

We do know that there are several areas under the new Farm Bill that will likely consider grant proposals from the IR-4 Project. For example, the Technical Assistance for Specialty Crops (TASC) program has already funded recent international IR-4 activities aimed at helping to harmonize pesticide tolerances for newer reduced risk products. Lack of international Maximum Residue Limits (MRL) tolerances significantly limits US growers' ability to use the newer products, especially when growers do not know where their produce is likely to be sold. To assist in a MRL globalization effort, the USDA-Foreign Agriculture Service recently awarded IR-4 a three year, $600,000 TASC grant to conduct a global pilot residue study (see related article p. 8).

Another area under the new Farm Bill where IR-4 may become increasingly active is with comparative product testing and efficacy data development. Using a 2005 IR-4 pilot project model, IR-4 already has the infrastructure to manage a research program where multiple products (conventional reduced risk and biopesticide) are tested side by side to identify the best solution for a pest management void. Several factors contribute to IR-4's unique capacity to identify the most critical pest management voids. Its relationships with industry to move numerous new (prior to first registration) products into testing, the field infrastructure to conduct efficacy testing and IR-4's capacity to expedite residue studies and registration for promising products make it exceptionally qualified to manage this research. Additionally, this comparative product performance testing may be useful in rapidly screening potential solutions for newly discovered invasive pests. It is anticipated that the IR-4 Project will submit a proposal for this initiative under the Specialty Crop Research Initiative.

The transformation of CSREES into the NIFA (referred to earlier in this article) may have some impact on IR-4. The role of the new Office of Research, Extension and Education is still unclear; therefore, IR-4 is watching this consolidation and its potential impact on the program. One change of great interest to IR-4 is the possible change in indirect costs by the granting agency, NIFA.

There will be many questions as this new Farm Bill is implemented; and we hope our questions will be answered favorably. Be assured that IR-4 and its stakeholders are keeping a close watch on the implementation of the 2008 Farm Bill and its impacts.

Technical Assistance for Specialty Crops: An Opportunity for IR-4

— by IR-4 Executive Director, Jerry J. Baron

In 2007, IR-4 submitted a multi-year Technical Assistance for Specialty Crops (TASC) funding request proposal to the USDA Foreign Agriculture Service (USDA-FAS). The goals of the project, titled International Harmonization of Maximum Residue Levels on Specialty Crops through Global Zoning of Residue Data and Crop Grouping, are to expand export opportunities and increase the number pesticides available to US specialty crop growers, who are selling their produce in international markets.

This project will meet two priorities outlined in the USDA's 2005 Strategic Plan for FY2005-2010 and the 2008 USDA Farm Bill. This project addresses the USDA's goal of enhancing international competitiveness of American Agriculture through expanded export opportunities, international economic development and trade capacity building. The project also addresses the USDA's objective to improve sanitary and phytosanitary (SPS) systems to facilitate international trade; and strengthen global participation in international standard-setting bodies, such as Food Agricultural Organization/Codex.

Activity Coordination

This study will be coordinated through personnel at IR-4 Project Headquarters. It will include: placing at least 15 trials in locations throughout the world, designing research protocols, contracting the analysis of samples from the field sites, scrutinizing the results and developing the final report. All quality control measures, similar to good laboratory practices, will be integrated into the research and report design. USDA-FAS, the U.S. Codex Office, U.S. EPA and the FAO will provide policy input, and USDA-FAS will assist with coordination between partner governments.

The selection of participating countries will be based on the following criteria: global zone coverage, technical ability and experience in conducting field trials, ability to grow proposed field crops, and commitment from governments to participate in the program. If a proposed country does not meet these criteria, an alternate country will be selected. Under the proposal, the 15 trials will be distributed as two trials conducted in the U.S. and one trial each in Canada, Mexico, Brazil, Columbia, Spain, the UK, China, India, Japan, Korea, Kenya South Africa and Australia.

Test Crop: "Fruiting Vegetables"

The crop group, "fruiting vegetables", was selected as the test crop. Selection of this crop grouping is based on: crops that can be grown in all of the global zones included in this demonstration, crops for which the same pesticide(s) can be applied, and crops for which a grouping is appropriate. Each site will be required to conduct the study on tomato and at least one other of the proposed test crops: Protected Tomato, Field Bell Pepper, Chili Pepper, Eggplant or Husk Tomato.

The intent of this demonstration is to establish a model for ways in which countries from various global regions can collaborate on data generation sharing for the determination of an MRL. Benefits of this demonstration are not limited to this particular crop group. Success with this collaborative crop grouping model will help establish the processes in which future collaborations can take place - and can be targeted to more strategically address crops of high U.S. export potential.

Test Chemical/Good Agricultural Practice (GAP)/ Lab

The specific pesticide(s) to be evaluated will be determined through discussions with partnering countries, USDA/FAS, and U.S. industry cooperators. The pesticide(s), however, should not break down rapidly in order to obtain sufficient field residues for analyses. The GAP should include multiple applications (at least 2) with the last spray one to three days prior to harvest.

The testing laboratories will be determined through discussions with participating countries, USDA/FAS, and U.S. industry cooperators. Ideally, a single lab will be used in order to eliminate possible variations in test results; however, this may not be possible due to sample shipping limitations. In that case, laboratories will receive training to conduct analyses using identical methods. The laboratory will analyze the resulting field samples along with quality control samples and issue a report outlining the results.

It is anticipated that the first field trials will be placed in Southern Hemisphere sites during the later part of this calendar year. The majority of the field trials will be in the field in 2009. Next year will also start the residue analysis phase. The goal is to complete the global residue study in 2010.

IR-4 is proud to spearhead this effort. When completed, this program will not only prove benefits to the test crop group, it will ultimately benefit the whole specialty crop industry by setting in place a global system for new pesticides registration and regulation.

Ben McGraw Wins the Professors C.C. Compton & G.M. Markle Entomological Fund Award

The most recent recipient of the Professors C.C. Compton & G.M. Markle Entomological Fund award was Ben McGraw of the Rutgers Department of Entomology. Ben was selected from NJ entomology student applicants who provided their credentials to the Selection Committee. As part of the award, Ben received a stipend and a certificate, and his name was affixed to a permanent plaque which recognizes all 19 winners since the inception of the award. The concept of this award is to annually recognize outstanding achievements by students in the field of entomology in NJ, based on applicants' research accomplishments, academic and teaching achievement, papers and seminars presented, involvement in departmental affairs, and other independent entomological activities. Contributions to the fund continue to be accepted (payable to the Rutgers University Foundation), and may be sent to the chair of the Selection Committee, Dr. Van Starner, at IR-4 Project Headquarters, Princeton, NJ.

Pictured l to r Rutgers University Chair, Department of Entomology, Dr. George Hamilton; Award winner,Ph.D. candidate Ben McGraw; IR-4 Assistant Director, Dr. Van Starner; Pennsylvania State University, Professor of Entomology and Integrated Pest Management Coordinator, Department of Entomology, Dr. Ed Rajotte.

In recognition of this being the 30th year since the first C. C. Compton award was presented, a special seminar was given in the Rutgers Department of Entomology by the first recipient of the award in 1978, Dr. Ed Rajotte, Professor of Entomology and IPM Coordinator at The Pennsylvania State University. Ed gave an interesting "tour" of his entomological pursuits beginning with his focus on bees and blueberry pollination while at Rutgers, through his many years of work in Integrated Pest Management. It was a bit of a walk down memory lane for Ed and a few other Rutgers entomologists in the audience!

As the 2008 winner, Ben is completing his Ph.D. at Rutgers, studying biological control of the annual bluegrass weevil using entomopathogenic nematodes. He got his start in entomology while at the University of Maine studying the effects of azadirachtin (Neem) on the non-target arthropod community in spruce forest plantations. For the next four years after graduation Ben helped develop *Bacillus thuringiensis* and other microbial based insecticides for Mycogen Seeds/Dow AgroSciences (San Diego, CA/Indianapolis, IN) and Agraquest (Davis, CA). In 2002 he began graduate studies at the University of Massachusetts, Amherst where he received a Masters in entomology, specializing in turfgrass pests. Ben hopes to continue to conduct research on entomopathogens after graduation from Rutgers to develop less toxic, alternative control strategies for specialty crop growers or turfgrass managers.

Partners

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insecticides alone.

A good example of this biologicalsynthetic chemistry partnership can be seen in apple and pear crops in the Pacific Northwest. Here, codling moth is a major menace and the pest has developed resistance to organophosphates.

Michael Dimock, director of technology and development for Certis USA, points out that many conventional growers are rotating biological products with conventional inputs to control codling moth. "Application of the biological is timed for optimal efficacy, usually early stage larva, just after egg hatch," he says. This method of integrating biological and synthetic products gives an acceptable level of control while not allowing the pest to build resistance to a single mode of chemistry. "Almost all biological products are not meant to be used as stand-alones," he says. "They are designed to make all the inputs work better."

Reprinted with permission from American Vegetable Grower June 2008 issue, pg. 10. Moore is a freelance writer based in Southern California. This article was prepared on behalf of the Biopesticide Industry Alliance.

There's Gold in These Fields

The California Gold Rush, which began in January of 1848, made some people rich and others not so. The newest Gold Rush may do the same. When you first hear the name of this specialty crop, Gold of Pleasure, you really want to learn more. Gold of Pleasure, otherwise known as camelina (*Camelina sativa L.*) has a long history on this earth, but has only recently become a crop with promise. It was first cultivated in northern Europe during the Bronze Age when the seeds were crushed and boiled to release oil for food, medicinal use and lamp oil. Also known as false flax, the Romans called it Gold of Pleasure because of its use as a massage oil.

The camelina seeds are up to 41 percent oil, extremely high in protein and full of vitamin E and omega-3 oils, which are qualities that are attractive to the animal feed and health-food industries. Camelina is being marketed in Europe in salad dressing and as a cooking oil (it is not suitable as a deep-fat fry oil).

Camelina's residual 'cake'(material left over after pressing for oil) is ideally suited for animal feed and has a protein profile on par with soy. Since camelina oil and meal are relatively new food and feed ingredients, there are no current commercial uses approved for it or any camelina products in the U.S. However, camelina meal is currently undergoing the FDA approval process for use in animal feed.

In addition to oil and animal feed, camelina is also used in cosmetics, skincare products, soaps and soft detergents.

Some think camelina is a miracle crop, since it can be grown with few input costs and under marginal conditions. It is generally grown as a summer annual, but it can be grown as a winter annual in milder climates, and matures in 85 to 100 days. Germination occurs after soil temperatures reach 38°F. In fact, camelina has been treated like a weed for most of modern agriculture. So it's ironic that weed control presents the greatest challenge in establishing a commercial crop of camelina.

Oregon State University researchers are currently screening pre- and post-emergence herbicides for efficacy and phytotoxicity. IR-4 has submitted a no-data petition for a sethoxydim/camelina residue project; and a request for pendimethalin /camelina is currently under evaluation.

Camelina: The future of fuel

According to the Camelina Company, (www.camelinacompany.com/Marketing/AboutGreatPlains.aspx) camelina presents a unique opportunity for providing a reliable, inexpensive feedstock for biodiesel production. It has several distinctive characteristics which make its oil perfect for biodiesel. It contains a high amount of alpha-linolenic acid (18:3n-3), possesses elongase(s) operative with n-9 and n-6 fatty acids, and contains a significant proportion of erucic acid (22:1n-9). The low amount of saturated fatty acids (<10%) is ideal for biodiesel and provides a strong potential for higher ratio biodiesel to petroleum based diesel blending (B20 and above).

Camelina oil has been used successfully as an adjuvant in agricultural spraying applications and is becoming more attractive due to the demand for biodiesel. There's a lot of hope riding on this crop being used as a biofuel.

Many U.S. states are looking into growing camelina as a biofuel crop. Oregon has just completed the construction of the nation's first oilseed crushing/processing plant built in anticipation of the increasing demand for camelina for use in biodiesel and other products. Montana is also conducting a major effort to produce camelina on a large scale in dryland production, and has embarked upon establishing a 100 million gallon oilseed-based biodiesel production plant. The plant is expected to be completed in 2010.

In addition to Montana and Oregon, camelina is currently grown in Slovenia, Ukraine, China, Finland, Germany and Austria. With all this recent effort focused on a crop that had been overlooked for years, only time will reveal if camelina lives up to its expectation. With diesel prices close to $5 a gallon (at the time of this writing) and rising steadily, this 'gold of pleasure' might truly turn out to be gold.

This article used excerpts from EM 8953-E January 2008 "Camelina" by Daryl T. Ehrensing, Oregon State University and Stephen O. Guy, University of Idaho, as well as excerpts from "Camelina: The 'gold of pleasure'" published in Gillettenewsrecord.com May 11, 2008 by Wendilyn Grasseschi.

Clearances April '08- May '08

The trade names listed below are provided as a means to identify the chemical for which a tolerance has been established. A trade name listed here may not be the name of the product on which the new food use(s) will be registered. Only labeled products may be used on a food crop. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical.

Federal Register: 4/2/08

Dicamba
Trade Names: Vanquish, Clarity
Crop: Sweet corn **PR#:** 07376

Flonicamid
Trade Name: Beleaf
Crops: Root vegetables (except sugar beet) subgroup 1B, Tuberous and corm vegetables subgroup 1C, Brassica leafy greens subgroup 5B, Turnip greens, Okra, Hop
PR#: 08753, 08754, 09518, 08635, 08706

Federal Register: 4/9/08

Fenhexamid
Trade Names: Decree, Elevate,Teldor
Crop: Asparagus **PR#:** 08692

Buprofezin
Trade Names: Applaud, Courier
Crops: Leafy vegetables (except Brassica) group 4, Fruiting vegetables group 8, Okra, Low growing berry subgroup 13-07G, Olive
PR#: 06978, 09910, 08162, 08848, 08932, 08964, 09004, 07408, 08737, 09015

Federal Register: 4/23/08

Cyazofamid
Trade Name: Ranman
Crop: Carrot **PR#:** 08522

Federal Register: 5/7/08

Pyridalyl
Trade Name: Tesoro, Overture
Crop: Mustard greens
PR#: 08594, 08991

Spirodiclofen
Trade Name: Envidor
Crop: Hop **PR#:** 08968

Federal Register: 5/28/08

Fluopicolide
Trade Name: Infinito, Presidio
Crops: Root vegetables (except sugar beet and carrot) subgroup 1A, Leaves of root and tuber vegetables group 2, Bulb vegetables group 3-07, Head and stem Brassica subgroup 5A
PR#: 09894, 09801, 09816, 09892

Visiting Scholar

In March, a visiting scholar from South Korea's Andong National University, Mi-Gyung Lee, joined IR-4 for a year-long sabbatical. Mi-Gyung is being sponsored through her university to study the IR-4 Project.

On May 30, Mi-Gyung presented a seminar of her study in the US. In order to help the audience identify with South Korea, she made many comparisons with her country and New Jersey. She gave the audience facts about South Korea such as the population totals approximately 45 million, and the land area of South Korea is 38,345 square miles. Unlike NJ, seventy percent of the land in South Korea is mountains and hills. Mi-Gyung is very comfortable with the climate; like NJ, South Korea has distinct seasons and an annual mean temperature of 43-61°F.

Agriculture in South Korea is mostly cultivated in greenhouses, where 30% of the country's vegetables are grown. The agricultural products found in South Korea are similar to the U.S. and include most specialty crops. They import wheat, soybean, corn, oranges, banana, grape and pineapple and export paprika, melon, tomato, cucumber, strawberry, apple, pear and mandarin. Ginseng, tea, and oilseeds are among the most important specialty crops to South Korea.

Currently, South Korean growers use a total of 22, 847 tons of pesticides (A.I.) a year. This is broken down into 6,358 tons of fungicides, 7,663 tons of insecticides and 5,921 tons of herbicides. The Rural Development Agency (RDA) is the office responsible for registering the products used in South Korea and they follow Pesticide Management Law in their decision making process. RDA approves new usage and establishes Good Agricultural Practice in the use of pesticides employing, human and environmental toxicity data, efficacy and field residue data.

The Korean Food and Drug Administration (FDA) sets tolerances on food commodities in association with Food Hygiene Law. It sets MRLs on the individual commodity using field residue data produced under authority of RDA. The FDA does not employ crop grouping.

Mi-Gyung Lee, IR-4 Visiting Scholar.

Mi-Gyung's Conclusions

South Korea is in need of pesticides. Its regulation approaches are different from those of US in registration and setting tolerances as well as management of the minor crop. Since Korea is one of the member countries of OECD and Codex, it takes part in global harmonization. Even though global harmonization looks like the long-term solution, one short-term solution is for countries to share residue information and further to evolve a regulatory methodology, e.g. developing crop group concepts regarding tolerance setting and extrapolation.

Mi-Gyung would like to see a program like IR-4 be established in South Korea.

Information Exchange

Calendar of Events

North Central Regional Meeting
August 11-12, 2008 Madison, WI contact: Satoru Miyazaki 517.336.4611
2008 Southern Region Meeting
August 26-28, 2008 Richmond, VA contact: Robin Adkins 352.392.1978 x 424
2008 Food Use Workshop
September 16-17, 2008 Sacramento, CA contact: Cheryl Ferrazoli 732.932.9575
ARS Liaison Meeting
October 15-16, 2008 Beltsville, MD contact: Paul Schwartz 301.504.8256
2008 National Research Planning Meeting
October 28-29, 2008 Princeton, NJ contact: Cheryl Ferrazoli 732.932.9575
Strategic Planning Conference
December 9-10, 2008 Crystal City, VA contact: Cheryl Ferrazoli 732.932.9575
National Training Conference
February 24-25, 2009 San Antonio, TX contact: Cheryl Ferrazoli 732.932.9575

Position Announcement

IR-4 Southern Region Field Coordinator

This position has been posted on the University of Florida's website
To apply go to https://jobs.ufl.edu/applicants/jsp/shared/frameset/Frameset.jsp?time=1213993533319, then click on search positions, search for Research Progs/Svcs, CRD 3 and follow instructions from there.

Job Open Date 06-20-2008
Job Close Date 07-20-2008

Contact Information for IR-4 Regional Field Coordinators and ARS Director

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

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