

Look What's Out There

in

Integrated Pest Management

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<http://www.wvu.edu/~agexten>

New Bait Lures Varroa Mite to its Doom

Varroa mites could literally be walking into a trap—thanks to a new attractant developed by Agricultural Research Service (ARS) scientists in Gainesville, Fla. The 1/16-inch long parasite, *Varroa destructor*, is a top pest of honey bees nationwide, hindering the beneficial insects' ability to pollinate almonds, blueberries, apples, zucchini and many other flowering crops. At the ARS Chemistry Research Unit in Gainesville, research leader Peter Teal and colleagues are testing a bait-and-kill approach using sticky boards and natural chemical attractants called semiochemicals. In nature, *Varroa* mites rely on these semiochemicals to locate—and then feed on—the bloodlike hemolymph of both adult honey bees and their brood. Severe infestations can decimate an affected hive within several months—and rob the beekeeper of profits from honey or pollinating services. But in this case, the mites encounter a more heady bouquet of honey bee odors that lure the parasites away from their intended hosts and onto the sticky boards, where they starve. In preliminary tests, 35 to 50 percent of mites dropped off the bees when exposed to the attractants. Free-roving mites found the semiochemicals even more attractive, according to Teal. Moreover, the extra dose of semiochemicals wafting through hives didn't appear to significantly interfere with the honey bees' normal behavior or activity, added Teal who, along with postdoctoral associate Adrian Duehl and University of Florida

collaborator Mark Carroll, reported the results this past January at the 2009 North American Beekeeping Conference in Reno, Nev. The team hopes ARS' patenting of the *Varroa* mite attractants will encourage an industrial partner to develop the technology further. Read more about the research in the July 2009 issue of *Agricultural Research* magazine. ARS is the principal intramural scientific research agency of the U.S. Department of Agriculture.

(By: Jan Suszkiw, *Agricultural Research Service* July 1, 2009)

Secret Ingredient in the Herbicide Roundup Kills Human Cells

(*Beyond Pesticides*, July 1, 2009) Researchers have found that one of the so-called “inert” ingredients in the popular herbicide product Roundup can kill human cells, particularly embryonic, placental and umbilical cord cells. Over 4,000 inert ingredients are approved for use in the U.S. and can be mixed with pesticide “active” ingredients; however these chemicals are not disclosed to consumers or users on pesticide product labels due to EPA’s interpretation (many would say incorrect interpretation) of federal pesticide law. Many inerts are classified as highly toxic, while others have not been adequately studied. About 100 million pounds of Roundup are applied to U.S. farms and lawns every year and until now, most health studies have focused on the safety of

glyphosate the active ingredient in Roundup, rather than the mixture of “inert” ingredients found in the herbicidal product. In this new study, “Glyphosate Formulations Induce Apoptosis and Necrosis in Human Umbilical, Embryonic, and Placental Cells,” researchers found that Roundup’s inert ingredients amplified the toxic effect on human cells—even at concentrations much more diluted than those used on farms and lawns, and which correspond to low levels of residues in food or feed. One specific inert ingredient, polyethoxylated tallowamine, or POEA, was more deadly to human embryonic, placental and umbilical cord cells than the herbicide itself – a finding the researchers call “astonishing.” POEA is a surfactant, or detergent, derived from animal fat. It is added to Roundup and other herbicides to help them penetrate plants’ surfaces, making the weed killer more effective. The researchers compared the formulations (glyphosate with POEA) with glyphosate and POEA alone. All formulations cause total cell death within 24 hours, through an inhibition of the mitochondrial succinate dehydrogenase activity, and necrosis, by release of cytosolic adenylate kinase measuring membrane damage. While glyphosate also damaged cells, the researchers found that POEA changes human cell permeability and amplifies toxicity induced already by glyphosate, through apoptosis and necrosis. POEA alone was more deadly to cells than glyphosate. The study concluded that the work clearly confirms that the adjuvants in Roundup formulations are not biologically or chemically inert. Moreover, the proprietary mixtures available on the market, according to the research, could cause cell damage and even death around residual levels to be expected, especially in food and feed derived from Roundup-treated crops, such as soybeans, alfalfa and corn, or lawns and gardens. The research team also suspects that Roundup might cause pregnancy problems by interfering with hormone production, possibly leading to abnormal fetal development, low birth weights or miscarriages. Monsanto, Roundup’s manufacturer, contends that the methods used in the study do not reflect realistic conditions and that their product, which has been sold since the

1970s, is safe when used as directed. EPA and the U.S. Department of Agriculture both recognize POEA as an inert ingredient. POEA is allowed in products certified organic by the USDA. EPA has concluded that it is not dangerous to public health or the environment. The researchers however, believe that their results highlight the need for health agencies to reconsider the safety of Roundup. “The authorizations for using these Roundup herbicides must now clearly be revised since their toxic effects depend on, and are multiplied by, other compounds used in the mixtures,” said Gilles-Eric Seralini, Ph.D., a University of Caen molecular biologist and lead researcher, wrote. World controversy over the safety of the weed killer continues. In May, an environmental group petitioned Argentina’s Supreme Court, seeking a temporary ban on glyphosate use after an Argentine scientist and local activists reported a high incidence of birth defects and cancers in people living near crop-spraying areas. Scientists there also linked genetic malformations in amphibians to glyphosate. In addition, last year in Sweden, a scientific team found that exposure is a risk factor for people developing non-Hodgkin lymphoma. Inert ingredients are often less scrutinized than active pest-killing ingredients. Since specific herbicide formulations are protected as trade secrets, manufacturers are not required to publicly disclose them. Caroline Cox, research director of the Center for Environmental Health, an Oakland-based environmental organization, says that the term “inert ingredient” is often misleading. EPA classifies all pesticide ingredients that do not harm pests as “inert,” Ms. Cox said. Inert compounds, therefore, are not necessarily biologically or toxicologically harmless. Other inert ingredients have been found to potentially affect human health. Many amplify the effects of active ingredients by helping them penetrate clothing, protective equipment and cell membranes, or by increasing their toxicity. A study recently found that an herbicide formulation containing atrazine caused DNA damage, which can lead to cancer, while atrazine alone did not. For years, scientists and activists have been calling for inert disclosures. In 2006,

the Northwest Coalition for Alternatives to Pesticides, along with Beyond Pesticides and other allies, filed a legal petition challenging the EPA's policy of secrecy on these inert ingredients. The court found that manufacturers are not able to protect inerts as proprietary from competitors, but only keep the ingredients secret from consumers and users. An agency decision on the issue is due this fall. A December 2006 commentary in the National Institute of Environmental Health Sciences' journal *Environmental Health Perspectives* calls for improvements in pesticide regulation and "inert" ingredient disclosure, citing an extensive body of literature illustrating the concern over related human and environmental health effects. In May 2009, the California State Senate's Health Committee passed legislation that requires the disclosure of inert ingredients in pesticides before they are approved for use by state regulators, and that provides public health agencies and emergency responders timely access to complete ingredient lists of aerial pesticides. For more about pesticide ingredients, visit "What's in a Pesticide" by Beyond Pesticides.

(Source: Environmental Health News)

Pesticide News Story: New Pyrethrins and Pyrethroid Information Available

Three new items on EPA's Web site will enhance the public's access to information about pesticides in the pyrethrin/ pyrethroid class of insecticides. These items are 1) a new consolidated Web page on these chemicals, 2) a paper and related fact sheet on the Agency's analysis of whether an association exists between pyrethrin/ pyrethroid exposure and asthma and allergies, and 3) a description of new environmental hazard and general labeling for non-agricultural outdoor use pyrethroid products, including tips for consumers to use in reducing the potential for pesticide runoff and drift. The new items are described further below. EPA's Office of Pesticide Programs (OPP) has launched a new Web site on pyrethrins and pyrethroids. On this site, you can access information about

EPA's reevaluation of these pesticides, assessment of pyrethrin and pyrethroid incidents, and other related topics and issues. Pyrethrins and pyrethroids are insecticides included in over 3,500 registered products, many of which are used widely in and around households, including on pets, in mosquito control, and in agriculture. The use of pyrethrins and pyrethroids has increased during the past decade with the declining use of organophosphate pesticides, which are more acutely toxic to birds and mammals than the pyrethroids. This new Web site is available. Included on this Web site is a new paper on pyrethrin/pyrethroid products and asthma/allergy effects. Differing from previous reviews, this review uses a "weight of the evidence approach" to determine whether there is a clear and consistent association between pyrethrins/pyrethroid exposure and asthma and allergies. From this analysis, the Agency has concluded that there is no clear evidence of an association. For more information on this paper, visit <http://www.epa.gov/oppsrrd1/reevaluation/paw-factsheet.html>. Also included on the new Web site is a page on Environmental Hazard and General Labeling for Pyrethroid Non-Agricultural Outdoor Products. This page describes the revised "Environmental Hazard Statements" and general "Directions for Use" language for pyrethroid pesticide products used in non-agricultural outdoor settings, which affects over 2,000 end-use pyrethroid pesticides. The revised label language will reduce the potential for pesticide runoff and drift of pyrethroid pesticides, ultimately providing better protection to aquatic habitats and the environment. Consumers can begin using these improved practices to protect water resources. Visit the Web site to find out more information on this labeling initiative.

(Source: EPA June 2009)

Pesticide News Story: Green Gardening and Pest Management Tips Available on EPA's Green Scene

EPA's latest Green Scene video podcast features "Green Gardening and Pest Management." The

video highlights ways consumers can control pests in their lawns and gardens using Integrated Pest Management (IPM), an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. The video interview with the Biopesticides & Pollution Prevention Division of the Office of Pesticide Programs is also available in Spanish, and provides tips on how to select a pest management company for the home and garden and how to use pesticides safely. To view the video, visit www.epa.gov. (Go to the "Multimedia" section on the bottom right corner of the page and click on the "play" arrow under the picture).

(Source: EPA June 2009)

New Federal Regulations for Tomato Torrado Virus and Tomato Severe Leaf Curl Virus - United States

The USDA Animal and Plant Health Inspection Service (APHIS) is issuing a Federal Order to prohibit the importation of plants used for planting (not including seed) that are hosts of Tomato torrado virus (ToTV) and *Tomato severe leaf curl virus* (ToSLCV) from all countries, except Canada. To prevent the introduction and dissemination of these harmful plant pathogens into the United States, this Federal Order is effective beginning June 1, 2009. Recent scientific literature identified ToTV as a destructive plant pathogen that seriously reduces plant growth and yields on a number of hosts, including *Solanum lycopersicum* (tomato). Tomato is also host to number of begomoviruses, including ToSLCV, that are quarantine pests for the United States and are major constraints to vegetable production. Both pests appear to be transmitted by and are likely persistent in the whitefly vector that could transmit the virus to a large number of host plants during the growing season. ToTV and ToSLCV are not known to occur in the United States and are not known to be seed-transmitted. Plant pathogens, including viruses and viroids are extremely difficult to detect during a port of entry inspection of the host plants, particularly in the absence of

symptoms. In order to prevent the entry of ToTV and ToSLCV, APHIS has determined that it is necessary to prohibit the importation of *Lycopersicon* spp., *Capsicum* spp., *Solanum* (including *Lycopersicon*) spp., *Chenopodium* spp., *Polygonum* spp., *Atriplex* spp., *Halogetum* spp., *Nicotiana* spp., *Lepidium* (synonyms *Senebiera*, *Coronopus*) spp., *Spergularia* spp., *Amaranthus* spp., and *Malva* spp. plants for planting, with the exception of seed, until a pest risk analysis has been completed and appropriate effective mitigations measures have been established. Under IPPC Standards, Tomato torrado virus is considered to be a pest that is **absent: no pest records** in the United States. Under IPPC Standards, *Tomato severe leaf curl virus* is considered to be a pest that is **absent: no pest records** in the United States.

(Source: NAPPO May 2009)

Pesticide Tolerance Nomenclature Changes; Proposed Technical Amendment

EPA is proposing minor revisions to the terminology of certain commodity terms listed under 40 CFR part 180, subpart C. EPA is proposing this action to establish a uniform listing of commodity terms. Direct your comments to docket ID number EPA-HQ-OPP-2002-0043. EPA's policy is that all comments received will be included in the docket without change and may be made available on-line at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through [regulations.gov](http://www.regulations.gov) or e-mail. The Federal [regulations.gov](http://www.regulations.gov) website is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through [regulations.gov](http://www.regulations.gov), your e-mail address will be automatically captured and included as part of the comment that is placed in

the docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. Comments, identified by docket identification (ID) number EPA-HQ-OPP-2002-0043, must be received on or before July 28, 2009.

(EPA 2009)

Researchers Testing “One-Two Punch” Against Disease-Spreading Thrips

It only takes a few minutes of feeding for thrips to transmit the virus that causes tomato spotted wilt disease (TSW), despite growers' attempts to prevent such assaults with insecticide spraying. But thrips are highly visual insects, and scientists with the Agricultural Research Service (ARS) and University of Florida (UF) are exploiting that dependency to, in effect, camouflage the tomato plants. In field trials, the scientists sprayed the plants with kaolin, a type of powdered clay, and one of three plant essential oils that together reduced the incidence of TSW by 50 percent. According to Stuart Reitz, an entomologist with the ARS Insect Behavior and Biocontrol Research Unit's Tallahassee, Fla., site, kaolin forms a white coat that may interfere with thrips' ability to zero in on color cues during flight. Thrips that do still land on treated plants may find the kaolin coat difficult to penetrate with their juice-sucking mouthparts. This, in turn, may diminish their transmission of the TSW virus, which is present in the insects' saliva. Used alone, kaolin diminished TSW on experimental plots of tomato by 33 percent. Combining it with tea-tree oil, lemongrass oil or geraniol reduced the disease further by 17 percent, reports Reitz. His collaborators are UF plant pathologist Timur Momol and Steve Olson at the university's North Florida Research and Education Center at

Quincy. In northern Florida, commercial growers have scored some success against thrips by using ultraviolet-light-reflective mulches. But for small-operation growers, such mulches may be too costly, leading Reitz and colleagues to explore kaolin and essential oils as less expensive commercial alternatives. Severe outbreaks of thrips and TSW can cause yield losses of 100 percent. Once infected, the plants cannot be cured. But in a complementary approach, the ARS-UF team has begun field testing kaolin and essential oils plus acibenzolar-s-methyl, a commercial product that stimulates natural plant defense mechanisms, potentially containing the TSW virus and limiting its spread. ARS is the principal intramural scientific research agency of the U.S. Department of Agriculture.

(By: Jan Suszkiw, Agricultural Research Service June 15, 2009)

Bee-Killing Parasite's Genome Sequenced

Agricultural Research Service (ARS) scientists have sequenced the genome of an invasive parasite called *Nosema ceranae* that can kill honey bees and is one of the many suspects in the mysterious ailment known as colony collapse disorder (CCD). ARS researchers Jay Evans, Yanping (Judy) Chen and R. Scott Cornman also have nearly completed sequencing the genome of *Nosema apis*, a native "cousin" of the parasite. The scientists are using genetic tools and microscopic analysis at the ARS Bee Research Laboratory (BRL) in Beltsville, Md., to examine the two parasites suspected as a partial cause of CCD. They are working with BRL research leader Jeff Pettis, Yan Zhao of the ARS Molecular Plant Pathology Laboratory in Beltsville, and researchers from the University of Maryland, Columbia University, and 454 Life Sciences of Branford, Conn. In 2006, CCD began devastating commercial beekeeping operations, with some beekeepers reporting losses of up to 90 percent. Researchers believe CCD may be the result of a combination of pathogens, parasites and stress factors, but the

cause remains elusive. At stake are honey bees that add up to \$15 billion in value to crops in the United States. *Nosema* is a fungus-related microbe that produces spores that bees consume when they forage. Infection spreads from the bees' digestive tract to other tissues. Within weeks, colonies are either wiped out or lose much of their strength. *N. apis* was the leading cause of microsporidia infections among domestic bee colonies until recently, when *N. ceranae* jumped from Asian honey bees to the European honey bees used commercially in the United States. Sequencing the genomes should help scientists figure out how *N. ceranae* became dominant, trace its migration patterns, help resolve how the microbes spread infection, and develop diagnostic tests and treatments. A report on the work was recently published in the journal *PLOS Pathogens*. ARS is the principal intramural scientific research agency in the U.S. Department of Agriculture.

(By: Dennis O'Brien, *Agricultural Research Service* June 5, 2009)

Scientists Study Children's Susceptibility to Pesticides, Urge EPA to Act

(*Beyond Pesticides*, June 25, 2009) Although it is known that infants are more susceptible than adults to the toxic effects of pesticides, this increased vulnerability may extend much longer into childhood than expected, according to a new study by researchers at the University of California, Berkeley. Among newborns, levels of paraoxonase 1 (PON1), an enzyme critical to the detoxification of organophosphate pesticides, average one-third or less than those of the babies' mothers. It was thought that PON1 enzyme activity in children approached adult levels by age two, but instead, the UC Berkeley researchers found that the enzyme level remained low in some individuals through age seven. Based upon the findings, reported in the journal *Environmental Health Perspectives*, the study authors recommend that the U.S. Environmental Protection Agency (EPA) re-evaluate the current standards for acceptable levels of pesticide exposure. "Current EPA standards of exposure

for some pesticides assume children are three to five times more susceptible than adults, and for other pesticides the standards assume no difference," said Nina Holland, Ph.D., UC Berkeley adjunct professor of environmental health sciences and senior author of the paper. "Our study is the first to show quantitatively that young children may be more susceptible to certain organophosphate pesticides up to age seven. Our results suggest that the EPA standards need to be re-examined to determine if they are adequately protecting the most vulnerable members of the population." The study, conducted by UC Berkeley's Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS), involves 458 children from an agricultural region who were followed from birth through age seven. Cord blood samples were collected from all children to determine their PON1 genotype and to obtain baseline measures of the enzyme's activity level. For more than 100 of the children in the study, researchers were able to obtain at least four additional measurements - at ages one, two, five and seven - of PON1 activity. Almost all the children in the study had 2 to 3 time points assessed, for a total of 1,143 measurements of three types of PON1 enzyme activity. One's PON1 genotypic profile determines how effectively the enzyme can metabolize toxic chemicals. For example, people with two copies of the Q form of the gene - known as a QQ genotype - produce a PON1 enzyme that is less efficient at detoxifying chlorpyrifos oxon, a metabolite of chlorpyrifos, than the enzyme produced by people with two R forms of the gene. Similarly, individuals with two T forms of the PON1 gene on a different part of the chromosome generally have a lower quantity of the enzyme than do those with two C forms of the gene. Previous research led by Dr. Holland found that some of the QQ newborns may be 50 times more susceptible to chlorpyrifos and chlorpyrifos oxon than RR newborns with high PON1 levels, and 130 to 164 times more susceptible than some of the RR adults. Of the children in this latest study, 24 percent had the QQ genotype, and 18 percent had the TT genotype, both of which are associated with

Funding Opportunity

lower activity of the PON1 enzyme. Moreover, 7.5 percent of the children had both QQ and TT genotypes, which is considered an even more vulnerable profile. On average, the quantity of enzyme quadrupled between birth and age 7. The greatest rise in enzyme activity was among children with the RR and CC variants of the PON1 gene, which quickly outpaced the increase in children with the QQ and TT genotypes. The fact that enzyme activity remained low for certain kids with vulnerable genotypes well past age 2 was surprising for the study authors. The researchers are continuing to collect data for these children as they grow older to see if the pesticide susceptibility continues. “In addition to its involvement in the metabolism of pesticides, many studies are now finding that PON1 may play an important role in protecting against oxidative stress, which is linked to diseases from asthma to obesity and cardiovascular disease,” said study lead author Karen Huen, a UC Berkeley Ph.D. student in environmental health sciences. “The children in our study whose genotypes are related to lower PON1 activity may not only be more susceptible to pesticides throughout much of their childhood, they may also be more vulnerable to other common diseases related to oxidative stress.” Notably, other studies have found that PON1 genotypes vary by race and ethnicity, with the Q variants more common among Caucasians, less common among Latinos, and least common among African Americans. The majority of the subjects in this study were Mexican-American. “What’s important about this study is that it shows that young children are potentially susceptible to certain organophosphates for a longer period of time than previously thought,” said Brenda Eskenazi, Ph.D., UC Berkeley professor of epidemiology and director of CHAMACOS and the Center for Children’s Environmental Health Research. “Policymakers need to consider these vulnerable populations when establishing acceptable levels of exposure to different pesticides.”

(Source: University of California, Berkeley)

- Agriculture and Food Research Initiative Competitive Grants (general program announcement). This is a Program Announcement (PA) for the Agriculture and Food Research Initiative (AFRI). AFRI combines elements of the former National Research Initiative (NRI) and Initiative for Future Agriculture and Food Systems (IFAFS) programs and is the new core competitive grant program for research, education, and extension. It is anticipated that the complete Request for Applications, which will contain the application submission instructions and be accompanied by required application forms, will be made available in early 2009 on the CSREES Web site and the Grants.gov Web site. This AFRI PA contains opportunities for support of research, education, and extension priorities. This PA is being released prior to the passage of the Fiscal Year (FY) 2009 Agricultural Appropriations Act. The release of this PA is to inform the applicant community of upcoming research, education, and extension opportunities through the AFRI program to fund issues critical to agriculture. The enactment of the FY 2009 Appropriations Act may impact the overall level of funding for the AFRI program. Hence, the Cooperative State Research, Education, and Extension Service (CSREES) reserves the right to amend, delete, or otherwise alter any programs. Depending on the FY 2009 Appropriations Act, CSREES may be issuing a supplemental RFA to address topics already identified in this PA. **Deadline: ??????** Updated information about the AFRI program will be made available on the AFRI Web site: <http://www.csrees.usda.gov/funding/afri/afri.html> and the CSREES funding page <http://www.csrees.usda.gov/fo/funding.cfm>
- USDA - CSREES – AFRI. Rapid Response Food and Agricultural Science for Emergency Issues. This program provides a mechanism to quickly provide the science necessary to more effectively respond to important emerging issues vital to agriculture, food science and

related natural and human resources. Considerable effort in working with stakeholders goes into structuring the programs and priorities for the Agriculture and Food Research Initiative (AFRI) Request for Applications (RFA) across the six emphasis areas. However, as time moves on there are emerging issues in agriculture and food science that are so critically important that a rapid response before the next AFRI RFA release is justified. This program is designed to meet that need. **Deadline: July 30, 2009.** For more information:
<http://www.csrees.usda.gov/fo/rapidresponseafri.cfm>

- Northeastern IPM Center - Vegetable IPM Working Group: Vegetable and Strawberry IPM Travel Grants. Would you like to visit another state to see the field work that is being done in Vegetable or Strawberry IPM? Do you wish you had funds to get to a twilight meeting, field day, or spend a few days with a colleague in another state in the Northeast or another region? The Northeast Vegetable IPM Working Group, funded by the Northeastern IPM Center, offers IPM Travel Grants that will pay up to \$800 for qualified expenses to help agricultural professionals in the Northeast learn about and share integrated pest management practices in vegetables and strawberries. The application process is simple. Write an application letter and state your work or job, how your travel will help you learn about IPM and how you will share what you learn with growers back at home. Funds are available for agriculture professionals in the private sector as well as those who work for public universities. For complete information on how to apply, see the Request for Applications at the following link:
http://northeastipm.org/work_vegtravelgrants.cfm

Don't Forget to Take Advantage of Online First Detector Training

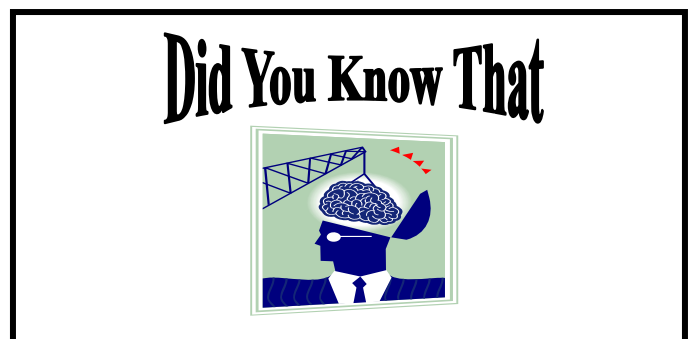
The National Plant Diagnostic Network (NPDN) is pleased to announce that the Online First

Detector Training modules are up and running and can be found at: <http://cbc.at.ufl.edu/>. The site allows anyone to participate in the First Detector Program. The course is composed of several modules, and includes topics such as:

- The NPDN Mission
- Agricultural Biosecurity
- Purpose of a First Detector
- Monitoring for Exotic Pests
- How to Submit a Suspicious Sample
- The Art and Science of Plant Pest Diagnostics
- And more....

Each module takes anywhere from 40 to 60 minutes and the course can be completed at your own pace. To get started, first register for the First Detector Training Workshops to get your user name and password.

The general goal of the program is to get the public involved in protecting our plant related industries and our natural plant resources from being impacted by exotic and potentially damaging plant pests be they insects, weeds or pathogens. Upon completion of the training, First Detectors receive a certificate of training completion. Trained First Detectors are also provided with the opportunity to receive the national NPDN First Detector newsletter as well as pest alerts via e-mail through the National First Detector registry. For more information, go to <http://cbc.at.ufl.edu/> or contact Dr. John Baniecki at: John.Baniecki@mail.wvu.edu.



There are diagnostic kits available for easy field detection of pathogens

Several organizations provide quick and easy diagnostic kits for viral, bacterial, and fungal plant

pathogens. Hydros Inc., EnviroLogix, Agdia Inc., and the USDA Agricultural Research Service are a few organizations that may be contacted for kits applicable to garden and crop plants. These kits utilize biochemical features to detect plant pathogens and can easily be used and interpreted by most anyone. There are numerous variations, but the key feature is pathogen detection through color changes on a test strip or some kind of test material, much like pH test or drug screening kits.

Events



Soil and Water Conservation Society 2009 Annual Conference

July 11-15, 2009, Dearborn, MI

For information:

http://www.swcs.org/en/conferences/2009_annual_conference/program_committee/

5th National Small Farm Conference September 15-17, 2009 Springfield, Illinois

For information contact: Deborah Cavanaugh-Grant, Conference Chair Extension Specialist, Small Farm and Sustainable Agriculture University of Illinois Extension SARE Coordinator

P.O. Box 410
Greenview, IL 62642
217-968-5512
cvnghgrn@illinois.edu

2009 USDA/IR-4 Food Use Workshop September 15-16, 2009, Cleveland OH

For information contact:

Cheryl Ferrazoli at ferrazoli@aesop.rutgers.edu or call 732.932.9575 ext.4601

Or visit:

<http://ir4.rutgers.edu/FoodUse/FUWorkshop/index.html>

2009 IR-4 Ornamental Horticulture Workshop October 6-8, 2009, Cleveland OH

For information contact:

Edith Lurvey at 315-787-2308

Or visit:

http://northeastipm.org/ipm_news_popover.cfm?id=4039

USDA/CSREES Grantsmanship Workshops November 10-11, 2009, Kansas City, MO November 18-19, 2009, Washington, D.C.

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10th Annual Pesticide Stewardship Conference

February 21-24, 2010, Savannah, Georgia

For information:

<http://tpsalliance.org/conference/Introduction.htm>

Questions?

If you have any comments or questions regarding any of the material presented, please let us know by sending an e-mail to:

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