

# Look What's Out There

in

## Integrated Pest Management

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

### Root-Eating Insects Controlled by Fungus

Controlling root-eating insects is very important in the nursery industry. The insects that feed on roots cost nurseries millions of dollars every year. Scientists from the Agricultural Research Service (ARS) in Corvallis, Ore., have been working on new ways to use fungal spores as a biological control of the black vine weevil and other root-eating nursery pests. Many biological control agents are expensive and ineffective against root-eating larvae, but entomopathogenic fungi—those that cause diseases in insects—have proved successful. The traditional method for control involves applying large amounts of entomopathogenic fungi to the soil in which at-risk plants grow. This approach is both costly and inefficient. ARS entomologist Denny Bruck has discovered that using plant roots as an underground "delivery system" for the fungi is cheaper and more effective than broad distribution. Bruck and his colleagues in the Corvallis-based ARS Horticultural Crops Research Unit tested several fungal strains and found that some of them thrived in the area immediately surrounding a plant's roots, up to 10 times denser there than in the surrounding bulk soil in some cases. After dipping plant roots in solutions containing spores of *Metarhizium anisopliae*, a fungus that occurs naturally in fields but not in container-grown plants, they observed that black vine weevil larvae died after eating the fungus-treated roots. Dipping roots in

entomopathogenic fungal solutions may prove to be economical and efficient, because growers would only need to treat that specific area. Perfecting a fungal solution to root-eating pests could potentially save the nursery industry millions of dollars every year.

*(By Laura McGinnis, USDA ARS August 2007)*

### Plum Trees Resistant to the Plum Pox Virus

The plum pox virus (PPV) causes a devastating disease on stone fruit. Since its introduction in to Pennsylvania in 1999, the U.S. Department of Agriculture (USDA) has taken steps to prevent its spread and establishment. Up until now the only effective control method has been to destroy trees within and adjacent to outbreaks of the virus at a great cost to commercial orchards and homeowners. The USDA's Agricultural Research Service (ARS) has been working on developing plum trees that are resistant to PPV and now another way to combat this disease may be soon available. The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS), which has regulatory authority over genetically engineered organisms, recently "deregulated" the PPV-resistant plum tree named HoneySweet. This means APHIS had determined that the tree is not a plant pest and that it will have no significant impact on other plants. Deregulated products have a history of safe use in U.S. agriculture. APHIS has overseen the

deregulation of more than 70 genetically engineered plants, including corn, cotton, rapeseed (canola), soybean, flax, sugar beet and squash. In September 1996, papaya became the first genetically engineered tree to be deregulated. ARS is now taking the next step in HoneySweet's development, which is for cooperators such as universities to plant small quantities of the trees to study how they grow under a variety of conditions, a process commonly undertaken for new varieties. While HoneySweet itself produces high-quality fruit of commercial standard, it may also be used as breeding stock to introduce PPV resistance into other plum breeding lines for future variety development. Fruit from HoneySweet or its progeny will not be eaten or sold without further regulatory approval by the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency. With this effort, ARS has taken the proactive step of developing a PPV-resistant tree and doing the testing required to allow genetically engineered trees to become available before plum pox precipitates a crisis in this country. More information about the HoneySweet plum tree can be found at <http://www.ars.usda.gov/is/br/plumpox/>.

*(By Kim Kaplan, USDA ARS July 2007)*

### **Pilot Project to Test New Technology for Reducing Pesticide Spray Drift**

The Environmental Protection Agency (EPA) has announced that it is seeking vendors of pesticide application technology to participate in a pilot project to validate protocols for testing the effectiveness of technology for reducing pesticide spray drift (drift reducing technology or DRT). Interested persons should respond to EPA by September 11, 2007. After the test protocols have been validated, vendors of DRT will have the opportunity to participate in an industry-funded Environmental Technology Verification (ETV) program conducted with EPA. The purpose of this program is to verify the risk-reduction potential of the tested technologies. EPA included this project in the ETV program because DRTs have the potential to reduce

pesticide risks to humans and the environment by reducing pesticide exposure to non-target organisms. A description of this project is available on EPA's website at <http://www.epa.gov/etv/este/600etv06036.pdf> For further information about the pilot project, please contact Vivian Prunier ([prunier.vivian@epa.gov](mailto:prunier.vivian@epa.gov); 703-308-9341) in the Office of Pesticide Programs or Michael Kosusko ([kosusko.mike@epa.gov](mailto:kosusko.mike@epa.gov); 919-541-2734341) in the Office of Research and Development.

*(EPA August 2007)*

### **Teleconference Dealing with Pest Management and Pesticide Issues**

On June 29<sup>th</sup>, university scientists carrying out integrated pest management activities, West Virginia University Extension agents, state regulatory personnel, a representative from Unites States Department of Agriculture, a representative from an environmental concerns group, and a West Virginia University certified nutritionist participated in a conference call dealing with pest management and pesticide issues in West Virginia. Twenty individuals from across West Virginia participated in the discussion dealing with pesticide availability and registration, management strategies, and access to new management methods. A number of issues were brought up. One such issue was the misuse of pesticides by individuals not qualified to apply pesticides. An example cited was home owner use of pesticides for professional use only. If a pesticide is restricted use, it is labeled so. Brought out in discussion was the fact that there is a lot of misunderstanding with the "commercial use only" pesticide. If it is not restricted use, then it is available for use. The problem goes back to the manufacturer. It was stated that growers and professionals should be aware of the website [www.kellysolutions.wv](http://www.kellysolutions.wv), which lists all pesticides registered in WV and also lists pesticide use restrictions. Other proper pesticide use issues included the continual need for calibration education for pesticide applicators.

Another issue of concern was that many pesticides registered in other states for use on field and orchard crops need to be registered in West Virginia. For example, the loss of NemaCur as a registered pesticide for treatment of fruit trees may lead to problems with lesion nematodes or dagger nematodes and virus transmission. Research is being conducted on cultural practices for controlling these particular nematodes, but in the mean time there is no good management available.

Many that participated in the call were concerned with resistance management. Persistent weeds are becoming a problem in orchard situations and some weeds are not being controlled by the products available. It is difficult to adapt many of the cultural practices for controlling these problems. Research is needed on products to control persistent perennial weeds without injuring the fruit trees. The availability of herbicide with different modes of action for different crops was emphasized to reduce the chances of resistance build-up among weeds and to increase the number of control options. One specialist later added that West Virginia University Extension Service along with the College of Agriculture and the Natural Resources Conservation Service (NRCS) are engaging themselves into Integrated Pest Management (IPM)-oriented projects for biocontrol of pasture invasives and implementation of a cost-share program in tree fruit IPM. Invasive plants such as autumn olive, multiflora rose, Japanese knotweed, Japanese stilt grass, and kudzu are either established or are encroaching into managed lands. Perennial weeds are a problem in commercial orchards. Yellow nutsedge and other perennial are a problem in small fruits and vegetables. Weed management in organic production is also a concern.

Grower's use of genetically modified corn and correct use to prevent development of resistance was discussed. Mention was made of Roundup ready soybeans, resistant mare's tail and correct use of Bt corn with refuge planting. This past year, 20% of corn sold by a major dealer was Bt

corn and roundup ready was 60-70%. Next year, all but 3 varieties being sold will be Bt corn. There is a need to show growers the economics of using these new pest management strategies. For example, the difference between Bt corn and a non-resistant variety. More education also is needed to show how using pest management methods improperly will lead to pest resistance, such as not planting refuges when planting Bt corn. Non-Bt corn is not required to be sold with Bt corn for a refuge and there is no enforcement of growers to plant the non-Bt corn with Bt corn, so it is important that growers understand the purpose of the refuges.

In organic agriculture, research is needed for organic seed treatments for Pythium and Rhizoctonia. Seed maggots in sweet peas and beans are becoming a problem and need management.

Other research being conducted in West Virginia includes a study by West Virginia State University on tomato grafting for greenhouse and high tunnel production. At West Virginia State University, greenhouse tomatoes are being bred for insect and disease resistance to reduce pesticide use. This illustrates how the greenhouse industry is making a concerted effort to shift towards more sustainable production.

If you would like to comment on any of these issues or if you would like more information on any of the discussed topics send an E-mail to [John.Baniecki@mail.wvu.edu](mailto:John.Baniecki@mail.wvu.edu) or call 304-293-8838.

## **Agricultural and Environmental News**

### **Contact Information for Alfalfa Producers to Determine Proximity to Roundup Ready Alfalfa Fields**

Beginning August 6, 2007, the Animal and Plant Health Inspection Service (APHIS) will begin operating a toll-free telephone number for use by conventional and organic alfalfa farmers and prospective alfalfa farmers to inquire about the

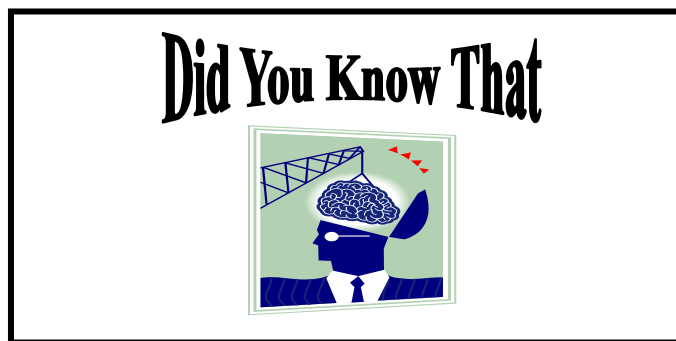
proximity of their farms or fields to Roundup Ready alfalfa. This action is being taken in compliance with a judgment and order by the United States District Court for the Northern District of California in *Geertson Seed Farms, et al. v. Mike Johanns, Secretary of the United States Department of Agriculture, et al.*, Case No. 06-01075.

For further information contact: The toll-free number for alfalfa farmers to request field locations is (866) 724-6408. For all other information, contact Mr. Thomas Sim, Biotechnology Regulatory Services, APHIS, 4700 River Road Unit 147, Riverdale, MD 20737-1236; (301) 734-7324.

### **Determination of Nonregulated Status for Plum Genetically Engineered for Resistance to Plum Pox Virus**

The Animal and Plant Health Inspection Service (APHIS) would like to inform the public that they have determined that a plum line developed by the U.S. Department of Agriculture's Agricultural Research Service, designated as transformation event C5, which has been genetically engineered for resistance to infection by plum pox virus, is no longer considered a regulated article under agency regulations governing the introduction of certain genetically engineered organisms. APHIS made this determination based on evaluation of data submitted by the Agricultural Research Service in their petition for a determination of non-regulated status, an analysis of other scientific data, and comments received from the public in response to a previous notice announcing the availability of the petition and an environmental assessment. This notice also announces the availability of the written determination and the finding of no significant impact. To review the petition, environmental assessment, determination, finding of no significant impact, the comments received on the previous notice, and responses to those comments; go to <http://www.regulations.gov>, click on the "Advanced Search" tab, and select "Docket Search." In the Docket ID field, enter APHIS-2006-0084, then click "Submit." Clicking on

the Docket ID link in the search results page will produce a list of all documents in the docket.



Ants of the genus *Camponotus* are known as carpenter ants because they house their colonies in galleries they excavate in wood. Carpenter ants do not eat the wood they remove during their nest-building activities, but deposit it outside entrances to the colony in small piles. The wood is used solely as a nesting site.

*(Virginia Cooperative Extension, June 1999)*



**September 10-12, 2007**

**Convergence of Genomics and the Land Grant Mission: Emerging Trends in the Application of Genomics in Agricultural Research.** Purdue University, West Lafayette, Indiana. For more information go to: <http://northeastipm.org/ontarget/2006/GenomicsConf1stAnnounce.pdf>

**October 22-26, 2007**

**North American Plant Protection Organization's Annual Meeting**

St. John's Newfoundland and Labrador – Canada.  
For more information go to:  
<http://www.nappo.org/annualmtg/2007/Annualmtg07-e.htm>

**October 28-31 2007**

**13th International Research Conference on Methyl Bromide Alternatives**, San Diego, CA.  
For more information go to <http://www.mbao.org>

**February 10-13 2008**

**International Plant Resistance to Insects Workshop**, Fort Collins, CO. For more information contact Frank Peairs by sending an email to [Frank.Peairs@colostate.edu](mailto:Frank.Peairs@colostate.edu) or by phone at 1-970-491-5945.

**February 11-15 2008**

**4th Hemlock Woolly Adelgid Symposium**  
Harford, CT. For more information send an email to [DSouto@fs.fed.us](mailto:DSouto@fs.fed.us) or call 1-603-868-7717.

**Comments or Questions?**

If you have any comments or questions regarding any of the material presented, please let us know by sending an e-mail to:  
[John.Baniecki@mail.wvu.edu](mailto:John.Baniecki@mail.wvu.edu). Thank you.