

## IR-4 Names Jerry Baron as Executive Director



On September 1, 2006, it became official, Dr. Jerry J. Baron, Associate Director, was named to the position of IR-4 Executive Director. Jerry fills the vacancy of Dr. Robert E. Holm, as he retires.

As IR-4 Executive Director, Jerry is responsible for the day to day operations of

IR-4 Project Headquarters, where he oversees a staff of eighteen scientific and eight administrative professionals.

Additionally, he is responsible for managing an annual operations budget of \$3.23 million. Jerry reports directly to the IR-4 Project Management Committee (PMC) and the Director of New Jersey Agricultural Experiment Station, Dr. Mark Robson.

"I am very pleased to announce Jerry's promotion to IR-4 Executive Director,

which reflects his outstanding leadership and performance in a very critical role," said Dr. Maurice Marshall, IR-4 PMC Chair. "Throughout Jerry's twenty year tenure with IR-4 he has demonstrated his ability to lead with sound judgment, exceptional knowledge and strong experience. He has contributed significantly to our ongoing efforts to develop and implement policies and strategies for the national IR-4 Project."

Jerry has been serving as IR-4's Associate Director

since 2002. Prior to his current role, he was an Associate to the Rutgers University Executive Dean of Cook College and was the Assistant Director of IR-4, a position he had held since 1998. Jerry has also held positions as IR-4 National Coordinator, Associate and Assistant Research Professor.

In 1998, Jerry co-authored the second edition of Food and Feed Crops of the United States along with G.M. Markle and B.A. Schneider, and has authored nearly one hundred peer reviewed journal articles.

Jerry received his Ph.D. in Horticulture with emphasis on weed management from North Carolina State University and earned his M.S. and B.S. degrees from The Ohio State University. He currently serves as Vice President of the Northeastern Weed Science Society and is a delegate on the national CODEX Committee on Pesticide Residues. ▲



## Inside this issue...

**2** Application Technology Training at Rutgers

**6** Greenhouse Food Use Workshop

**8** Methyl Bromide Revisited

**10** 2006 Food Use Workshop

## Survey Results Are In!

Every year the IR-4 Ornamental Horticulture Program runs a survey to determine the top issues growers face. The survey results have great impact in what research direction the program takes, because the grower-identified top issues can become the high priority research projects for the following year. Those research projects are determined at the annual workshop using the survey

results and other sources. In general, those diseases, insects, and weeds without registered products are ranked higher at the workshop than those that can be controlled with currently available commercial products.

In 2006, the grower / extension survey ran from June 2 through September 1. Over 300 people participated: 232 growers, 20 landscape care

professionals, 70 researchers & extension agents, and 11 allied-industry professionals. Those who took the survey ranked 13 different research needs on a scale of 0 (no importance) to 5 (very high importance), and then listed the top three disease, insect, and weed problems where product choices are limited. The continued need for new insecticides,

*continued on page 11*

# Application Technology Training at Rutgers

— by Northeast Region IR-4 FRD, Marylee Ross; IR-4 QA Specialist, Jane Forder; IR-4 Assistant Director, Van Starner

On September 19, five IR-4ers from headquarters and the Northeast Region took part in a USDA-SARE (Sustainable Agriculture Research and Education) Sprayer Application Technology Program at the Snyder Research and Extension Farm outside of Pittstown, NJ. Participants were primarily agricultural professionals who provide educational assistance to farmers, or in other words, folks who train the farmers in application techniques.

The 390 acre Snyder Farm is Rutgers' center for sustainable agriculture. Directed by Dr. John Grande, personnel at the farm perform and share results of research applicable to the production of a number of crops, including, but not limited to grains, small fruits, turf grass and ornamentals.

This training program was funded by a \$48,000 grant from the Northeast Region SARE to focus on issues facing small acreage farmers who typically apply liquid pest control products to

their crops. Issues such as the lack of detailed application instructions on pesticide product labels, application of products with varying physical consistencies, and lack of training in small scale application technologies were addressed. Several one-day, hands-on training sessions were funded, this one at the Snyder Farm. Events are proposed for 2007 in Delaware and Pennsylvania.

Our training began in the field with simultaneous application demonstrations of four different sprayers, applying the kaolin-based product, SURROUND WP, to equal sized plots of sorghum. A hand-powered piston-pump backpack sprayer, a gasoline-powered backpack sprayer, a gasoline powered backpack mist blower and a tractor mounted boom sprayer were demonstrated.

Afterward, John led a discussion of the application results in terms of plant coverage, amount of time to complete the applications, drift patterns and cost of application, discussing the pros and cons of using

the various sprayer types. After lunch, John, with assistance from Henry Fischetti and Ed Dager, gave a detailed visual presentation and demonstrations on back pack sprayer, pump and nozzle design, calibration of speed, pressure and area coverage. He also talked about sprayer modification and adaptation to fit application needs.

During his demo, John pointed out that there is often a "disconnect" between manufacturers of sprayers and manufacturers of nozzles/accessories. Occasionally modifications to the boom/nozzle set up are necessary to obtain the best spray pattern and coverage. He and Henry demonstrated a number of ways to modify the boom. On one sprayer, they cut off the hose at the tank end and put on an entirely new boom. For another spray set up, they adapted the existing nozzle configuration, changing it from one nozzle to two nozzles, by adding readily available nozzle components. John also pointed out that some sprayers just can't be modified. John emphasized the "working end" or nozzle section of pesticide application equipment, by demonstrating how application patterns, consistency of coverage and drift patterns



Mixing Kaolin-based SURROUND WP solution for backpack mist blower sprayer demonstration.

are influenced by nozzle choice and distance from the crop. He stressed the need to choose the most appropriate nozzle and sprayer to ensure the best crop coverage. John mentioned that by putting the working end of a back pack sprayer in the hands of the applicator, it allows her/him to make conscious decisions during the application with regards to shutting the sprayer off if needed, as would be the case if there were portions of the plot with plant skips. To quote John, "utilizing good pesticide application practices including nozzle selection, can provide a basis for reducing pesticide use rates within the label parameters".

After John's presentation, participants were offered the opportunity to "try on" any one of the many sprayers on display in combination with any number of available nozzles to see for themselves how they fit.

Certainly all who participated in this event took away a wealth of sprayer technology knowledge to pass on to farmers, researchers and other pesticide applicators. ▲



Sorghum plot being sprayed with SURROUND using a hand powered piston-pump backpack sprayer.

# New and Emerging Insect Pests

— by Michael P. Parrella  
Department of Entomology,  
University of California Davis

*Excerpted from the Conference Proceeding of the 22nd Society of American Florist (SAF) Annual Conference on Pest and Disease Management for Ornamentals.*

New and emerging pests continue to pose a major threat to the production of floriculture and nursery crops. As growers strive to adopt IPM approaches which often include the use of reduced risk pesticides and biological control, the rise of a new pest often renders these IPM approaches moot.

The ornamentals industry has an interesting and paradoxical relationship with new pest species. This industry is often affected most greatly by the advent of a new pest, and yet it is often viewed as the major culprit in spreading new pests. Thus, it is important to take a step back and look at the issue of invasive species from a historical and global perspective.

While the consequences of invasion by some non-native species are often dire, others provide enormous benefits to human society. In many cases, non-native species have come to form such a large part of our diet, livelihood, and traditions, that it is hard to imagine a

time without them. For example, consider the many foods (tomatoes, potatoes, etc.) that are not native to Europe, but are now integral to European cultures. A strikingly large proportion of the food we eat, the clothes we wear, and the wood we use to build our homes comes from species grown outside of their native range. Most of these benefits have come from non-native species that humans have domesticated, but we also derive benefits from many non-domesticated species (e.g. the bees that pollinate our crops and the introduced mammals that we hunt for food [Sax et. Al. 2005]).

Practically every ecosystem with which humans come into regular contact contains species that we have brought here. These alien species, introduced deliberately or by accident, have often profoundly changed the ecosystems in which they have become established. Some ecologists consider human-assisted species invasion to be one of the great environmental threats facing the biosphere. An entire discipline - invasion biology - has grown up to study and combat the problem (Vermeij, 2005).

White rust, *Ralstonia*, Biotype Q *Bemisia* whiteflies, *Phytophthora ramorum*, Red imported fire ants, European brown snail, glassy-winged

sharpshooter and Pierce's disease, *Diaprepes* root weevils, etc., are huge issues for floriculture and nursery producers in California and other parts of the U.S. For many of these pests, there are detailed protocols that growers must follow to be certified by the California Department of Agriculture as "pest free" so they can be shipped out of the country. Obviously, the growers must bear the additional cost of both the treatment protocols and for the inspection, but this is often necessary to stay economically viable. In many situations control strategies are not fully developed and there is parallel research being done to develop strategies that are effective and acceptable to the recipient of the commodity.

The estimated economic cost of invasive species in the U.S. is \$137 billion annually, and invasive species are clearly a global concern. One important relatively recent development is the World Trade Organization's (WTO) Agreement on Sanitary and Phytosanitary Measures (commonly called the SPS Agreement). The SPS agreement establishes certain basic principles for the 140 nations who are members of the WTO. In general, these principles mean that import restrictions should be scientifically based and also transparent, so all concerned know exactly what they are. Also, in establishing pest-free and disease-free areas, appropriate regions within

*continued on page 11*

## The IR-4 Newsletter Vol 37. No.4 October 2006

The IR-4 Newsletter is published quarterly for distribution to cooperators in our partner State/Federal/Industry research units, State and Federal officials, private interest groups, and private citizens. Material from the IR-4 Newsletter may be reproduced with credit to the publication. Major funding for IR-4 is provided by USDA-CSREES and USDA-ARS in cooperation with the State Agricultural Experiment Stations. New Jersey Agricultural Experiment Station Publication No. P-27200-06-04, supported by state, U.S. Hatch Act, and other U.S. Department of Agriculture funds.

### Editor: Sherrilynn Novack

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

### Newsletter Committee:

IR-4 Administrative Advisors Chair, **Daniel Rossi**,  
Northeast Regional Field Coordinator, **Edith Lurvey**, 315.787.2308.  
North Central Regional Director, **Bob Hollingworth**, 517.432.7718.  
Western Regional Assistant Field Coordinator, **Stephen Flanagan**,  
541.752.9291.

Southern Regional Field Coordinator, **Charlie Meister**,  
352.392.2399.

USDA/ARS Field Representative, **Ben Fraelich**, 229.386.3609.  
Commodity Liaison Committee member, **Dave Trinka** of MBG  
Marketing, 269.434.6791.

State Liaison Representative, **Charles Gilliam**

IR-4 HQ, Assistant Director, **Van Starnes**: Technical Coordinator  
/Entomology, **Ken Samoil** and Quality Assurance Specialist, **Jane Forder** 732.932.9575.

# An Evening to Say Thanks

On Tuesday evening, September 12, 2006, over 120 people gathered to say thanks to Bob Holm as he retires. Former Project Management Committee (PMC) Chair, Bob Hollingworth acted as the master of ceremonies and set the tone for the evening accolades stating, "Vision is nothing if not applied and Bob has applied his vision effectively and we are better for it."

Among the speakers, Jim Jones, Director of EPA's Office of Pesticide Programs, talked about Bob's credibility and being confident that whatever he and Bob agreed on or discussed, held true. He came to believe in Bob and his word as sincere. Jim talked about being "turned off" to buzz words, such as "partnerships" and "win-win solutions" but found that Bob didn't just use the terms, he lived them. He reflected on many times when Bob's ability to negotiate to find common ground left everyone around the table feeling as if they had achieved a win. Jim applauded Bob on the

partnership he helped build between the EPA and IR-4 commenting, "this has benefited not only both organizations but the American public as well." Jim also presented Bob with a letter of appreciation from EPA Administrator, Steve Johnson and a plaque of appreciation from the EPA, which read, "With sincere appreciation for your years of unparalleled leadership of the IR-4 Project and your extraordinary success in bringing to market safer and effective chemicals and biopesticides for pest control."

Dan Rossi, Chair of IR-4 Administrative Advisors, was on the original search team that hired Bob and talked about knowing he was the best candidate, which has been validated over and over through Bob's true vision, fresh ideas and proactive participatory management style. He talked about Bob's outstanding leadership to IR-4 and the pest management community and his ability to link academia and other communities resulting in IR-4 becoming known



Photo by Alvin Simmons

nationally and internationally. Dan commented on Bob the communicator, and joked, "No one can take notes like Bob, and I even think I saw him once take notes while he was talking."

Project Management Committee Chair, Marty Marshall, along with Committee members, Dan Rossi, Bob Hollingworth, and Jerry Baron presented Bob with the prestigious IR-4 Hall of Fame Award. This award was given to Bob in recognition of his leadership, which contributed to the increase in IR-4 productivity, and has been proven by the unprecedented number of clearances achieved. Prior to Bob's tenure, IR-4 averaged 100 clearances a year. The IR-4 research network embraced Bob's challenges to be more productive and efficient, and since 2000, IR-4 has averaged over 700 clearances a year. Now, all

high priority IR-4 research operates on a 30 month timeline. Bob's ability to leverage relationships has resulted in numerous improvements in outreach to growers, food processors, commodity organizations, industry, and regulatory agencies. Bob's family also chimed



Photo by Alvin Simmons

**Kristen and David Holm spoke from the heart about their Dad's encouragement, faithfulness and support.**

in to present their side of the story. Son David, daughter Kristen and wife Nancy, all shared their personal stories of the leadership Bob has exemplified at home.

The tribute to Bob was finalized by IR-4's newly appointed Executive Director, Jerry Baron, thanking Bob for being his mentor. One by one Bob's headquarters team expressed their gratitude and talked of being inspired by his leadership. The HQ team then presented Bob with a gift basket containing items from his "favorite hotel" and a large tool chest was rolled into the room and presented to Bob as a gift from his friends and colleagues.

Bob has truly been an example of vision and leadership and IR-4 is better for having had him at the helm.

EPA Director of OPP, Jim Jones, presented Bob with a letter from EPA Administrator Steve Johnson, and a special recognition plaque from EPA.



Photo by Alvin Simmons



"Thank you for filling the toolbox" was inscribed on the tool chest presented to Bob on behalf of IR-4 employees and friends.

Photo by Alvin Simmons



Some IR-4 HQ team members gathered to say thanks.

## A Note of Thanks from Canada

*When the Government of Canada established the Pest Management Centre in 2003, it had been decided that its new Minor Use Program would be modeled after the successful U.S. IR-4 Program. Canadian growers face the same crop protection needs as their U.S. counterparts, and gaining access to newer, safer pest management tools and technologies became a priority at Agriculture and Agri-Food Canada. It is certain Canada's Minor Use Program could not have been launched as smoothly and effectively had it not been for the guidance, support and enthusiasm of Bob Holm.*

*Bob's leadership has resulted in a more harmonized and cooperative relationship between Canada and the United States, at both the science and regulatory levels. In just three years, 61 joint Canada/U.S. minor use projects have been undertaken and the first joint registration has occurred, with a new product coming to the market in both countries simultaneously. Bob's vision of international collaboration and the important role government can play in assisting growers to gain improved access to the necessary products and technologies has benefited growers on both sides of our border.*

*We thank Bob for sharing his expertise with our Minor Use Program, and we wish him a happy retirement.*

*Bill Boddie*

*Executive Director*

*Pest Management Centre, AAFC*



Agriculture and  
Agri-Food Canada

Agriculture et  
Agroalimentaire Canada

Canada

Photo by Alvin Simmons



Bob's family, l to r, Lori, Kristen, David, and Nancy stand with him as IR-4 Executive Director, Jerry Baron, right of Bob, and PMC Chair Marty Marshall present him with the IR-4 Hall of Fame Award.

— by IR-4 Executive Director Emeritus, Bob Holm

Over the past few years, IR-4 has become more involved with greenhouse food crop growers. In the summer of 2001, IR-4 sponsored a workshop that provided more awareness of these growers' needs and this year, IR-4 provided another forum specifically for greenhouse growers to discuss their needs. This Greenhouse Food Use Workshop was held the day prior to the annual IR-4 Food Use Workshop (FUW) and was attended by over 125 people. The purpose of the day-long Greenhouse Workshop was to inform the group of greenhouse growers needs and form a consensus of research needs that might correspond with projects being prioritized the following days at the FUW.

Roberta Cook, Agricultural Economist at the University of California, Davis, and co-author of *North American Greenhouse Tomatoes Emerge as a Major Market Force*, noted that the investment in greenhouse facilities can run from \$600,000 to over

\$1,000,000 per acre, and with rising energy costs, the commitment for greenhouse growers is substantial. Even so, greenhouse grown tomato, pepper and cucumber production has increased considerably since the late 1980's/early 1990's with tomato acreage in the U.S. doubling between 1997 and 2002. And in recent years, Canada has shown significant increase in their greenhouse production too.

Mike Bledsoe, Village Farms L.P., stressed the need for more university research on greenhouse pest control. "Greenhouses are complex, integrated, computer-controlled climate units that utilize hydroponics and have active IPM programs." He continued, "Village Farms spends \$6,000 per acre for IPM programs - mainly for beneficial and predator insects. The need for pest management tools that are effective on key pests, have short reentry intervals for workers, labeled for 0-day preharvest intervals (PHI's) and can be utilized in chemigation is critical."

Vegetable Growers. He went on to comment that 50% of Canadian cucumber growers were using biocontrol insects and predatory mites for insect and mite control. For greenhouse peppers, he reported that all growers were utilizing biocontrol tactics at a cost of \$3,000 to \$10,000 an acre.

Kathy Demchak, Penn State University, talked about the differences of high tunnels and hoop houses compared with greenhouses. High tunnels and hoop houses are not permanent, and are comparatively lower in cost because they utilize manual temperature and irrigation controls. Also, unlike greenhouse production, which utilizes artificial growing media like rock wool, in high tunnel or hoop houses crops are grown in soil. Kathy indicated growers in Pennsylvania are growing fruit crops such as strawberries, red

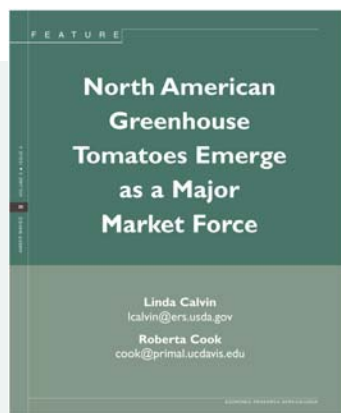
raspberries, blueberries, sweet cherries, plums and apricots in these structures.

Ron Delissen, Koppert Biological Systems, and Dominique-Andre Demers, Biobest Canada Ltd., gave a tag-team presentation on the use of natural enemies to control harmful insects. Their two companies are global leaders in supplying parasitic wasps, predatory mites, parasitic nematodes, and other natural enemies for commercial biocontrol, especially in greenhouses. Many key greenhouse pests such as whiteflies, thrips, aphids, spider mites, leafminers and fungus gnats have commercially available natural enemies. However, they noted there are no current biocontrol measures for psyllids, russet mites, lygus bugs and pepper weevils. They concluded the major advantages to biocontrol were consumer demand, worker safety and resistance management.

Don Stubbs, Deputy Director of EPA's Registration Division, noted the history of EPA regulation of greenhouse pest control products,



High Tunnels and Hoop Houses in Pennsylvania



"Growers in Canada report that greenhouse peppers are the fastest growing segment in Canada, although tomatoes, cucumbers and lettuce are still important greenhouse crops," stated Dean Tiessman of Pyramid Farms Ltd. and the Ontario Greenhouse

# Greenhouse Workshop



Workshop speakers included: l to r IR-4 Western Region Administrative Advisor, Mike Parrella; IR-4 Executive Director, Jerry Baron; Penn State University's Kathy Demchak; Pyramid Farms, Dean Tiessman; Cornell University Plant Pathologist, Margery Daughtrey; Village Farms, Mike Bledsoe; Ontario Ministry of Agriculture, Food and Rural Affairs, Gillian Ferguson; Biopest Canada, Ltd, Dominique-Andre Demers; Deputy Director of EPA's Registration Division, Don Stubbs; Koppert Biological systems, Ron Delissen and IR-4 Associate Director, Dan Kunkel

and reiterated the current Agency position, "if the product is registered on a pest for field use and the use directions can be utilized for the control of that pest under greenhouse conditions, it can be utilized in the greenhouse unless greenhouse use is prohibited on the label."

Gillian Ferguson, Ontario Ministry of Agriculture, Food and Rural Affairs, reported on the recent greenhouse efficacy research on vegetable powdery mildew being conducted at Agriculture and Agri-Food Canada's (AAFC) Harrow, Ontario and Agassiz, British Columbia Research Centers, as well as with university and private contract researchers.

Michael Parrella, University of California, Davis and IR-4 Western Region Administrative Advisor, stressed the differences between greenhouse ornamental

and floriculture production (the focus of his research) and greenhouse vegetable production, and challenged the IR-4

IR-4 coordination with the Regional Pest Management Centers to integrate new products with natural enemies and questioned

and *Thialopsis*. She discussed various fungicides available to control these key diseases.

The afternoon discussion, chaired by Keith Dorschner, identified key pest problems and pest management voids for strawberry, caneberry, pepper, eggplant, cucumbers, melons, squash, lettuce, herbs, greenhouse vegetable transplants and other vegetables grown in greenhouses and other enclosed structures. The results of the Greenhouse Food Use Workshop proved effective as these needs were carried

## Differences Between Vegetable and Ornamental/Floriculture Production

### Vegetable

Long Term Crops  
Economic Pest Thresholds  
Bees for Pollination  
Fewer Pests  
Monoculture  
Limited Pesticide Use  
Biological Control Used

### Ornamental

Short Term Crops  
No Economic Pest Thresholds  
No Pollination Needed  
Multiple Pests  
Polyculture  
Heavy Pesticide Use  
No or Little Biological Control

Project to continue understanding the importance of biological control in greenhouse vegetable production systems when registering new crop protection products. He further stressed the need to evaluate products for compatibility with major natural enemies and predators used in crops grown in greenhouse production. Also, Dr. Parrella encouraged more

whether new insecticides should be developed for whiteflies.

Margery Daughtrey, Cornell University Plant Pathologist, concluded the Workshop's morning presentations by discussing the biggest problems for greenhouse ornamental production which included *Botrytis*, powdery mildew, downy mildew, rust, various *Pythium* species,

forward to the Food Use Workshop. Residue program priorities for the new bactericide, Kasugamycin, for greenhouse peppers; the new insecticide, E2Y-45, for insect control on greenhouse tomatoes; and the insect growth regulator, pyriproxyfen, on greenhouse basil were established for 2007 IR-4 research. ▲

# Methyl Bromide Alternatives: Are we there yet?

—by IR-4 Special Projects Manager, Jack Norton

Two years ago, with the phase out deadline for methyl bromide (MeBr) looming, university staff and industry representatives along with IR-4 asked the question: methyl bromide alternatives, are we there yet? At that time the answer was yes and no. Since then, as a result of a great deal of research, some promising alternatives have become evident. These products are effective and perform consistently only when used with deliberate, well-planned applications, precise soil preparation and proper irrigation.

Two of the effective MeBr replacement programs consist of products containing the active ingredients metam sodium (MS) and metam

potassium (MP). The main advantage of MS/MP (e.g. Vapam® and K-Pam™ from AMVAC Chemical Corporation) is they are already widely used in US agriculture as fumigants and they are already approved for use as pre-plant treatments on all crops. Both products, along with treatments comparing numerous other product combinations, have been extensively tested in CA, FL, MI, NC, and AL, and have been found to be potential methyl bromide alternatives in strawberries, mulched vegetables, and ornamentals.

Historically, growers hesitated using these products, especially in the sandy soils of the southeastern US where strawberry and mulched vegetable are grown, due to

inconsistent results because proper application techniques to obtain the full spectrum of MeBr control was not clearly understood. However, IR-4

funded research has revealed excellent progress and consistently good performance of these products especially when used in combination with other available soil fumigants as part of a program.



Florida strawberries treated with Chloropicrin in the beds followed 6 days later with Vapam applied at 75 gallons per acre through two drip tapes per bed. This treatment produced excellent strawberry yields equal to the Methyl Bromide/Chloropicrin standard treatment.

The objectives of these trials were 1) to define the most effective application conditions for the control of weeds, plant parasitic nematodes, and soil borne plant diseases, and 2) to investigate novel approaches to using the products, such as cessation of crop growth following final harvests to reduce nematode numbers that could infest succeeding crops. This practice would then eliminate the cost of plastic mulch for the following crop by permitting replanting into the same beds.

Many of the evaluations included MS and MP applied alone or simultaneously with the soil fumigants, Telone® - 1,3 dichloropropene / chloropicrin (1,3-D/CP)- InLine® - Chloropicrin (CP). Other treatments included sequential applications of MS/MP with 1,3-D/CP or CP alone, where the MS/MP treatments were applied five to seven days later. All products were applied through drip tapes (two per bed) in sufficient water to disperse the products across the soil profile,

generally around one acre inch of water through drip irrigation.

## Proper Use Directions for Successful Programs that Utilize MS/MP Products

These practices include:

- 1) Proper soil preparation prior to application. Soils should be loose, friable and in good tilth without any plant material or soil clods.
- 2) When applied through conventional spray booms, the beds should be firmly shaped after mechanical incorporation of MS/MP into the soil. When drip tapes are used, the beds should be firmly packed with at least two tapes per bed prior to the laying down of the plastic mulch.
- 3) Soil moisture content should be around 80% of field capacity (not too dry nor too wet). The MS/KP labels describe optimal soil moisture levels as being present when a handful of soil is gripped, it forms a ball. If the soil is too dry, the soil ball will not form. If the soil is too wet, water will run between the fingers. If drip-applied, the installation of an adequate number of drip tapes to ensure wetting across the



The in-bed application shows the plastic and drip tape being laid behind the shank injection of K-Pam @60 gpa. The K-Pam was shanked into a false bed and no gas was detected so they proceeded to press the bed, lay tape and plastic mulch.

width of the beds is vital. The use of sufficient water to wet the beds across the bed tops, shoulder-to-shoulder, is critical for good performance as well. If nutsedge (*Cyperus spp.*) is present, the MS/MP treatments will only suppress this weed and many times will not give commercially-acceptable control. The addition of another appropriate herbicide is recommended under such circumstances.

#### Pest Control with MS/MP in Second Season Crops by Using Crop Cessation Tactics

Dr. Joe Noling, University of Florida, has conducted novel field research in strawberries and melon production systems. He has demonstrated significant reductions in sting nematode (*Belonolaimus longicaudatus*) numbers when MS or MP was applied, even in fields having a single drip tape per bed made after final strawberry and melon harvests. The MS and MP treatments effectively killed the senescing crops along with the weed complex growing in the beds, and provided nearly perfect control of moderate to heavy populations of sting nematodes in strawberries and melons. This approach appears to be quite useful as a tactic to economize the costs associated with the plastic mulch, because the same plastic mulch can be used for the second crop season.

#### MS/MP Combinations as Potential MeBr Alternatives in California Strawberries

Strawberry treatments in California showed that when problem nutsedge and certain other difficult to control weeds are treated, delaying the MS/PM (Vapam/K-Pam) treatment by six to eight days after applying the 1,3-D/CP consistently improves control of those very difficult weeds. Also, there could be an incompatibility effect if co-applied.

#### Fresh Market Tomatoes in Florida

Florida is the largest producer of fresh market tomatoes in the U.S., with approximately 16,800 ha harvested in 2004. IR-4 research seeking alternatives to MeBr/CP on field-grown fresh market tomatoes was specifically conducted in Florida because of the special pest control needs and the uniqueness of the soil and climatic conditions. Soil-applied products that showed special promise as MeBr/CP alternatives for Florida tomatoes involved combinations of CP and MS. These combinations also served as a "technically viable" MeBr/CP alternative even for mulched vegetables in Florida which face similar problems and conditions.

The viable alternatives for MeBr/CP described here are based on pest control efficacy data along with crop yields during three production cycles at two different locations in Florida (spring and fall

2003 and spring 2004). Current understanding indicates that growers utilizing the alternative treatment will have to accept some additional risk brought on by having a longer plant-back interval than would be required for MeBr/CP applications. This interval is significantly longer (14-21 days for the combination treatment versus only 7 days for MeBr/CP) which will result in a shortened planting window. Better planning with respect to the timing of applications might offset some of the inconvenience associated with this combination treatment.

With the clock running out, it's time to put aside methyl bromide and growers should start adopting viable alternatives. Though we currently lack a single "drop-in" replacement for MeBr/CP, it should be noted that even MeBr was not used alone, but used in combination with CP. Recent research conducted through the efforts of IR-4 and others has proven there are effective alternatives, and shows that CP or 1,3 D followed by MS/MP treatment six days later appear to be the best yet.

Alternatives are available but they will require commitment for effective implementation — commitment to better planning, to better understanding of the tools available and to investment in application technology and proper equipment. To learn more about these trials and for additional

information contact IR-4 or visit the IR-4 website. 



Side by side comparisons in IR-4 tomato tests in FL, where chloropicrin was incorporated into the beds on the right and Telone II on the left with each followed 7 days later with Vapam applied at 75 gallons per acre through 2 drip tapes per bed. These were the leading treatments in the test, producing tomato yields equal to the Methyl Bromide/Chloropicrin standard treatment.

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

##### Northeast Region

Ms. Edith Lurvey  
315.787.2308  
ell10@cornell.edu

##### North Central Region

Dr. Satoru Miyazaki  
517.336.4611  
ncrir4@msu.edu

##### Southern Region

Dr. Charles Meister  
352.392.2399  
cmeister@ufl.edu

##### Western Region

Ms. Rebecca Sisco  
530.752.7634  
rsisco@ucdavis.edu

##### USDA-ARS

Dr. Paul H. Schwartz  
301.504.8256  
schwartzp@ba.ars.usda.gov

# IR-4 2006 Food Use Workshop

Indianapolis, IN was the site of the 2006 IR-4 Food Use Workshop. From September 12-14, 2006, 225 people representing State Agricultural Extension Service (SAES/Extension), United States Department of Agriculture (USDA), growers, commodity groups, the agri-chemical industry, the US Environmental Protection Agency's (EPA) Registration Division leaders and other interested groups met to agree upon and set priorities for residue research projects for the 2007 season. Workshop attendees discussed pest management needs for the control of insects, diseases and weeds on specialty crops. IR-4 organized the discussion to allow a day for each discipline—Entomology, Plant Pathology and Weed Science.

This year a new procedure was implemented that streamlined the process. In past years, participants would spend almost an entire day developing consensus on the most important pest management needs of the country.

Following this information gathering exercise, the group would then narrow the 200-300 proposed projects down to 12 "As", 36 "Bs" and unlimited "Cs". This year, the group was asked to forgo the information solicitation discussion and nominate

high priority projects via email or the IR-4 website, and nominations were reviewed prior to the Workshop. Additionally, recognizing the need for information gathering, IR-4 set aside the mornings of the Workshop for each discipline to discuss general topics of concern regarding efficacy, phytotoxicity, emerging pests, seed treatments, application and new technologies. Members of the EPA Registration Division were also invited to participate in these discussions and often brought clarity to the questions raised.

The results of the new format of nominating high priority projects prior to the Workshop coupled with the general information sessions seemed to work well in significantly shortening the priority setting process.

Post-workshop surveys suggest the new format was a big hit with comments ranging from, "I like the new format," from a major mid-western grower to, "Good Workshop! Well coordinated. Thanks," from an agricultural extension agent. While most favored the new process, one respondent suggested improvements for future Workshops, which included submitting a criterion for evaluating projects that would include information on alternative controls and providing a list of the number of

commodities receiving the same priority. Overall, the respondents were very much in favor of the new format and will continue to join IR-4 for future

workshops.

To review the lists of 2006 priorities, visit the IR-4 website at [ir4.rutgers.edu](http://ir4.rutgers.edu). ▲

## EPA Joins IR-4

In 2005, EPA Office of Pesticide Programs Registration Division (RD) Director, Lois Rossi, attended the IR-4 Food Use Workshop (FUW) in San Diego. There she met with IR-4 stakeholders and was able to witness the priority setting process first-hand. After the meeting, she thought it would be beneficial for the RD Branch Chiefs to hold a retreat this year in conjunction with IR-4's 2006 FUW.



**EPA Office of Pesticide Programs Registration Division Deputy Director, Lois Rossi, standing, and IR-4's Associate Director, Dan Kunkel and Entomology Program Manager, Keith Dorschner, answer questions before the Entomology session.**

Approximately 20 EPA staff including Registration Division Deputy Director, Don Stubbs, Health Effects Deputy Director, Jeff Herndon, Registration Division Director, Lois Rossi, the RD Branch Chiefs, along with the

IR-4 Minor Use Team met in Indianapolis at the FUW. The purpose of the meeting for EPA was to formulate the 2007/2008 EPA Workplan, meet IR-4 stakeholders and take part in daily question and answer periods that met before each prioritization session. Their presence in the meeting helped stakeholders understand more about the EPA process. Workshop participants had the opportunity to ask questions and receive updates related to the progress of specific active ingredients (ai's). During the Greenhouse meeting, Don Stubbs was able to bring some clarity to the use of products and label interpretations in greenhouses. Participants commented that meeting EPA's IR-4 Minor Use Team of Barbara Madden, Shaja Brothers and Sydney Jackson, who take IR-4 submissions and shepherd them through the EPA process, and being able to receive ai and product updates directly from the those working on them, was a productive addition to the FUW and one that should be repeated. ▲



**EPA Health Effects Division Deputy Director, Jeff Herndon, talks with Nichino's Marie Maks during the 2006 FUW.**

## Survey continued from page 1

fungicides and herbicides were identified as important priorities for the IR-4 program as was continuing to expand currently registered product labels. Survey participants were also asked their top three diseases, insects and weeds. Each one cited by survey participants was assigned a weighted ranking with the one mentioned first receiving 3 points, the next one 2 points, and the last one 1 point. Using these weighted counts, the top 5 diseases mentioned were *Phytophthora*, *Botrytis*, powdery mildew, *Rhizoctonia*, and downy mildew. The top 5 insects listed were thrips,

whiteflies, scales, mealybugs, and spider mites. The top 5 weed problems were spurge, bittercress, nutsedge, Oxalis, and Eclipta.

Participants at the national IR-4 Ornamental Workshop, held October 10-12, in Denver, used these survey results as a guide to develop research priorities for 2007. In past years the survey results have been extremely useful and have had the major impact on priority rankings. There may be situations where the survey indicates a particular research direction, but workshop participants select other diseases, insects or weeds

as high priority projects. For example, there may be a great need for new products to control a certain disease or pest, but at the time of the workshop there are no new, unregistered products to put into a testing program. Another example of direction change is a situation where IR-4 has sponsored research into a product not yet registered for ornamental horticulture use and additional data would not greatly increase the speed of registration or breadth of the product label. Finally, sometimes there can be a lengthy gap between when research is conducted and when the resulting information is used either for extension

presentations, technical updates or label registrations for grower-identified needs. ▲

### Calendar of Events

**October 24-25, 2006**

**ARS Liaison Meeting**

Corvallis, OR: Contact Paul Schwartz 301.504.8256

**Nov 1, 2006**

Beginning at 5:00 p.m.  
HQ Open House  
Princeton, NJ  
732.932.9575

**Nov. 1-3, 2006**

**National Research Planning Meeting.**

Princeton, NJ  
732.932.9575

## Emerging continued from page 3

a state or nation should be recognized. Overall, regulations under the SPS agreement should, as far as feasible, be those that least restrict free trade.

Quarantine 37 is a long-standing quarantine statute that regulates the importation of nursery plants, roots, bulbs, seeds and other plant products into the U.S. It is a scientifically sound and biologically-based barrier designed to minimize the threat of introducing new, damaging exotic pests and diseases into this country. With limited exceptions, Q-37 prohibits the importation of plants established in soil or growing media because

these may more easily contain hidden pests and diseases that often evade detection.

USDA and the Office of the U.S. Trade Representative are under increasing foreign pressure to relax Q-37 and allow more types of plants in soil or other growing media to be imported into this country. However, the U.S. Department of Homeland Security is under increasing domestic pressure to tighten our borders for national security purposes to guard against the introduction of biological threats posed by exotic pests and diseases. Both the floriculture and

nursery positions on Q-37 are consistent and this is summarized by a document produced by the Florida Nursery, Growers and Landscape Association ([www.fngla.org/fngla-action/doc/Quarantine-37.pdf](http://www.fngla.org/fngla-action/doc/Quarantine-37.pdf)) - the scientific foundation and biological integrity of Q-37 must never be compromised. It is the industry's first line of defense against the introduction of exotic pests and diseases that may harm the nursery and landscape industry and place at risk other segments of agriculture. The USDA is currently taking a more comprehensive look at Q-37 reform, with a goal of making U.S. agriculture safer and yet still complying with our trade obligations and allowing

international commerce to continue. The basic philosophy appears to be shifting from "prohibit" to "allow with mitigation. In essence, this will turn Q-37 into the kind of program that currently covers fruits and vegetables - the burden would be on the exporting country to prove it is safe, rather than be on the U.S. to prove that it is dangerous (Lin Schmale, pers. Communication). ▲

*Michael Parella is the IR-4 Western Region Administrative Advisor and sits on the IR-4 Project Management Committee. For the full article and references please contact the author, Michael P. Parrella, at [mpparrella@ucdavis.edu](mailto:mpparrella@ucdavis.edu).*

# Clearances Jun. '06- Aug. '06

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: Fenhexamid (F)****Trade Names:** Elevate**Crops:** non-bell pepper, cilantro (coriander), pomegranate**Federal Register:** 08/02/06**Product: Imidacloprid (I)****Trade Name:** Admire, Provado, Gaucho**Crops:** caneberry subgroup 13A, nut tree, group 14, pistachio, herb subgroup 19A, sunflower, black mustard, borage, crambe, field mustard, flax, Indian mustard, Indian rapeseed, rapeseed, safflower, atemoya, biriba, cherimoya, custard apple, ilama, soursop, sugar apple, coffee, banana, pomegranate**Product: Bifenthrin (I)****Trade Names:** Capture, Brigade**Crops:** vegetable-tuberous and corm, subgroup 1C, Brassica,leafy greens, subgroup 5B, turnip, greens, pea and bean, dried shelled, except soybean, subgroup 6C coriander, okra  
**Federal Register:** 08/11/06**Product: Dimethenamid (H)****Trade Names:** Outlook**Crops:** onion, green leek onion, welsh shallot**Federal Register:** 08/23/06**Product: Azoxystrobin (F)****Trade Names:** Quadris, Abound**Crops:** pea and bean, succulent shelled, subgroup 6B pea and bean, dried shelled, except soybean, subgroup 6C vegetable, foliage of legume vegetable, fruiting, group 8 (except tomato) Fruit, citrus, group 10**Federal Register:** 08/23/06**Product: Fenpyroximate (I)****Trade Name:** Fugimite**Crops:** fruit, citrus, group 10, nut, tree, group 14 pistachio, hop, mint**Federal Register:** 08/23/06**Product: Quinoxifen (F)****Trade Name:** Quintec**Crops:** Lettuce- head and leaf, pepper - bell and non-bell, melon subgroup 9A, strawberry  
**Federal Register:** 08/25/06**Product: Kresoxym****-methyl (F)****Trade Name:** Sovran, Cygnus**Crops:** vegetable, cucurbit, group 9**Federal Register:** 08/25/06**Product: S-Metolachlor (H)****Trade Name:** Dual Magnum**Crops:** pumpkin, squash-winter**Federal Register:** 08/30/06**Product: Ethofumesate (H)****Trade Name:** Nortron SC**Crops:** carrot, beet, garden onion-bulb, garlic-bulb, shallot, bulb and fresh leaves**Federal Register:** 08/30/06**Product: Bifenazate (I)****Trade Name:** Acramite**Crops:** Pea, garden pea, edible podded vegetable, tuberous and corm, subgroup 1C fruit, stone, group 12, except plum, plum**Federal Register:** 08/30/06**Not Previously Reported****Product: Trifloxystrobin (F)****Trade Name:** Flint, Twist**Crops:** barley, sweet Corn, oat**Federal Register:** 03/29/06**Product: Terbacil (H)****Trade Name:** Sinbar**Crop:** watermelon**Federal Register:** 05/31/06 ▲

IR-4 Headquarters, Rutgers University  
500 college Road East  
Suite 201 W  
Princeton, NJ 08540



Major funding for IR-4 is provided by Special Research Grants and Hatch Act Funds from USDA-CSREES, in cooperation with the State Agricultural Experiment Stations, and USDA-ARS.

PRESORTED  
FIRST CLASS MAIL  
U.S. POSTAGE  
PAID  
JERSEY CITY, NJ  
PERMIT NO. 295

Rutgers, The State University of New Jersey • University of California • Cornell University  
• University of Florida • Michigan State University

Address Service Requested