

Personalities in the News

IR-4 Sends Best Wishes to 2005 Retirees and Welcomes Newcomers

IR-4 sends best wishes to **Nancy Ragsdale**, who retired in October after 27 years of Federal service.

Nancy spent the past seven years as the USDA/ARS National Program Leader for Pest Management



Chemistry. IR-4 Executive Director, Bob Holm stated, "It's no small coincidence that funding for the ARS IR-4 Program increased from \$2.1 million to \$3.8 million during Nancy's tenure. Nancy has played an important role as a member of

the IR-4 Project Management Committee (PMC) in faithfully attending the meetings and was an active contributor to help set policies, procedures and the strategic direction for the program." Nancy plans to continue her love of travel during her retirement. She will truly be missed.

Marty Marshall Named PMC Chair



When the IR-4 Project Management Committee (PMC) meets again in February, they'll be welcoming a new Chair, Dr. Marty Marshall, who succeeds Dr. Bob Hollingworth, who had been the PMC Chair for eight years.

The PMC Chair is elected for a 2-year term by the voting members of the PMC, and is responsible for convening and running the PMC meetings. This includes both regular and any special meeting that may be needed.

Dr. Marshall is currently the IR-4 Southern Region Director, and is located at the University of Florida in Gainesville. He has authored or co-authored more than 80 peer-reviewed scientific publications, book chapters, and books, and has served on the PMC for eight years. He has also served on the National IR-4 Training Committee for the last three years.

The PMC consists of the IR-4 Executive Director, the four Regional Directors, the ARS National IR-4 Director,

the Administrative Advisers (one for each of the four regions and the USDA / ARS Advisor), the USDA / CSREES IR-4 National Program Leader and the Chair of the Commodity Liaison Committee (CLC). It meets three to four times a year to review the status of on-going programs, develop policy and procedures, set operational budgets, develop strategic plans, and insure that the program's overall goals are being met. ▲

Southern Region

Ron Talbert retired in 2005 after serving as the Arkansas State Liaison Representative (SLR) for more than 24 years. He participated in every Food Use Workshop since 1985 and generated more than 75 herbicide PCRs to provide fuel for the IR-4 Food Use Program. Ron developed efficacy and crop safety data for both the Food Use and Ornamental Programs and was directly responsible for many IR-4 registration successes.

Andrew MacRae has completed his Ph.D. from North Carolina State University and has resigned his position as technical assistant to Roger Batts. He is now working with Stanley Culpepper and other researchers in Tifton, GA. Andrew was of great help in North Carolina and will bring lots of expertise to the Georgia program.

continued on page 9



Inside this issue...

2 The IR-4 Budget
Roller Coaster

4 IR-4 Award Winners

6 Focused Initiative on
Seed Treatment

10 2006 Ornamental
Horticulture Priorities

The Budget Roller Coaster

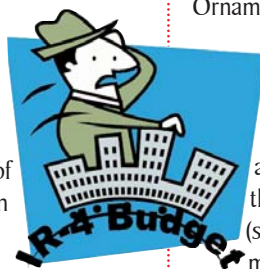
— by Bob Holm, IR-4 Executive Director

Over the past three years, the IR-4 budget, which is principally funded through Congress (USDA CSREES), resembles the tracks of a roller coaster. In FY 2003 the budget was \$10.6 million. In 2004 it was reduced to \$9.5 million. In FY 2005, IR-4 received a significant increase to \$11.145 million and our funding for FY 2006, will be \$10.785 million (which is only 1.7% above the amount received in FY 2003). Feeling dizzy yet? It could have been much worse as the President's budget had proposed IR-4 be funded at \$10.4 million. However, thanks to quick action by the Commodity Liaison Committee (CLC), the House Agricultural Appropriations Committee increased it to \$10.785 million. While the Senate version would have kept the funding at the \$11.145 million, the conference between the House and Senate settled on the lower House proposal.

This budget cut has posed some serious challenges for the Project Management Committee (PMC). Historically, during the Fall PMC meeting plans are made for the next year's IR-4 budget. Since it was unclear which version (House or Senate) would be agreed upon the PMC agreed to plan its budget strategy recognizing the potential budget cuts. The strategy for offsetting a potential budget cut included taking the cuts

from programs, not operations. The reason for this is that Headquarters and the four Regions funded by the CSREES appropriation had cut operating budgets by 8% in response to the FY 2004 decrease. The increase in FY 2005

restored funding to FY 2003 levels and the PMC placed most of the increase in programs. Thus, operating budgets were actually being lowered to levels of four years ago. This seemed unreasonable considering expenses such as salaries and benefits have increased (considerably in some cases) over this period making it impossible to reduce operating budgets without cutting staff. In some cases, the Regions have compensated for this by leaving positions open after retirements to save salary expenses.



Therefore, the PMC felt the cuts should be reflected in decreasing program expenditures. The budget cuts will affect the following programs: the Pilot Efficacy Program will be eliminated, saving \$150,000, the Food Use Program will be decreased by \$76,000, the Ornamental Horticulture and Biopesticide Programs will be decreased by \$50,000 each. The amount remaining in the Food Use Program (slightly over \$2 million) will fully fund the 96 "A" and nine of the "B" projects prioritized by stakeholders at the Food Use Workshop and will include National Research Planning Meeting upgrades.

While the FY 2006 budget cut was painful, it will not be fatal to IR-4 due to efficiencies captured from previous budget cuts. Also, our crop protection industry partners have increased their funding and have provided about \$1.5 million in 2004 and 2005 to keep

special programs and overall Headquarters operations solvent. We thank our partners for this effort and look forward to their continual support.

Our longer term Congressional funding, poses the most significant challenge. The 2006 to 2008 Strategic Plan calls for a major funding increase of around \$4.5 million in FY 2007 to support continual growth of existing programs plus adding new initiatives like Aquatic Herbicide and Crop Grouping Programs. The Crop Grouping Program is proposed to expand as part of a new Global Specialty Crop Initiative to help our growers and commodity groups establish tolerances or MRL's in countries where they export their crops. We will rely on the leadership of Rocky Lundy, CLC Chair, and the CLC to determine the best funding strategy to achieve this budget increase. ▲

NOTE: At the time of printing Congress was debating an additional 1% rescension of the budget.

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The Life of a Study: Acetamiprid/Strawberry

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 acetamiprid study on strawberries. This study was chosen because it can be tracked in all regions and ARS.

Part IV - Final Report Preparation

Once all of the Field Data Books and the Analytical Summary Report (ASR) arrived at IR-4 Headquarters, the task of report preparation could begin. The last of the Acetamiprid/Strawberry data were received at IR-4 Headquarters in October, 2005.

A draft of the final report is usually written by the assigned Study Director, although another Study Director in the IR-4 Registrations Group, or a contract technical writer may prepare the draft. Regardless of who prepares the draft, the assigned Study Director is responsible for the content of the report. In the Acetamiprid/Strawberry study, the first draft of the final report was prepared by the assigned Study Director, Ken Samoil.

All final reports for magnitude-of-residue studies that are written for IR-4 studies follow a set format. This format features elements required by federal guidelines, along with elements that are not specifically required but have been requested by U.S. EPA personnel in order to facilitate their review of the report.

Among the required elements are a Statement of No Data Confidentiality Claims (NDCC), a Good Laboratory Practice (GLP) Compliance Statement, and a Quality Assurance (QA) Statement. Whereas the NDCC Statement is generic (i.e. it is the same in each report), the GLP Compliance Statement includes the specific exceptions to GLP compliance that occurred in the study, beneath the claim that the study was conducted in accordance with GLP's. Both of these pages must be signed at study completion by the Study Director, and the GLP Compliance Statement is also signed by a Sponsor Representative (usually the IR-4 Executive Director). The QA Statement is prepared and signed by a QA reviewer at IR-4 Headquarters, and lists all of the previous QA reports that have been issued for this study. The final report also includes a signature page for the Study Director and Sponsor Representative that is separate from the GLP Compliance Statement. Signing this page indicates approval of the content of the final report by both signatories, and also indicates the completion of the study.

The final report also includes a list of all of the cooperating scientists (Field and Laboratory Research Directors) and their addresses, and a list of the locations of the raw data associated with the study. Most of the raw data are archived at IR-4 Headquarters; exceptions include the analytical data developed at one of IR-4's four Leader Laboratories, and the characterization data for the test and reference substances. (The test substance is the formulated product that is used in the field trials; the reference substance is the nearly-pure active ingredient that is used in the laboratories as a standard during the analytical phase.)

The text section of the report describes the conduct and results of the study in paragraph format. Included in this section are data tables, in a format developed by EPA, that summarize the field trials and analytical results. Following this section of the report are field data summaries that provide additional data from each of the field trials in tabular format. Copies of the certificates of analysis, which indicate the purity of the study's test and reference substances, are next in the report, followed by a copy of the ASR, and finally copies of the protocol, amendments, and deviations.

Ken prepared a draft report in November, 2005, but when this article went to press, responses had not yet been received to a few of the QA Field Data Book reviews. Once these responses have been received, Ken will make any necessary changes to the draft final report, and then submit it to the IR-4 QA Unit for review. ▲

Congratulations to the 2006 IR-4 Award Winners

The 2006 IR-4 Award Winners have been announced. The winners will receive a recognition plaque at either a regional meeting or the National Education Conference in February. This year, IR-4 will present three Special Recognition Awards.

Special Awards

A Special Recognition Award was presented to Nancy Ragsdale for her service in support of the mission of the IR-4 Project. Nancy served on the IR-4 Project Management Committee on behalf of the USDA/ARS Administrative Advisor. When attending the PMC meetings, Nancy was an active contributor in helping to set policies, procedures and in the strategic direction for the program. Nancy retired in October.

Regional Field Coordinators, Rebecca Sisco and Edith Lurvey acknowledged the work of **Diane Infante** and her service to the regions by nominating her for a **Special Service Recognition Award**. In her nomination, Rebecca stated, "Diane is the rudder that keeps us all from going too far adrift. Her responsiveness to our questions and concerns with regard to the details of various IR-4 programs (particularly the Food Use but also Ornamental and Efficacy) are unsurpassed.

She is a wealth of information and knowledge regarding the tracking of projects, website function and database updates."

"Diane has demonstrated her skills and dedication for many years, but this year in particular, with additional responsibilities of the pilot Efficacy Program and maintaining the Ornamental program during the transition between Program Managers," Rebecca further noted, "we would have been left floundering without her support. She understands our needs in the regions and works to support us in every way she can. Diane is the cornerstone for tracking the critical details that keep us functioning as a unit."

Mike Bledsoe received a **Special Regional Service Recognition Award** from the Southern Region. Mike has led, organized and participated in greenhouse vegetable grower workshops along with identifying greenhouse pest problems. He was also actively involved with assisting in the submission of most of the IR-4 Project Clearance Requests to label uses on greenhouse grown tomatoes. Mike participated in the IR-4 Southern Region meetings for the past three years, presenting talks on pest control in

the greenhouse tomato industry. He has also participated in the IR-4 Food Use Workshops for the past seven years. He has helped IR-4 identify problems and new technologies for pest management in the greenhouse vegetable industry. He has also participated in NAFTA working groups regulating the movement of greenhouse grown vegetables among Mexico, US and Canada. Mike is a great asset to the IR-4 program.

USDA/ARS

The USDA/ARS program nominated **Betsy Anderson** for the **IR-4 Technical Service Award** for her outstanding research at the Application Technology Research Unit on Ornamental Crops at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH. Betsy has been a key component of the USDA/ARS IR-4 program. For over eight years she has contributed to the IR-4 Ornamental Workshops, conducts efficient IR-4 research trials "on farm" and in production nurseries and works closely with the Secret Arboretum, OARDC. Betsy is an expert on the important and destructive scarab beetle that limits production and induces quarantine problems for the \$10 billion nursery industry.

The Southern Region Award Winners

This year, the Southern Region recognized **Susan S. Estevez** with an **IR-4 Technical Service Award**. Susan has been a chemist for the Southern Region for over 20 years. During this time, she has participated in numerous residue trials. Recently, her duties expanded to include other lab duties, such as sample receiving/inventory, supply purchase, and lab logistic support. She also supervises sample processing and general lab maintenance and is in charge of the lab when the IR-4 Laboratory Research Director is away. She was recognized for her outstanding effort in improving analytical methodology and for providing excellent analytical skill, superior service and dedication to the IR-4 program.

The Southern Region **IR-4 Meritorious Service Award** goes to **Jau W. Yoh** for outstanding leadership and service to IR-4 by coordinating and directing laboratory analysis under Good Laboratory Practice (GLP) compliance to develop data required for expanded EPA pest control product registration.

Jau oversees nearly 100 IR-4 laboratory residue trials per year and provides expertise and direction to six senior chemists. Her lab has been recognized for its ability to analyze difficult chemistries such as sulfentrazone, and has presented methods development of this compound at national meetings. She has provided

leadership to the national program by serving as chair of the Laboratory Coordinators and represented the laboratories on the National IR-4 Training Committee.

The Northeast Region Award Winners

Judith A. Collins will receive the IR-4 Technical Service Award from the Northeast. She has had a distinguished career as a research associate conducting fruit insect IPM Research for nearly 20 years. During this time, she has designed and carried out many magnitude of residue trials for Maine's lowbush blueberry industry.

Judith is being recognized for her competence in maintaining two GLP labs and her expertise in designing and writing Standard Operating Procedures for lowbush blueberries, which is a unique crop with 98% of the US production grown in Maine. The end result of Judith's meticulous research and record keeping is that lowbush blueberry growers in Maine have a selection of pest control tactics that provide flexibility in their approach to pest management and allow growers to have a choice of efficacious and economical options for producing a safe and high quality blueberry crop.

The Northeast **IR-4 Meritorious Service Award** will go to **David E. Yarbrough**. David has been an active supporter of IR-4 for years and continues to be a

significant contributor in the Northeast. He has contributed to the program both as a State Liaison for Maine and as a field researcher. He has successfully served as Field Research Director for 29 magnitude of residue trials since 1992. As a State Liaison, David presents IR-4 information to blueberry and other crop growers. He also coordinates contact with other specialists on matters concerning IR-4.

The North Central Region Jason Seward is receiving the North Central Region **IR-4 Technical Service**

Award for his contribution to the IR-4 Project through his rigorous application of GLP practices in IR-4 field residue trials at the Michigan State University Trevor Nichols Research Complex (TNRC). Recently, Jason has become increasingly involved in managing the field data book and its many facets. In 2005, he was a key participant in the successful hosting of an EPA audit of the TNRC.

The **IR-4 Meritorious Service Award** for the North Central Region goes to **David J. Williams** for his service to IR-4 as a State Liaison for Illinois. He has served as liaison since 1984 and has served as chair of the North Central Region Liaison Committee. David has been actively involved in the IR-4 Ornamental Horticulture Program and has attended every workshop since 1978. In 2000, he organized funding from the Illinois Nurserymen's Association, the Illinois Office of Research, the

University of Illinois Arboretum and the North Central Region lab at MSU to begin an Ornamentals Research Center. This center funds a graduate research assistant and is active in more than 85 ornamental projects.

Thank you to all the IR-4 Award Winners. Your hard work contributes to the success of IR-4. ▲

Congratulations Winners!

Past Award Winners from 2000-2005

Meritorious Service Award		Technical Service Award	
Baron, J.	'00	Linnel, D.	'00
Demchak, K.	'00	Longridge, J.	'00
Harvey, G.	'00	Roloson, A.	'00
Holloway, R.	'00	Adkins, R.	'01
DeFrancesco, J.	'01	Anderson, B.R.	'01
Fraelich, B.	'01	Hung, B.	'01
Sorensen, K.	'01	Lehnert, K.	'01
Wilson, R.	'01	Masabni, J.	'01
Biehn, W.	'01	Humiston, M.	'02
Norton, J.	'01	Liu, Z.	'02
Hirnyck, R.	'02	Mahnken, G.	'02
Leidy, R.	'02	McCommas, D.	'02
Pfeil, E.	'02	Moreno, E.	'02
Zollinger, R.	'02	Reese, C.	'02
Dorschner, K.W.	'02	Beran, M.	'03
Batts, R.	'03	Dunlap, M.J.	'03
Killilea, D.	'03	Ferrazoli, C.	'03
Klein, M.G.	'03	Hess, T.M.	'03
Reiff, M.	'03	Horst, L.	'03
Lurvey, E.	'04	Morris, J.	'03
Nesmith, W.C.	'04	Hitchner, E.	'04
Wise, J.	'04	Markle, D.	'04
Wixson, T.	'04	Oman, C.	'04
Mangini, S.	'04	Scarborough, C.	'04
Clay, S.	'05	Tanner, B.	'04
Culpepper, S.	'05	Coughlin, J.	'05
Lord, W.	'05	Fisher, R.	'05
McFarland, J.	'05	Howlett, L.	'05
		MacRae, A.	'05

Special Award

Carlton, B.	'01
Jones, J.	'01
Ortman, E.	'01
Wheeler, W.	'01
Lundy, R.	'02
Mulkey, M.E.	'03
Parachetti, J.	'05
Ragsdale, N.	'05

IR-4 Hall of Fame Award Winners

Alford, H.	Mahlstede, J.
Archer, T.	Markle, G.M.
Bourke, J.	Menges, R.M.
Carpenter, G.	Pepper, B.
Compton, C.C.	Sarica, P.A.
Coyier, D.	Sheets, T.J.
Dorschner, K.P.	Shibamoto, T.
Frank, J.R.	Swift, E.
Freed, V.H.	Thompson, N.
Guest, R.T.	Wheeler, W.
Jamerson, Hoyt	Wilkowske, H.
Libby, R.R.	

IR-4 Sharpens Its Focus on

Seed Treatments for Power House Vegetables

— by Stephen Flanagan, Western Regional Assistant Field Coordinator
 What exactly is the link between the power house vegetables spinach, red beet, cabbage, Brussels sprouts, cauliflower and Chinese cabbage with Washington State's beautiful Skagit Valley? Besides being home to an exhilarating spring display of tulip, daffodil and iris fields, the Skagit produces a significant portion of the U.S. and world supply of cool season vegetable seed. On approximately 6,000 acres in this cool, coastal valley located midway between Seattle and Vancouver, British Columbia growers and seed companies produce these high value specialty seed crops.



*Dr. Lindsey duToit Of WSU, Mt Vernon, shown with green house cabbage *Phoma lingam* experiment.*

A unique collaboration

between Washington State University (WSU) and the University of California is being supported by the IR-4 Seed Treatment Initiative. WSU Vegetable Seed Pathologist Lindsey duToit is screening fungicides for control of the seed borne fungal pathogen *Phoma lingam*, which causes black leg of crucifers. DuToit has conducted green house trials examining seed treatments for controlling this disease, because of the recent loss of benomyl as the industry's standard seed treatment for black leg. The trial will be duplicated in a field in California's Salinas Valley by Steve Koike. The California trial will confirm the effectiveness of the seed treatments to prevent seed transmission of the disease under commercial cabbage production conditions. ▲

While treating seed is not a new concept (some date it back to 2000 BC) within the past decade there has been an increased focus on using treated seeds. Worth \$900 million in 2001, the world seed treatment market is forecast to rise to \$1.2 billion by 2007, according to a 2002 executive summary on seed treatment trends and opportunities from London-based publisher Agrow Report. Many registrants are actively pursuing this market and have focused their product research on the major crops. However the need for this technology is critical for specialty crop growers too. "Seed treatments are currently available for large acreage crops leaving the crops served by IR-4 unattended," stated Jack Norton, IR-4 Manager of the Seed Treatment Initiative. "Since registrants are increasing their interest in this, it makes sense that IR-4 increase its focus on seed treatments in order to provide these cutting edge products to specialty crop growers. IR-4 has been involved with research on seed treatments for about nine years, but in a less focused manner. We feel the time is right to sharpen our focus," stated Jack.



Treatment of seeds around the turn of the twentieth century. Photo courtesy of Cornell Plant Pathology Herbarium <http://odell.mannlib.cornell.edu/cupp/catalog/>

Some reasons driving this new interest in seed treatment technology are: the ability to deliver new systemic active ingredients,

decreased worker exposure to agrichemicals, extremely low application rates, and less environmental impact due to the lower application rates used in treating seeds. According to Sue Shen, Team Leader for Seed Treatments and Regulatory Affairs at

Bayer CropScience, "The traditional role for seed treatments was for protection of the seed to ensure successful and healthy emergence. Now, the evolving role of seed treatment provides efficient delivery of targeted, pest management resources that allow for effective, and extended crop protection." From a health and safety and environmental perspective, treating seed is a preferable way to protect crops because it applies crop protection products directly to seed, which limits exposure, removes the risk of drift, and delivers protection in the most targeted way. By the nature of seed treatment, only modest levels of chemicals are needed compared to other methods of application.

How the Seed is Treated

A visit to the laboratory of Dr. Alan Taylor, Professor and Chair, Department of Horticultural Sciences, NYSAES, Cornell University, Geneva, NY, illustrates the various methods for treating seed. Taylor has studied seed treatments for over 20 years. He explained, "Seed enhancements are a post-harvest method that



Dr. Taylor's lab houses Hege Seed Treater, which kept more for historical purposes. It isn't used much today because the Rotary Pan and Film Coating machines are far more accurate.

improves germination or seedling growth, or facilitates the planting of seeds and the delivery of other materials required at time of sowing." Their techniques include low volume (slurry treatment), film coating, encrusting and pelleting. Film coating completely covers the seed without changing its shape. The coat can be co-applied with fungicides and insecticides. Encrusting and pelleting techniques use a uniform layer which completely covers the seed and changes its shape. In some cases, a multilayer coating method is used that allows for sequential application of products and can incorporate fungicides and insecticides. Pelleting improves the plantability of the seed. In addition to the active ingredient, the seed must be treated with an adhesive substance that allows the seed treatment to stick to the seed and a colorant that marks the seed as being treated.

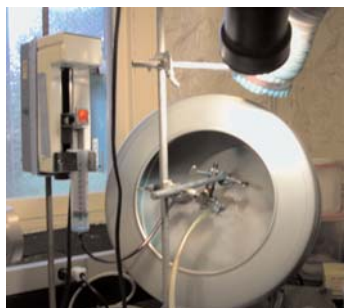
Taylor's laboratory applies treatments using machines that include a Rotary Pan Coating device and a Film Coating machine. Years ago, they used a Hege seed treater, but have found the other two machines to be more efficient.



Dr. Alan Taylor demonstrating seed treatment techniques in his laboratory. (Only color in this demonstration.)

Seed Treatment Technology

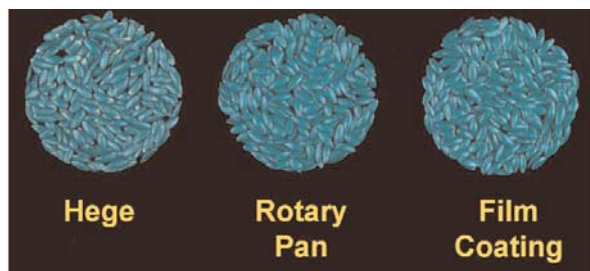
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The Film Coating machine spins the seed while releasing the product.



demonstrates
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ed water is used
ation.)



The results from these techniques are subtle, but notable. collaborative field research

While seed treatments are showing great promise, what is still unknown is how the seed treatment works. It is unclear if the active ingredient permeates the seed coat or must be released into the soil and taken up by the seedling roots. But answering this question may help Taylor's group, which is working on a microencapsulated time-released method of seed treatment. One use of this treatment would be to provide heartier greenhouse transplants. This time-released product will provide growers with another tool in producing healthy crops.

IR-4's Seed Treatment Initiative

The IR-4 Seed Treatment initiative is being funded entirely by industry partners and will focus on the development of pest management solutions for protecting germinating crops from diseases,

insects and nematode. Its overall goal is to explore the effectiveness of various specialty crop seed treatments while the ultimate goal is to develop efficacy and residue data for EPA seed treatment registrations. The research will be conducted by

programs within IR-4. Its ultimate goal is to develop efficacy and residue chemistry data that will enable EPA registrations.

According to Dr. Celeste Welty, IR-4 Cooperator and Extension Entomologist and Associate Professor of Entomology, Ohio State University, "Our goal in using seed treatment insecticides on young cucurbit crops is to help combat heavy beetle pressure as exemplified by the picture below of a cotyledon-stage pumpkin seedling with at least 70 dead beetles under it. This was the result of an in-furrow insecticide application. If an insecticide seed treatment is used, we are optimistic this will help



us get a jump start on eliminating these pests at this early and crucial stage of plant development, and could eliminate the need for in-furrow insecticide applications."

2006 IR-4 Seed Treatment Initiative

Plans for the 2006 IR-4 Seed Treatment Initiative are to continue the 2005 research in brassica vegetables and cucurbits in Washington and California (*Phoma* spp. control of crucifers), and cucumber beetle control on cucurbits in North Carolina, New York, and Ohio. Studies will also continue with multiple pest control products in Texas-grown onions, carrots, radish and cabbage, as well as control of insects in spinach, collards and other brassica vegetables in Arkansas, Tennessee, and Virginia. Additionally a number of tests which target plant parasitic nematodes in tomato, pepper and cucurbits will be run in Florida, Alabama, and possibly other locations. Efforts will also focus on the support of special labeling to address immediate pest control needs in the Pacific Northwest (24 C label for thiabendazole to control Black Leg) and Section 18 emergency use for fipronil to control onion maggot. ▲

Dr. Celeste Welty took this photo to illustrate the severe beetle pressure on cucurbits. This plant was treated with an in-furrow insecticide. She is hopeful that insecticide seed treatments can help relieve this pressure.

Treated Seeds Show Promise Against Pest

— by Rod Santa Ana, Texas A&M Agricultural Research and Extension Center Communications Specialist

A new seed technology being tested in Weslaco, TX could mean the end of early insecticide sprays on vegetables. It's called film coating, a process whereby seeds are treated with insecticides and other materials to manage insects. "Seed coating is still being tested here and elsewhere, but results so far look very promising," said Dr. T-X Liu, a Vegetable Integrated Pest Management Entomologist at the Texas Agricultural Research and Extension Center at Weslaco. Liu has planted treated seeds of various fall crops in research field plots that will be monitored weekly for insect damage. The plants are still in their infancy but are already showing insect resistance



Dr. T-X Liu is optimistic about early results he is seeing.

compared to a control plot of plants from untreated seeds. As part of a U. S. Department of Agriculture IR-4 project, Liu is testing seed-treated onions for resistance to onion maggots and onion thrips. He will also be evaluating seed-treated carrots for resistance to carrot weevil, radish for resistance to root aphids, and cabbage for resistance to a host of pests, including aphids, whiteflies, thrips and worms. ▲

IR-4 Program Helps Growers Control Ornamental Plant

‘Scourge’

For the last two years, Scott Ludwig has been practicing war against some of the hardest-to-kill members of the insect world: scale insects.

"They may not sound like much to most people, but scales are the scourge of the nursery industry here, especially for shrubs such as hollies," said Ludwig, integrated pest management specialist with Texas Cooperative Extension.

Scale insects – most are a quarter-inch long or less – feed primarily on trees and woody ornamentals, weakening and stunting them in the process. Heavy infestations can yellow leaves, distort their shape and even cause total leaf loss. At the least, scale can make plants look poor and unsaleable; at worst, scale can kill plants.

For home gardeners, reasonably effective controls are available, Ludwig said. But in nurseries, where plants are by necessity closely crowded together, controls such as dormant oil – a petroleum-derived product – may work, but their application is labor intensive. They can also damage the plant when applied in summer.

"It's a continuous problem, and they keep finding new (scale) species all the time," said Bob Mallory, production manager at Tram-Tex Nursery Inc. in Tyler, TX. "The bad thing about scale, is that you may have it under control – I know we killed it – but the customer doesn't."

Tram-Tex is one of five nurseries cooperating with Ludwig in testing scale insecticides funded by IR-4. Ludwig's research is part of the larger IR-4 effort of "Super A" Priorities, which were selected for 2004 and 2005 research to identify solutions for scale.

Other IR-4 researches participating in this effort are Tom Freiberger, Rutgers University/Cream Ridge; Terry Davis and Dave Smitley, Michigan State University; Dave Nielsen, The Ohio State University; Pete Schultz, Virginia Tech; Lance Osborne, University of Florida; Ron Oetting, University of Georgia; Mike Parrella, Jim Bethke and Karen Robb University of California-Davis; and Rich Cowles at the Connecticut Agriculture Experiment Station.

When customers see scales on a plant, even when the nearly invisible insects that created it are dead, they may avoid buying.

"Scale insects often mimic

plant parts, such as bark and buds," Ludwig said. "Other (scale) species appear as small, white, waxy blotches or small bits of cotton on leaves and stems. This ... probably leads to most mis-identification – that they appear to be non-living even when living."

Ludwig added that many scale species exude a waxy substance as they grow. This substance serves as a protective covering. Long after the insect dies or is killed, the coating, or "scale" persists, leading customers to think the plant is still infested.

Ironically, some of the same chemical controls proven to safely control aphids and other nursery pests may also be effective against many scale species, he said. But control of scale insects represents a limited market for chemical manufacturers, who may not have the resources to pursue a change in the product's label, Ludwig said.

And this is where Ludwig is proving himself valuable to the multi-million dollar East Texas nursery and bedding plant industry, Mallory said. Ludwig has been performing controlled tests of various chemicals already approved for use on other nursery pests to measure how effective they



The white globs on this plant stem are "cushiony scale" insects, one of many types of scale insects that plague the ornamental plant growing industry. Photo by Robert Burns.

are on scale insects.

Ludwig expects data that he and others have supplied to chemical companies will result in label changes on several pesticide products in the next year.

"If it weren't for the IR-4 Project, this wouldn't be happening," Ludwig said. "Growers need to know that IR-4 is trying to help them with their pest problems."

The nursery and bedding plant industry is part of what has been called the "green industry."

The "green industry" includes nurseries / greenhouses, lawn and garden equipment manufacturers and stores, and greenhouse manufacturers, landscape services, landscape architects, wholesale/retail trade sectors, building material supply stores, wholesale flower, nursery stock and florist suppliers. ▲

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IR-4 Participates in FAO/WHO JMPR Meeting

The Food Agriculture Organization of the United Nations and the World Health Organization (FAO/WHO) jointly administered the Joint Meeting on Pesticide Residues (JMPR), which met in Geneva, Switzerland in September, 2005.

The JMPR is an international expert scientific group formed by the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group. It has been meeting yearly alternating between Rome, Italy and Geneva, Switzerland since 1963. JMPR members are selected from different UN member countries. Participants agree to serve as independent experts and not as representatives of their particular country or organization.

For the 2005 JMPR Meeting, IR-4 Scientist, Dr. Hong Chen, was invited to participate as a consultant to the FAO Panel. Prior to 2005, three US members (one on the FAO Panel and two on the WHO Core Group) were all from the Environmental Protection Agency (EPA).

During the JMPR meetings, the FAO Panel of Experts review residue data submitted from manufacturers including chemical metabolism, fate in the environment, use patterns and residue data from supervised field trials. The

Panel then estimates maximum residue levels (MRLs) that might occur as a result of the use of the agrichemicals according to good agricultural practices and based on dietary intake assessments. The WHO Core Assessment Group reviews toxicological and related data and estimates acceptable daily intakes (ADIs) and acute reference doses (ARfD) for humans of the products under consideration. Since 1963, approximately 230 pest management products have been evaluated and many of them have been reevaluated several times.

In recent years, more residue data on specialty crops have been submitted to JMPR from manufacturers for review and for MRL recommendations, and a significant portion of these data were acquired from IR-4 residue studies.

During the JMPR meeting in September, Chen evaluated a new compound, sulfuryl fluoride, and recommended MRLs for commodities in a few crop groups.

Besides dealing with the residue and toxicology data, JMPR also reviews and discusses General Consideration Papers that are submitted by JMPR members. JMPR serves as a scientific advisory body to FAO and WHO, to FAO and WHO member governments, and to the CODEX Alimentarius Commission, which was

created in 1963 by FAO and WHO to develop food standards, guidelines and related codes. JMPR's advice to the CODEX Alimentarius Commission on agrichemicals is provided via the CODEX Committee on Pesticide Residues (CCPR).

In September, Hong, supported and joined by EPA members and members from FAO and a few other countries, introduced two IR-4 initiatives as General Consideration Papers to the joint meeting for discussion. The Papers were titled "Crop Classification and Harmonization", and "International Specialty Crop Foundation Initiative for Minor Use and Specialty Crops". Both papers were discussed and approved by the joint meeting and will be published in the 2005 JMPR Report. (*view papers on www.ir4.rutgers.edu*)

FAO has recently informed Hong that she has been selected to be on the JMPR roster of experts for attending future JMPR Meetings and other activities related to agrichemical residues. Dr. Chen's participation in JMPR as well as in CCPR will ultimately help to raise the importance of specialty crop growers in the process of international MRL setting, and will promote international harmonization of crop classification, which will support specialty crops in export trade. ▲

Retirees & New Hires

continued from page 1

New Employees

Darrell Thomas has joined the University of Florida and is assisting Berry Tanner in conducting field work at the Citra Research Unit.

Walt Bachman joined the IR-4 program last year and is working with Angela Thompson in Jackson, TN.

Tony Herrera has joined the IR-4 group in Weslaco, TX working with Lori Gregg.

ARS

Kristie Fenn has been appointed IR-4 Agricultural Science Technician at the U.S. Vegetable Laboratory in Charleston, SC. Kristie earned her BS in Environmental Horticulture from University of Washington.

Northeast Region

George Good retired this summer, leaving us as New York's (SLR). As Director of the Pest Management Education Program, he, along with his co SLR Will Smith, was responsible for adding IR-4 information to the Pest Management Education Program (PMEP) website.

New Employees

Mario Miranda Sazo joined Robin Bellinder's team at Cornell University in April of 2005. As the person

continued on page 11

The 2006 Research Priorities for Ornamental Horticulture

— by Cristi Palmer, IR-4 Ornamental Horticulture Manager

Priorities for IR-4's 2006 research program for ornamental horticultural crops were established at the 2005 IR-4 Ornamental Horticulture Program Workshop, held October 10 - 12 in Charleston, SC. Over 100 USDA, University scientists and extension personnel, grower organization



Workshop participants discuss regional priorities.

representatives, crop protection industry representatives and other stakeholders attended the three-day workshop. Participants were asked to review potential projects and select the most critical (or high priority) projects to be funded in 2006.

The projects considered included those that were submitted through Project Clearance Request (PCR) forms, or that were identified in the Survey of Pest Management Needs which was conducted in the summer 2005 and targeted growers and extension personnel. The definition of a high priority project is one where a number of growers have clear needs and tools are available but have not yet been registered for those

needs. Some examples of high priority projects are 1) a newly introduced pathogen where little is known about management tools, 2) a pest exhibiting tolerance to commonly used insecticides, and 3) new horticulture crops where crop safety to various management tools is not yet known. For each discipline, (Weed Science, Plant Pathology and Entomology) a total of 30 "A" studies and 60 "B" studies were considered. A study is defined as a unique combination of research target (i.e. pest problem or phytotoxicity), crop, production site, and product. To receive an "A" priority, one component of the study (crop, pathogen, pest, or weed) must not be currently labeled on the product to be tested, or the product received registration for that use within the last year.

IR-4 is committed to funding all "A" priorities and as many "B" priority studies as possible. "B" priority studies are eligible for the new Matching Funds Program. A "C" level study would need to be fully funded by the manufacturer. In the Pathology and Entomology sessions, workshop attendees utilized the grower survey results to discuss the most important pathogens or pests in their region. Once compiled regionally, the

discussions continued with the attendees deciding the national priorities. For each high priority project, the attendees listed potential pathogens or pests and potential products to manage them. Attendees then ranked each chemistry as an "A", "B", or "C". The Weed Science session operated similarly with attendees focusing on the most important weed issues and products that were registered but not for ornamentals or products that are currently available but lack the data needed for growers to be confident in their use on or around valuable horticultural crops. The major difference in this session was that the attendees decided upon four products as high priority and then ranked the crops as "A", "B", or "C". Each region compiled a list of 15 important plant species. The lists were merged into a national list with those that were nominated by three regions becoming "A"s. Since there was still room for more "A"s, each region nominated two additional species. Each region then selected "B"s until the full complement of 30 "A" studies and 60 "B" studies were established.

2006 High Priority Projects

The pathologists elected to continue researching *Phytophthora* management tools and added a project for *Pythium* research. The

entomologists selected thrips as the primary project with tools to manage coleopteran pests also ranking highly. The weed scientists selected tools to manage broadleaf weeds and sedges as the primary project for 2006 with the USDA-ARS contingent volunteering to finish out the remaining plant materials from the 2004/2005 perennial plant tolerance project.

The 2006 high priority projects are listed below with the A priority products or crops. To see the full listing of researchable studies please visit our website.

Phytophthora Efficacy

Cyazofamid
Fenamidone
MultiGard (furfural)
NOA4465 10
(mandipropamide)
V-10161 (fluopicolide)

Pythium Efficacy

Cyazofamid
Fenamidone
MultiGard (furfural)
V-10161 (fluopicolide)

Thrips Efficacy

BAS3201 (metaflamizone)
Celero 16WSG
(clothianidin)
Flagship 25WG
(thiamethoxam)
Pylon (chlorfenapyr)

Coleopteran Insect Efficacy Borers

Celero 16WSG
(clothianidin)
DPX-E2Y45
Onyx (bifenthrin)
Safari (dinotefuran)
Tristar 30WSP
(acetamidrid)

Don't Forget...

The first national training event since the 2001 meeting in San Antonio will be held Tuesday, February 28, through noon on Thursday, March 2, 2006.

All IR-4 Field Research Directors and their technicians, Laboratory Research Directors and their analysts / technicians, Regional Field Coordinators, Quality Control reviewers, Quality Assurance officers, Study Directors, PMC members, and others involved in IR-4 GLP research are encouraged to attend.

The agenda for the 3-day event will include something for everyone. Including: special speakers, plenty of time for FRD/RFC/SD/QA to just "talk shop" among themselves; GLP issues discussions; a full day of laboratory-specific training for lab personnel; opportunities to choose topics from several mini-course offerings; and discussions about the future of electronics in IR-4 data collection and final report preparation.

The education conference will be held at the Wyndham Phoenix Hotel in downtown Phoenix, AZ.

For more information and a detailed agenda, visit the IR-4 website at www.ir4.rutgers.edu.

Beetles

Celero 16WSG
(clothianidin)
DPX-E2Y45
Safari (dinotefuran)
Tristar 30WSP
(acetamiprid)

White Grubs

Celero 16WSG
(clothianidin)
DPX-E2Y45
Safari (dinotefuran)

Broadleaf Weed & Sedge Management Tools Crop Safety

Sedgehammer
(halosulfuron)
Baby's Breath
(*Gypsophila elegans*)
Bridal-Wreath (*Spiraea* sp.)
Holly, Dwarf Yaupon
(*Ilex vomitoria* 'nana')
Jasmine, Asian
(*Trachelospermum asiaticum*)
Maple, Red (*Acer rubrum*)
Rose (*Rosa* sp.)

Sulfentrazone

Azalea & Rhododendron
(*Rhododendron* sp.)
Baby's Breath
(*Gypsophila elegans*)
Boxwood (*Buxus* sp.)
Bridal-Wreath (*Spiraea* sp.)
Fir, Douglas
(*Pseudotsuga menziesii*)
Holly (*Ilex* sp.)
Holly, Dwarf Yaupon
(*Ilex vomitoria* 'nana')
Jasmine, Asian
(*Trachelospermum asiaticum*)
Maple, Red (*Acer rubrum*)
Rose (*Rosa* sp.)

Location for Next Year

Next year's Ornamental Horticulture Workshop will be held in Denver, Colorado on October 10 - 12, 2006. ▲

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

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Retirees & New Hires

continued from page 9

responsible for the IR-4 Good Laboratory Practice (GLP) trials, he now has a full season under his belt. Mario, a native of Chile, received his Ph.D. from UC Davis.

C. Edward Beste, although not new to IR-4, has picked up Maryland State Liaison responsibilities. Ed has been involved in IR-4 GLP and performance trial work for years. He continues to conduct ornamental research with USDA funding.

W. Harvey Reissig has taken over responsibilities as IR-4 NY SLR. As a faculty member in

Entomology at Cornell in Geneva, Harvey worked on programs to help apple and pear growers manage insect and mite pests, emphasizing the use of IPM. Harvey recently became the director of the Pest Management Education Program.

The Western Region

Michael Straugh has resigned this Fall from the University of California Kearney Agricultural Center (UC KREC) to pursue new challenges in Boise, Idaho. Michael was an excellent Field Research Director at UC KREC and contributed to many IR-4 residue studies during his tenure in Parlier, California.

David Ennes was hired June 1, 2005 as a Field Research Director at the UC KREC IR-4 Field Research Center. He has conducted pesticide research in Oregon, Idaho and California and more recently, he worked in the private sector as a research biologist conducting trials in Porterville, CA. He holds a B.S. in Plant Science from California State University, Fresno.

Francislene Carpenter was hired as a Field Research Director at the UC KREC IR-4 Field Research Center in 2005. She holds a B.S. in Plant Science from California State University, Fresno. ▲

Clearances September - November 2005

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 is not necessarily 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, regardless of whether a tolerance has been established for a chemical on that crop.

Product: Cyfluthrin

Trade Names: Baythroid

Crops: Tuberous and corm vegetables, Turnip greens, Grass forage and hay, Dried and shelled peas and beans (except soybean)

Federal Register: September 13, 2005

Product: Pyridaben

Trade Names: Nexter, Pyramite

Crops: Hop, Papaya, Star apple, Black sapote, Mango, Sapodilla, Mamey sapote, Canistel, Stone fruit, Strawberry, Tomato

Federal Register: September 23, 2005

Product: Pyriproxyfen

Trade Names: Knack

Crops: Grass forage and hay, Legume vegetables, Dry bulb onion, Grape, Strawberry, White sapote, Citrus hybrids

Federal Register: September 23, 2005

Product: Fenpropathrin

Trade Names: Danitol

Crops: Bushberries, Lingonberry, Juneberry, Salal, Succulent peas, Fruiting vegetables

Federal Register: September 23, 2005 ▲

Calendar of Events

February 28-March 2, 2006, IR-4 National Education Conference: Phoenix, AZ, Contact Van Starner 732.932.9575 x 621



March 22-23, 2006 Western Region SLR Meeting: Aurora, OR, Contact: Rebecca Sisco 530.752.7634

September 12-14, 2006, 2006 Food Use Workshop, Indianapolis, IN, Contact: Cheryl Ferrazoli 732.932.9575 x 601

October 10-12, 2006, 2006 Ornamental Horticulture Workshop: Denver, CO, Contact: Cheryl Ferrazoli 732.932.9575 x 601

October 17-19, 2006 Southern Region Meeting: Ft. Lauderdale, FL, Contact: Robin Adkins 352.392.1978



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