

## Crop Focus: Watercress

— Information provided by B&W Quality Growers, Inc.

On June 26, IR-4 HQ hosted an agricultural tour dubbed Beyond the Battlefield: Apples to Watercress!! The purpose of these annual tours is to provide EPA personnel the opportunity to learn about growing practices and to hear directly from growers about their pest control needs. This year, there were 44 participants from EPA and for over one third of the attendees, it was their first IR-4 tour. Many also were new to EPA.

The tour included four stops: one in West Virginia and three in Southern Pennsylvania. During the first stop attendees viewed the growing practices of a very minor crop, watercress. There, President of B&W Quality Growers, Inc., Alan Temple, talked about this unique crop and shared some interesting facts.

### Watercress

Watercress *Rorripa nasturtium aquaticum* is a member of the Cruciferae (or Brassicaceae) family, and therefore related to broccoli, cabbage, Brussels sprouts, cauliflower, rocket and radish.

Cultivated in pure spring water,

its health benefits have been known since ancient times. It is believed to have originated in Greece and remains an integral part of the Mediterranean diet. In 500BC, Hippocrates, the father of medicine, is said to have located his first hospital close to a stream to ensure fresh watercress to help treat his patients.

Historically, watercress was used by the Romans, Greeks and Persians as a natural medicine, prescribed for migraines, anemia, eczema, kidney and liver disorders and tuberculosis. As a longstanding British favorite, it has been used in herbal remedies from the 1600s, and has been commercially cultivated since the 1800s. Watercress is part of the fruit and vegetable food group, with 80g (one cereal bowl full) providing one of the 'at least five a day' portions recommended by the Department of Health to help reduce the risk of some cancers, cardiovascular disease and many other chronic illnesses.

According to modern research, watercress has been found to be the new miracle food with anti-cancer properties.



A study published in The American Journal of Clinical Nutrition in February of 2007

showed that, in addition to reducing DNA damage, a daily dose of watercress increased the ability of cells to further resist DNA damage that may be caused by free radicals. In the study, 60 men and women, half of whom were smokers, consumed their usual diet plus 85-grams of raw watercress daily for 8-weeks. Blood samples

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Dear Friends

I hope everyone is having a wonderful summer and having the opportunity for some vacation time.

I wanted to bring everyone up to date on the current funding status for IR-4. After a very tenuous 2012 first when USDA proposed to consolidate the IR-4 Project with five Integrated Pest Management Programs and then we experienced multiple rounds of budget reductions, 2013 is awash with good news. In April, the President's budget proposal for 2014 separated IR-4 out from a modified IPM program consolidation plan. During late spring/early summer, the Appropriations Committees of both the US House of Representatives and the US Senate concurred with the President's plan and maintained IR-4 as an independent budget line and program. The Appropriations Committee of the House and Senate also approved a plan to restore some of the funding reductions. As of press time, the FY 2014 Agriculture Appropriations Bill is awaiting approval by the full House and Senate. If approved, IR-4 will again be funded near the \$12 million dollar level.

It seems like it was just last week IR-4 was working on developing its Strategic Plan for 2009-2014 and writing a project renewal for approval by the State Agriculture Experiment Station Directors and USDA. Well it's that time again and this autumn we will be starting the process for the next round. IR-4 plans to solicit input on future strategic directions at the Southern, Northeast and North Central Regional Liaison meetings in late August, the Food Use Workshop, September 17 & 18 in Albuquerque, NM and the Ornamental Horticulture Workshop on October 9 & 10 in Coconut Grove, FL. We will also be soliciting input via focus groups as well as surveys at other venues. Please help us help you by participating in our efforts to gather feedback.

IR-4 continues to celebrate its 50th anniversary at various venues and meetings. It has been a great opportunity to acknowledge the success of all those associated with IR-4 (past, present and future) in providing specialty crop growers and other minor use stakeholders with safe and effective pest management technology.

To keep up to date on the happenings with IR-4, please follow us on Facebook (<https://www.facebook.com/IR4Project>) and Twitter (@IR4\_Project and @IR4Project).

All the best,  
Jerry



# Watercress

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were analyzed for plasma antioxidant status and DNA damage in lymphocytes, a type of white blood cell. Watercress consumption significantly reduced lymphocyte DNA damage.

In another study published recently in The British Journal of Nutrition, the consumption of a three ounce portion of watercress reduced the presence of a key tumor growth factor six to eight hours after eating the watercress in healthy patients who had previously been treated for breast cancer. The study was conducted by the Cancer Research Center at the School of Medicine, Southampton General Hospital in the United Kingdom and concluded watercress is as therapeutic as traditional drug treatments with tamoxifen & herceptin, commonly used chemotherapy drugs.

According to Temple, "Since watercress is available year round and is very inexpensive, we should eat a lot more of it for our health. Making watercress into a plain vegetable dish is really simple. Just put watercress in boiling water with a spoon of salt and some oil, blanch it for a few minutes and serve. Putting watercress into soup makes it easy to eat a lot more of it in one serving."

To learn more about watercress and B&W Quality Growers visit [www.watercress.com](http://www.watercress.com). 

# Section 18s Lead to

## Tolerances for Basil Downy Mildew

— by Kathryn Homa, IR-4 Research Analyst

Sweet basil (*Ocimum basilicum*) is an economically important fresh culinary herb grown in the United States. In October 2007, a new disease of basil downy mildew (*Peronospora belbahrii*) was first reported in FL. Since then, basil downy mildew has resulted in significant losses throughout the United States. The epidemiology of the pathogen is still unknown. However, it is believed that the pathogen has spread globally via the shipment of infested seed and through natural weather cycles. Since basil downy mildew is a relatively new basil disease in the United States, there are few registered conventional or organic fungicides for its control.

The pathogen's main diagnostic feature is the production of purplish gray sporangia that appear only on the underside surfaces of infected leaves (Figure 1). Symptoms include



**Figure 1** yellowing between the leaf veins, cupping and eventual necrosis of leaf tissue (Figure 2). Once symptoms develop, plants are no longer marketable.

The IR-4 Project, a federally funded program that develops research data to support new EPA tolerances and labeled

product uses, has been essential in registering products for the control of basil downy mildew. Emergency exemptions (*See related article on page 4*) were established as Section 18 labels for cyazofamid; (Ranman®; FRAC code 21) and mandipropamid (Revus®; FRAC code 40) as requested by the states of Alabama, California, Illinois and Texas. IR-4 conducted residue studies on cyazofamid and mandipropamid in order to establish national registrations. A Section 3 tolerance has been established for cyazofamid and the current label includes a use pattern for control of basil downy mildew in field and greenhouse production. In November 2012, IR-4 made a joint submission with Canada to EPA and PMRA for the use of mandipropamid to control basil downy mildew in the field and greenhouse. The submission is currently under review at the EPA, with an estimated decision date of January 2014.

As fungicide efficacy trials are conducted each year, new products are discovered for basil downy mildew control. IR-4 residue studies are currently being conducted throughout the U.S. on several products including DPX-QGU42(oxathiapiprolin) fenamidone and fluopicolide. According to the CDMS website, in addition to Ranman (cyazofamid), the following are



**Figure 2**

fungicides that are currently nationally labeled for control of basil downy mildew: Actinovate AG (*Streptomyces lydicus* WYEC 108), Double Nickel 55 (*Bacillus amyloliquefaciens* strain D747), Regalia (extract of *Reynoutria sachalinensis*), Trilogy (neem oil), various potassium bicarbonate products: Eco-Mate Armicarb, Milstop, Armicarb 100, various potassium phosphite products: Fosphite, Fungi- Phite, Prophyt, K-Phite and Rampart, Phorcephite (potassium phosphate; potassium phosphite) and Oxidate (hydrogen dioxide),

Current recommendations for basil downy mildew disease control include using an integrated pest management (IPM) approach and a fungicide resistance management program. Growers should know the symptoms of basil downy mildew and monitor the field daily for detection of the pathogen. If the pathogen is detected, growers should make frequent protectant fungicide applications that are registered for basil downy mildew control. It is also important to apply registered fungicides when environmental conditions are favorable for basil downy mildew, before the pathogen enters the field and before symptoms occur on basil. 🌿



# IR-4 and Section 18 Exemptions

— by Ken Samoil, IR-4 Associate Coordinator, with information from [www.epa.gov/opprd001/section18/](http://www.epa.gov/opprd001/section18/)


Section 18 of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) authorizes EPA to allow an unregistered use of a pesticide for a limited time if EPA determines that an emergency condition exists. The regulations governing FIFRA's Section 18 define the term "Emergency Condition" as an urgent, non-routine situation that requires the use of a pesticide(s). Such uses are often referred to as "emergency exemptions," "Section 18s," or simply "exemptions." Emergency exemptions may be requested by a state or federal agency. Most requests are made by state lead agricultural agencies.

There are four types of emergency exemptions governing Section 18's of FIFRA—Specific, Quarantine, Public Health, and Crisis. Requests are made for pesticides needed for pest problems that impact production of agricultural goods when there are no alternatives for controlling the pest. Requests usually involve pesticides that have other approved uses, so EPA scientists have prior understanding of the requested chemical.

Uses are requested for a limited period of time to address the emergency situation only. Specific and public health exemptions are authorized for no longer than one year, whereas quarantine exemptions are authorized for no longer than three years. EPA attempts to make decisions on the requests within a 50 day time frame from date of receipt, during which EPA performs a multi-disciplinary evaluation of the request.

If the emergency is determined to be valid and the risks are acceptable, EPA approves the emergency exemption request. EPA will deny an exemption request if the pesticide does not meet the Agency's safety standards, or if emergency criteria are not met.

If the exemption program involves the treatment of agricultural goods, EPA will establish formal tolerances (maximum allowable residue levels) to cover any pesticide residues in food that may result. As required by the Food Quality Protection Act of 1996 (FQPA), EPA must make the finding that there is "reasonable certainty that no harm" will result to human health from aggregate and cumulative exposure to the pesticide, before establishing a tolerance. Tolerances established for emergency exemption uses are time-limited, corresponding to the time that treated commodities might be found in channels of trade.

When a Section 18 specific exemption is needed for multiple years because the requested product has not yet been registered on the commodity and the pest problem is still significant, the EPA will re-authorize the exemption only if progress is being made towards the Section 3 registration of the product. Often, when a food use is involved, the IR-4 Project has a residue study underway in support of that particular use. When a Section 18 request is being prepared by a state agency, the IR-4 Study Director may be contacted for an update on the progress towards registration. The Study Director will reply with a letter summarizing the ongoing residue study, including information about the use pattern (rate, number, and timing of applications) and an estimated submission date. If residue results are available, these are included in the letter of support, so that the time-limited tolerance can be set at an appropriate level. 

# Time to Think Spring!

— by Cristi Palmer, IR-4 Ornamental Horticulture Manager

Crocus and other early spring flowers are the harbingers of warmer days after a cold winter. Easter lilies and hyacinths commonly are given to celebrate the spring holidays.

Daffodils, tulips, and *Fritillaria* brighten up an otherwise dull border before spring annuals and early flowering perennials emerge. Iris, *Crocus*, *Gladiolus* often

are great companion plants for rose, lavender, hosta or other perennials. What do most of these flowers have in common? They are grown from bulbs or corms and usually need to be planted in the fall for bloom the following spring or summer in commercial and residential landscapes. Many will return year after year if they are planted in a suitable location allowing them to overwinter and receive enough chilling to induce flowering.

In addition to landscape settings, bulb or corm crops can be forced to flower by simulating overwintering conditions and providing the chilling requirement. Often this will lead to flowering potted bulbs as temporary houseplants in winter

months, such as *Amaryllis* during winter holidays or grape hyacinth paired with crocus to brighten the day in late January or February.



U.S. growers produce \$48.5 million bulbs and corms annually as propagative materials (USDA-NASS, Census of Horticulture, 2009). In other words, domestic production includes bulbs

and corms for commercial and domestic landscapes as well as for specialty forced bulbs and for cut flowers. *Gladiolus*, lilies, and freesia are commonly placed in floral arrangements, but many other bulb crops are found in these special occasion arrangements.

Bulb and corm crops are prone to disease and pests and in field production weed management is key to optimal crop production. This weed problem has traditionally been controlled with methyl bromide fumigation. The search for methyl bromide alternatives has been an important research avenue to minimize initial weed seed and disease inoculum for field grown bulbs. Disease issues include bulb and corm rots and root rots



Photos by Cristi Palmer

caused by *Fusarium*, *Rhizoctonia* and *Pythium* and foliar diseases such as *Botrytis* and downy mildews. Viruses and bacteria can plague production systems. Nematodes and arthropod pests often cause economic damage in addition to vectoring viral diseases. For more information about bulb crops, please consult 'Ornamental Geophytes: from Basic Science to Sustainable Horticultural Production' by Rina Kametsky and Hiroshi Okubo.

To aid growers, IR-4 has screened bactericides, fungicides, insecticides, and herbicides for crop safety on a number of bulb and corm crops including daffodil, iris, and tulip. In addition, IR-4 has screened products for *Fusarium* on *gladiolus* and facilitated research on the invasive pathogen *gladiolus rust*.<sup>1</sup>



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# Quality Assurance Reporting Enters the Web Zone with eQA

— by Tammy White-Barkalow,  
IR-4 Assistant Director, QA

## Activity Alert from IR-4 eQA!!!

In the very near future IR-4 GLP participants won't be waiting for mail deliveries to receive their most recent QA inspection reports. Instead, the participant will be receiving an email that will tell them that their new QA audit report is available on the IR-4 eQA system (see Figure 1). The IR-4 program has always looked for better, more efficient, and faster ways to meet the needs of our mission, "To facilitate registration of sustainable pest management technology for specialty crops and minor uses". These registrations typically require the collection of residue data that is submitted to the US EPA (and other agencies). The US EPA data must be compliant with the FIFRA Good Laboratory Practice standards (GLP, 40 CFR Part 160). When conducting GLP compliant residue studies it is required that the IR-4 Quality Assurance Unit (QAU) monitors studies for compliance with the GLPs and reports the results of inspections to, at a minimum, the Testing Facility Management and the Study Director.

The new eQA reporting system will meet the QA compliance needs of FIFRA. The new system is the result of a two year process. First, the essential characteristics of the system were identified then an analysis of potential "off the

shelf" systems took place. The essential characteristics identified included that the system: 1) be web based for broad access; 2) have the capability of being GLP compliant by having proper security, containing an audit trail and having an electronic signature feature; 3) contain an internally generated notification and reminder system; 4) be a relationally based, searchable database to permit trend analysis of compliance issues and turnaround times; and 5) be reasonably priced (purchase and maintenance fees). Three quality assurance reporting software systems were vetted and the one having the best of the 5 characteristics was chosen for a broader review by IR-4 HQ and Regional staff.

In March of 2012 the proposal to select the Quality Systems Integrators' TMSWeb Workflow and Forms module was presented to the IR-4 Project Management Committee (PMC) and approved. In May of 2012 the purchased software was installed and development began. A three day training for Quality Assurance personnel that would be developing the custom reporting forms and providing training to the IR-4 staff took place, during which the first

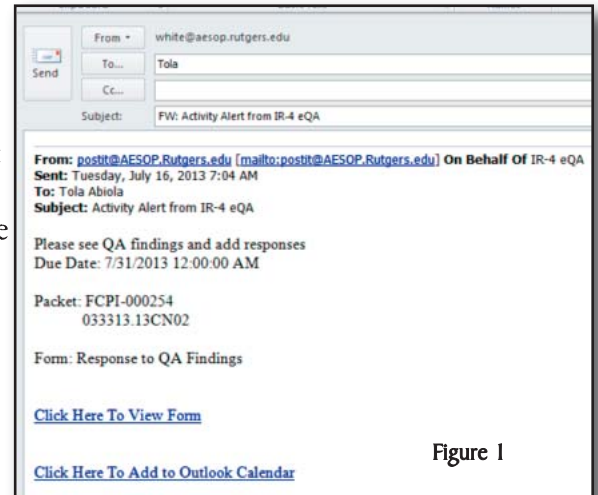


Figure 1

prototype reporting form was designed (see figures 2 & 3 for an example QA audit form coversheet and QA Findings page). Following the initial design, all 9 of the current QA reporting forms were converted to their electronic form. Once the forms were converted, each of the three "implementation" teams took those forms and tested them. These teams were comprised of HQ staff (Testing Facility management, Study Directors and QA), Regional staff (Coordinators, QA, Field and Lab) and regional Field/Lab Research Directors. The reporting forms and their accompanying workflows were tested and modified until the system glitches were identified and repaired.

In February of 2013 a national training program for the eQA system took place at the IR-4 National Education Conference. Four training



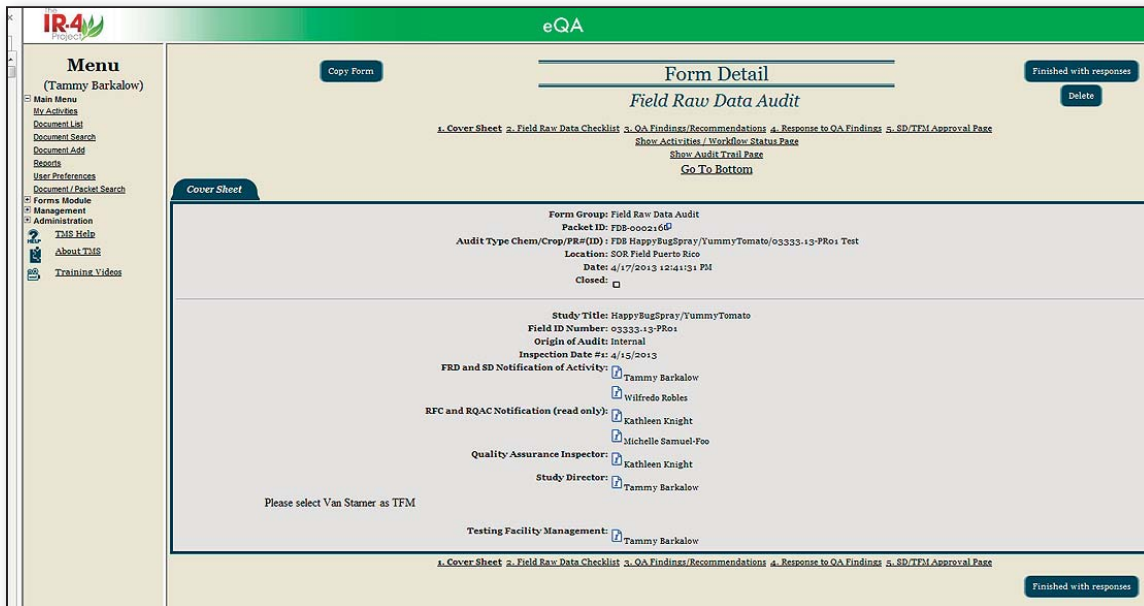


Figure 2

sessions were provided to assure that all training participants would attend one of the training sessions. Training has also been supplemented and performed via webinar. The webinars allow multiple individuals to view a training information while being able to discuss the presentation materials in real time. The use of webinars has also provided an excellent mechanism for trouble shooting and conducting individualized follow-up training.

The eQA system is in its final stages of launch preparation.

Over 120+ users have been identified, added to the system as users and their locations inputted into the user's permission systems. SOPs governing the installation, maintenance, use and retention of records and generation/distribution of QA reports are drafted, while the current SOPs on conductance and generation of specific QA inspection reports are being modified for use of the new eQA system.

This project's success has been

predicated on the cooperative efforts of so many IR-4 participants. Their time and efforts in the development, testing, training and implementation of the system are responsible for the successful system development.

Through a simple web connection, eQA allows for easy access to QA information. We trust this will translate into a streamlined reporting system that will provide for faster reporting of QA audit findings, a reduction in copying and mailing

costs, and advanced analysis of compliance trends that permits more root cause identification. 🌿

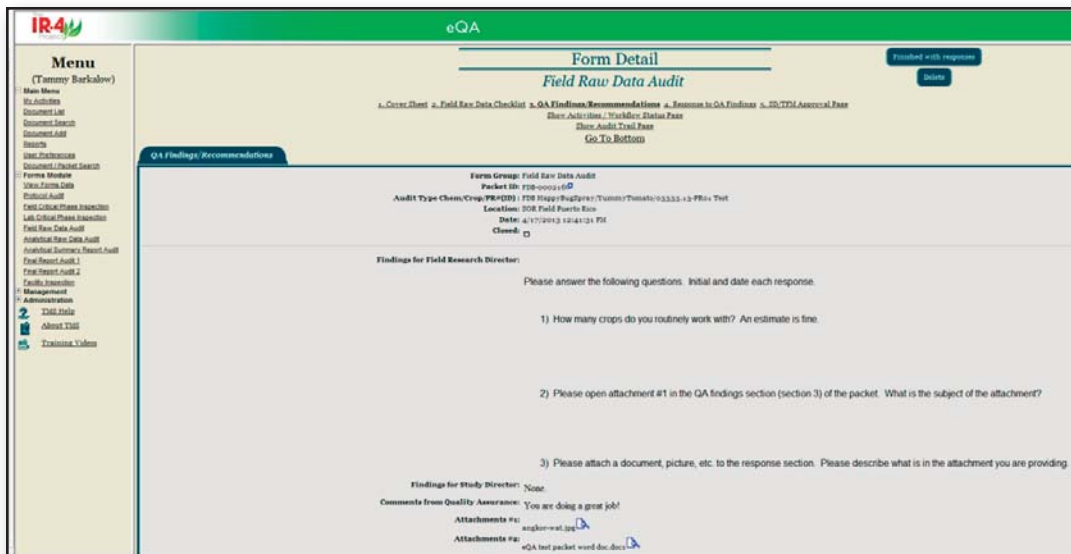


Figure 3

## Western IPM Center

— by Steve Elliott, Writer,  
Western IPM Center

### Western Region IR-4 and the Western IPM Center Enhance Cooperation

Does this pesticide play a significant role in an integrated pest management program? As IR-4 increasingly asks that question, connections between the regional IR-4 programs and the regional IPM centers will become more important. In the West, the IR-4 program and the Western IPM Center have historically worked closely, but have recently solidified those links through more regular communication and shared access to information that benefits both programs.

“The hope is, as we continue to work together, the minor-use pesticides that get approved will have a good fit within IPM programs, and therefore present less risk to the environment and consumers,” said Jim Farrar, director of the Western IPM Center.

Rebecca Sisco, regional field coordinator of the Western IR-4 Program, said that traditionally the IR-4 program and the Western IPM Center have worked well together. Part of that was personnel – the same person used to split time in both areas – but mostly it’s the nature of agriculture in the West. Some of the most important crops in the region – almonds, pistachios and wine grapes just to name a few – are considered specialty crops by national definitions. “Specialty crops are important to the West, and because they’re important, people care,” she said. “I think with the local-food movement, you’ll begin to see specialty crops and small-acreage crops becoming more important across the U.S.”

#### Sharing Information

To enhance the two programs’ cooperation, IR-4 and the IPM Center took several concrete steps. First, they participate in monthly conference calls, and the IPM Center’s comment coordinators often participate. The Center’s three comment coordinators have networks of

growers, extension specialists, crop consultants and commodity group contacts who provide feedback when federal agencies make a request for comment about a particular product or crop.

“Through the comment coordinators, we get more in-depth information,” Sisco said. “I remember reading one response about indaziflam on cranberries, and it was a clear, concise presentation of the importance of that product on that crop. It’s very helpful.” In addition, Western IR-4 and the Western IPM Center opened a Dropbox account, where anyone in either program can post comments or questions to a common document, and share updates and new IPM-related information.

During a conference call last fall, Western IPM Center staff suggested adding IPM-compatibility criteria to IR-4’s priority-setting process, and IR-4 headquarters quickly adapted the standard IR-4

LINK	E/CS Data	WR	Crop/Chem/Type	Products	Reasons	DataNeeds	States	IPM-fit	WR-Details
<a href="#">10858</a> <a href="#">B</a>	<a href="#">10858</a>	A	ARTICHOKE (GLOBE) / SULFOXALOR / I	Closure Transform	PROBA BUG, PROBA CALIFORNICA	Researchable-MFG requires Residue & Perf Data	CA		<a href="#">10858</a>
<a href="#">10911</a> <a href="#">B</a>	ND	A/B	BEEET (SUGAR) / SEDAXANE / F	Vibrance	RHIZOCTONIA SOLANI AG 2-2 IV AND IIIB, AG 4	Researchable-MFG requires Residue & Perf Data	MT CO CA	JJF (CA) need good tools for stand establishment especially in years with cool springs (RS 5/22/13)	<a href="#">10911</a>
<a href="#">11143</a>	ND	A/B	BLUEBERRY / GLYPHOSATE / H	Accord Concentrate Aquamaster	WEEDS	Need the MFG to respond - New Request	CA		<a href="#">11143</a>
<a href="#">10614</a> <a href="#">B</a>	ND	A	BLUEBERRY / SULFUR DIOXIDE / F		BOTRYTIS CINEREA (GREY MOLD)	Researchable-MFG requires Residue Data	CA	JJF (CA) is a reliable post-harvest material for same disease on grapes, low risk of resistance (RS 5/22/13)	<a href="#">10614</a>
<a href="#">5148</a>	ND	A	CANE BERRY (BLACKBERRY) / CLOPYRALID / H	Stinger Transline	BROADLEAF WEEDS	Need the MFG to respond - New Request	OR		<a href="#">5148</a>
<a href="#">5147</a>	<a href="#">5147</a>	A	CANE BERRY (RASPBERRY) /	Stinger	BROADLEAF WEEDS, CANADA	Need the MFG	OR WA		<a href="#">5147</a>

The use of sulfur dioxide on blueberries to control gray mold is one of the entries on Western IR-4’s database of IPM-fit comments.



project request form to include this component. To evaluate compatibility, the Western Region IR-4 program created a new page on its website, asking for and listing IPM-fit comments about priority projects in the West. That page, located at <http://wrir4.ucdavis.edu/pst/pst-ipm.html>, launched in early June, and the Western IPM Center promoted it on its blog, <http://ipmwest.blogspot.com>, later the same month.

“Now if someone provides IPM-fit information to me, I can input it into a database and post it on the website,” Sisco said. “As we gather these comments and begin to use them, they’ll be helpful in setting priorities and we’ll have a more complete picture of how compounds fit with IPM considerations.” Contact Rebecca Sisco at [rsisco@ucdavis.edu](mailto:rsisco@ucdavis.edu), or (530) 752-7634. Contact Jim Farrar at the Western IPM Center at [jjfarrar@ucdavis.edu](mailto:jjfarrar@ucdavis.edu), or (530) 754-8378.

## IR-4/IPM in the Southern Region

— by Michele Samuel-Foo, SOR Field Coordinator

The Southern IPM Center (SIPM) and the IR-4 Southern Region (SOR) are exploring ways that both entities can work more harmoniously together. Michelle Samuel-Foo is an active member of the SR IPM center’s Advisory council and she is a recent


addition to the center’s Regulatory Information Network.

Joe LaForest, Assistant Director of the SR IPM center will travel to the IR-4 SOR Priority setting meeting in Orlando (August 20-21, 2013) and will address the stakeholders present, reiterating the need for, and the benefits of, increased cooperation as well as sharing of information to help both centers to better serve the Southern Region.

## IR-4/IPM in the Northeast Region

— by Edith Lurvey, NER Field Coordinator; Carrie Koplinka Loehr, Director NE IPM Center


NE IR-4 is collaborating with the NE IPM Center and the IPM Institute of North America on an Organic-IPM Working Group that will help identify common issues and define research and extension priorities. Organic fruits and vegetables are a significant portion of Northeast crop production and helping to establish a working group will provide feedback on the pest management needs of organic and conventional farmers alike.

The working group will convene initially via phone calls, and the first is scheduled for August 2nd. Interested parties should contact Jane Petzoldt at 608.232.1410 or [jpetzoldt@ipminstitute.org](mailto:jpetzoldt@ipminstitute.org), 

# IR-4 & IPM Centers

—by Van Starner, IR-4 Assistant Director; Keith Dorschner, IR-4/IPM Liaison

In the recent expansion of collaborative efforts between Regional IPM Centers and the IR-4 Project, the IPM Centers have provided valuable guidance for IR-4’s addition of an IPM component to the IR-4 website Project Clearance Request form (PCR). Lynnae Jess, Co-Director of the **Northcentral IPM Center**, Michigan State University, has served as liaison between the IPM Centers and IR-4 in facilitating this interaction (Lynnae replaced Rick Melnicoe [retired last year from the Western IPM Center] in this liaison capacity). Now when IR-4 stakeholders submit new crop/pest/ product requests, they are required to provide an assessment of the IPM compatibility of the requested use (i.e., very good fit, good fit, poor fit, very poor fit, unknown), as well as a textual explanation of the fit of the proposed use within an IPM system.

Additionally, IPM coordinators have provided feedback on how IR-4 might tap their review of IR-4’s potential priority “A” projects for the next research year. In August, IR-4 will be requesting comments on IPM compatibility during the online project nomination process. IPM comments submitted will be captured in a new “IPM Compatibility” field in the IR-4 database, which will assist IR-4 and its stakeholders to determine the best IPM fit projects to move forward into the next year’s research plan for eventual registration. 

# A Global Crop Protection Effort

An Interview with Dan Kunkel

*Reprinted with Permission from American Vegetable Grower's June 2013 issue.*

The IR-4 Project expands its work with organizations worldwide to reduce pesticide trade barriers for the U.S.

American Vegetable Grower magazine caught up with Dan Kunkel, Associate Director, Food and International Programs at IR-4, just prior to his trip to China for a meeting with the Codex Alimentarius Commission, or Codex Committee on Pesticide Residues, which is an organization that develops harmonized international food standards, among other things. The meeting focused on pesticide residues. We asked Kunkel about IR-4's interaction with Codex, its interest in international markets, and plans to expand participation in global organizations.

**What are the main reasons IR-4's efforts are being moved toward international markets?**

Kunkel: To help U.S. growers export produce is the main reason. Even though there are a lot of new agreements that have been made for free trade, pesticide residue has become a trade barrier. So if the growers are using a new product in the U.S. and the receiving countries don't recognize them as safe,

then commodities get held up on the border.

So IR-4 decided that we would use our data not only to submit to EPA domestically, but we would also start using it internationally to make sure that the U.S. commodities in trade aren't stopped because of lack of data to indicate that they are safe when they arrive on the shores of other countries.

We focus on Codex, mostly, and some commodity groups contact us directly for data that they submit to other foreign bodies like Korea, Japan, and the European Union. Many countries recognize Codex, so that is going a long way in addressing some of the issues, but it is a very fluid situation.

**Can you talk about how increasing Codex Alimentarius Maximum Residue Limits (MRL) for Minor Use is benefiting the U.S. and other countries?**

Kunkel: Many countries default to Codex (or incorporate those standards) so we try to use our data or dovetail with the [crop protection] companies when they submit their data to Codex. The more Codex MRLs we get with countries defaulting to Codex, that gives our growers more markets they can sell to.

It would be nice if more countries would default to

Codex. I have to say that personally because the U.S. doesn't default to Codex. The U.S. tries to do everything it can to match Codex MRLs, but it is not that easy.

Why? A lot of it has to do with delays. We can't wait for Codex to set an MRL before we set ours, so we usually set ours first and then Codex sets theirs. Over the past year, the agency has been working really hard to harmonize MRLs. Let's say we set an MRL in the U.S. and then Codex sets its MRL. When EPA has another action on that chemical, that is when to harmonize the MRLs with Codex.

There are some pilot projects at Codex that hopefully will allow the organization to get more involved with MRLs at product registration. Currently, a lot of new products are registered in a global joint review process. If Codex can participate in that, it will help to solve those issues of disparaging MRLs.

**Is the trade barrier situation improving?**

Kunkel: It is getting better but it remains fluid and it remains very complicated. I say that because we continue to have countries that have their own list of pesticides, they call it their 'positive list,' which means it is the list of products that they feel

are safe, and they list the MRLs they feel are safe for a particular commodity.

So it is those pesticides that they allow on commodities, and this has sometimes been a problem with countries like China, India, and Taiwan. Instead of defaulting to Codex now they are developing their own system.

So there is a lot more happening and it changes sometimes on a daily basis. Even South Korea is moving from Codex to having its own positive list.

### **How is IR-4 continuing to expand participation in global organizations?**

Kunkel: In regard to global organizations, we already participate in the NAFTA technical working group on pesticides. We attend those meetings and we usually participate as a government member, as we are invited by EPA to participate. That is also true for the Organization for Economic Co-operation and Development (OECD) [Editor's Note: The OECD is an international organization that promotes policies that will improve the economic and social well-being of people around the world.] and Codex.

We would like to continue to see expansion of the work that we are already doing so that we can have less concerns about our commodities when they are exported. All the work that IR-4 is doing is just to support the growers and their markets, and

we don't want pesticides to be a trade barrier for them.

### **IR-4 has a strong partnership with the Canadian Agriculture and Agri-Food Canada's minor use program. Can you talk about the Pest Management Center (PMC) and how IR-4 hopes it will be a model for other countries?**

Kunkel: We have been working with Canada since 1996, and then they got significant funding in 2003 that basically allowed them to set up an IR-4 in Canada, which is known as the Pest Management Center. About 20% of our research is seamless where either IR-4 is the sponsor of the study and we have trials in Canada for our U.S. studies, or Canada is a sponsor, and they are running trials in the U.S. And then we submit the data to both EPA and the Pest Management Regulatory Agency in Canada. There are no trade issues with those cooperative projects.

We also work together on a lot of other projects. We go to workshops in Canada where they set priorities, or they come to our workshops where we set priorities so we can dovetail our studies of joint interest together. We have company meetings with Syngenta, BASF, Bayer, Dow AgroSciences, DuPont, and others and Canada joins us on those discussions. I think the companies have realized if they register a product in the U.S. and it isn't registered in Canada, the growers here aren't going to use it because they are not sure

if that commodity can be exported to Canada. Canada is our biggest trade partner for the ag commodities.

### **Can you talk about the importance of the main areas which were identified at the 2012 Global Minor Use Summit?**

Kunkel: We ended up with five themes being covered in February 2012. Those themes are coordination and collaboration, communication, regulatory incentives for registrants to register minor uses, capacity development, and registration of minor uses and MRL setting.

I think most of those areas speak for themselves but as a follow up we have established a steering group. There are a couple of areas that we are looking at for the steering group and they include a data base – a global needs database and a data sharing database. In that area we are organizing a global workshop that will take place in 2015. It will be like the IR-4 workshops.

The other area is capacity development. A lot of that is being done by the USDA Foreign Ag Service, and that organization has been sponsoring a number of workshops, and the three main regions that the capacity development is working on are in Asia, Africa, and Latin America.

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# Global Effort

*continued from page 11*

By working with the countries the USDA Foreign Ag Service has been able to get three World Bank Funds through the Standard Development Trade Facility (SDTF). Through those grants, we hope they will start to develop data generation hubs in those areas, and IR-4 is hoping that we can tap into that research source to not only develop data for U.S. growers, but address needs internationally.

The other main area that the steering group is working on is communication. With communication it involves the Global Minor Use Portal: [www.gmup.org](http://www.gmup.org)

We are communicating a lot through the portal and we are sharing information about upcoming minor use events. On some of the main areas, I'll be posting information on themes that were the outcome of a recent summit.

## When did IR-4 begin incorporating international markets into its work?

Kunkel: Jerry Baron, the executive director of IR-4, started in 1995-96 and we started communications with Canada. We started with NAFTA, and then there was a Canada/U.S. agreement, which evolved into the North American Free Trade Agreement. We participated in a number of OECD symposiums around

2005 and then OECD established an expert working group on minor uses in 2008, where we are a member.

Crop grouping is also a big part of what IR-4 is involved in. We have been updating the U.S. crop groups, but we are also working to update the Codex crop groups, as well.

## What will updating the Codex crop groups entail?

Kunkel: It is using the same system that is used in the U.S. Part of it is a listing of commodities and making sure everyone recognizes them. There is a common name that is recognized by all the countries in Codex but the one thing we are adding that helps with Minor Uses is that you can have representative commodities. So you generate data on the representative commodities but then it allows you tolerances or Maximum Residue Limits on a big group of similar commodities.

So it is kind of like extrapolation but the extrapolation is very well defined and it is within a commodity. So for example, for cucumbers, we would conduct studies on cucumbers, summer squash, and cantaloupe, but then we can also get uses on watermelons, winter squash, and all those other odd things in between. So by doing those three studies we get registrations

and maximum residue limits on between 25 or 30 commodities. It really helps to address the minor use issue, so now we are really hoping that Codex will recognize that as well. And they have, they actually have approved all the fruit types. So all the fruiting crop groups have been updated and Codex also now allows for this extrapolation of crop groups.

Now we are working the vegetable types and some of the other commodities. [Codex] crop groups are a little different than ours, but the fruit types are done and we are going to get vegetables, herbs, and some of the other ones will be finished in the coming years.

## As global markets continue to grow, how will IR-4 involvement grow as well?

Kunkel: We are going to continue to increase where we use our data. To date, we have increased the amount of countries we work with to generate data (especially with Canada), which will provide some cost savings to IR-4 in the long run, but we will probably increase the number of global studies we do.

For example, let's say we do trials on blueberries and that we do eight trials in the U.S. Well, now we may do 15 to 20 trials, but we may do it globally. We will continue to move in that direction — generating data globally instead of nationally. 🌱

# Retirements and Appointments at IR-4

The second quarter of 2013 has been filled with retirements and appointments.

## Retirements

QA Personnel:

At IR-4 HQ, Kathryn Hackett-Fields, has retired and she and her husband have moved to North Carolina. Kathryn worked for IR-4 for more than 15 years. Kathryn has started a consulting business called QualiStat, Inc. where she will provide QA services, training and retreats. Her email is [qualistat@aol.com](mailto:qualistat@aol.com).

Bharti Patel also retired in May. Bharti worked at IR-4 HQ for six years. She and her husband are enjoying their retirement in New Jersey.

Commodity Liaison Committee member from American Nursery & Landscape Association (ANLA) Marc Tefteau, has retired. Marc was the Director of Research and Regulatory Affairs for the ANLA, a Washington, DC-based trade association that represents, through its national grassroots network, over 12,000 firms who grow, sell, install and maintain landscape plants. Marc had been at ANLA since 2004.

Industry supporters, Ken Chisholm, from Nichino and Wynn John from DuPont also retired this year.

## Appointments

IR-4 welcomes Michele Humiston to the Northeast Region QAU. Michele has taken on the duties of Barbara Anderson who retired in 2011. Michele worked for over 15 years in the NE IR-4 laboratory and is very familiar with IR-4 and Good Laboratory Practices. She will be working closely with HQ to perform field audits and review Field Data Books.

Research Analyst, Carolyn Jolly, has joined IR-4 HQ full time. Carolyn was formerly employed at the IR-4 Western Region laboratory and for the last 1.5 years has been at IR-4 HQ as a report writer.

Kathryn Homa, who is in the final stages of completion of her

Master of Science degree program specializing in Plant Pathology, is taking on additional responsibilities as lead biologist in IR-4's plant disease management activities.

Bill Barney will be leading the Biopesticide & Organic Support grants in addition to managing studies and crop grouping projects. 🌱

## Save the Date

XXV International Congress of Entomology  
September 25-30, 2016  
Orlando, Florida  
For more information contact  
Alvin Simmons  
[Alvin.Simmons@ars.usda.gov](mailto:Alvin.Simmons@ars.usda.gov)

### The IR-4 Newsletter Vol 44 No. 3, Summer 2013

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# Public Health Pesticides Program Completes First Five Years

— by Karl Malamud-Roam, IR-4 Public Health Pesticides Program Manager

The IR-4 Public Health Pesticides program completed its first five years of existence in June 2013. Currently, with funding extended through mid-2018, the program is entering a period of expanded activity and growth. In this article we summarize the objectives and some major activities of the program's first years and look forward to key priorities and strategies for the near future.

In June 2008 the IR-4 Project entered into a new five-year cooperative agreement with USDA-ARS to use IR-4 resources and expertise to help enhance the vector control toolbox – the set of pest control products that protect people and animals from arthropod pests that transmit disease or cause major nuisance. Vector control is a classic minor use of pesticides, with a small market that often requires public support for innovation, product development and registration, and the retention of materials facing new data requirements. The overall objective of the new program was to build on IR-4's history of support for minor agricultural pest control markets by facilitating the registration of conventional and biological pesticides (including repellents, attractants, and toxicants) useful



Attractive toxic sugar baits - an innovation in mosquito control, with regulatory support from IR-4.

for vector control. The financial support of ARS allowed IR-4 to establish a new Public Health Pesticides (PHP) program with dedicated staff and access to additional IR-4 resources at HQ and in the regions to support these efforts.

The primary funding supporting the IR-4 PHP program originated in a joint effort of USDA-ARS and the Department of Defense – the Deployed War-Fighter Protection Research Program (DWFP). The DWFP was established in 2004 to develop and validate novel methods to protect United States military personnel deployed abroad from threats posed by disease-carrying insects. Thus, a particular focus of the IR-4 PHP program is enhancing the health and safety of deployed US military personnel by helping translate entomological and chemical research

into vector control products with regulatory approvals for military use anywhere in the world. In addition, the program has been empowered by its funders to broadly support the development, registration, and retention of pest control products for civilian public health and veterinary medicine in the U.S. and globally.

A major objective of the IR-4 PHP program has been to identify underutilized vector control materials. A primary product of the first five years was a new PHP Inventory and Database that uniquely integrates data on specification, regulatory status, and bioactivity

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GLP testing of spray equipment for novel data collection efforts to support mosquitocide registration.



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of over 700 materials with PHP actual or potential use [ir4.rutgers.edu/publichealth.html](http://ir4.rutgers.edu/publichealth.html).

Direct regulatory support for new products is another major objective. The flagship project since the program's inception has been the development of data and models to support all-crop tolerances for the new mosquito adulticide etofenprox. The methods developed during this project are increasingly being used to evaluate drift and deposition of ultra-low-volume (ULV) pesticide applications generally. Another major regulatory support activity has been representing registrants of novel vector control tools including insecticide autodissemination stations, lethal ovitraps, attractive toxic sugar baits, novel botanical vector repellents, and other innovative vector control strategies.

Assisting the retention of registrations for existing vector control tools facing new data requirements has been an important means to ensure an adequate vector control toolbox, and the IR-4 PHP program has been instrumental in collecting usage data, preparing waiver arguments, and structuring joint data collection efforts to help protect key chemicals.

IR-4 PHP program staff routinely participates in World Health Organization panels and other global efforts to foster innovative vector control interventions, and is increasingly recognized as a

key partner in product development efforts. With program funding recently extended through June 2018 by DWFP and ARS, and a new PHP Research Assistant starting work on August 1, the future looks bright for the newest IR-4 program. 🌱

## Events

### Western Region Training Webinars

**November 12:** Using New Technologies for Plot Maps – Stephen Flanagan and Mika Tolson

eQA System Update – Sherita Normington

**December 10:** Year in Review – Field Office

**2013 Food Use Workshop**  
Sept. 17-18, 2013  
Albuquerque, NM

**2013 IR-4 Ornamental Workshop**  
October 8-10, 2013  
Coconut Grove, FL

**PMC meeting 11/5-6/2013**  
**National Research Planning Meeting, 11/6-7/2013**  
Davis, CA



# Call for Proposals

The IR-4 Biopesticide Research Program announces a request for grant proposals for funding of efficacy research in 2014. IR-4 is especially interested in proposals containing biopesticides as resistance management tools rotated with conventional products. While resistance management is an important interest, the proposal must still have a majority focus on biopesticides. Project proposals will be accepted in Early, Advanced and Demonstration stage categories. The total amount of funding available will be around \$400,000. Most successful grants have generally ranged from \$5,000 to \$25,000. The primary objective of the IR-4 Biopesticides Research Program is to further the development and registration of biopesticides for use in pest management systems for specialty crops or for minor uses on major crops. Download applications at <http://bit.ly/biogrant>.

**Proposals will be due  
October 21, 2013**

For questions about proposal format and content contact:  
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## Tolerances

# IR-4 Successes May - July 2013

### Federal Register: May 1, 2013

**Glyphosate Trade Name:** Roundup Ultra, Roundup Weathermax **Crops:** Berry and small fruit group 13-07, Carrot, Citrus fruit group 10-10, Pome fruit group 11-10, Oilseed group 20 except canola, Teff, Bulb vegetable group 3-07, Fruiting vegetable group 8-10 except okra **PR#:** 11014, 01243, 11012, 11013, 06159, 07210, 08672, 10670, 10528, 11010, 11011

### Federal Register: May 15, 2013

**Spirotetramat Trade Name:** Movento, Ultor **Crops:** Globe artichoke, Low growing berry except strawberry subgroup 13-07H, Bushberry subgroup 13-07B, Coffee, Citrus fruit group 10-10, Pome fruit group 11-10, Pineapple, Pomegranate, Taro leaves, Bulb vegetable group 3-07, Fruiting vegetable group 8-10, Watercress **PR#:** 10243, 10198, 10194, 10041, 10929, 10930, 10635, 10113, 10581, 09983, 10942, 10928, 09948

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

### Federal Register: May 22, 2013

**NAA Trade Name:** Fruitone, Tre-Hold **Crops:** Avocado, Mango, Mamey sapote, Rambutan, Pome fruit group 11-10 **PR#:** 09660, 09701, 08666, 10955

### Federal Register: June 5, 2013

**Propamocarb Trade Name:** Previcur **Crops:** Lima bean **PR#:** 07263

**Imidacloprid Trade Name:** Protector **Crops:** Fish, Shellfish **PR#:** 10553

### Federal Register: June 17, 2013

**Fenpyroximate Trade Name:** Akari, Fujimite, Portal **Crops:** Tuberos and corm vegetable subgroup 1C, Stone fruit group 12-12, Small vine-climbing fruit except fuzzy kiwifruit subgroup 13-07F **PR#:** 10173, 10438, 10468, 10469, 11028

### Federal Register: June 19, 2013

**Acetamiprid Trade Name:** Assail **Crops:** Sweet corn **PR#:** 10216

### Federal Register: July 3, 2013

**Ethalfuralin Trade Name:** Sonalan **Crops:** Rapeseed subgroup 20A, Sunflower subgroup 20B **PR#:** 10550

### Federal Register: July 17, 2013

**Hexythiazox Trade Name:** Onager **Crops:** Pepper/Eggplant subgroup 8-10B, Pome fruit group 11-10, Caneberry subgroup 13-07A, Small vine-climbing fruit (except fuzzy kiwifruit) subgroup 13-07E, Low-growing berry subgroup 13-07G **PR#:** 09134, 10961, 10962, 10963, 10964

### Federal Register: July 24, 2013

**Imazosulfuron Trade Name:** V-10142 **Crops:** Tuberos and corm vegetable subgroup 1C, Melon subgroup 9A **PR#:** 09645, 09819

### Federal Register: July 31, 2013

**Trifluralin Trade Name:** Treflan **Crops:** Oilseed group 20 **PR#:** 10749

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