

Look What's Out There

in

Integrated Pest Management

John F. Baniecki, Ph.D., Coordinator, Pesticide Safety Education Program
M. Essam Dabaan, Ph.D., Pesticide Safety Education Program
Rakesh S. Chandran, Ph.D. Coordinator, Integrated Pest Management Program
West Virginia University Extension Service.

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UPDATE ON SWEET CORN AND SOYBEAN WEED CONTROL

The herbicide "Callisto" (active ingredient - mesotrione) is now legal to be used on sweet corn. This is a good broad spectrum preemergence product (similar to 'Lumax' in corn, but has no 'Aatrex' or 'Dual'). The variety "Argent" sweet corn may exhibit some injury (bleaching symptoms) but is known to outgrow it eventually. Follow label before use.

Also, the technology for dicamba tolerant GM soybean has been developed at University of Nebraska. Monsanto bought rights to market this technology and is expected to be available to growers in a few years.

"Easy-To-Use Bioassay Spots Varroa Resistance"

"Varroa mites are devastating honey bee parasites that require chemical controls. Since being detected in Florida in the mid-1980s, the mites have firmly entrenched themselves in hives across the country, sorely testing the honey bee's pollination of 100-plus kinds of flowering crops.

Now, state bee inspectors and commercial apiarists have a fast, new way to check Varroa mites for resistance to coumaphos, one of the chemicals used to rid hives of these blood-sucking parasites.

Entomologist Jeffery S. Pettis and colleagues at ARS's Bee Research Laboratory, in Beltsville, Maryland, devised a do-it-yourself bioassay that determines, within 6 hours, whether a hive's mite population is fully resistant, approaching resistance, or still vulnerable to chemical treatment.

Bioassays enable beekeepers to check mite populations before treatment, saving money on control compounds if mites are resistant.

"The bioassay is intentionally low tech," says Pettis. "I wanted something that was user friendly and didn't require specimen shipping or specialized equipment."

The bioassay involves collecting two groups of bees with mites and ushering them into glass canning jars capped with fine-mesh lids. Other materials include index cards that hold strips treated with either coumaphos or fluvalinate. By using two samples of bees, the beekeeper can test for resistance to both compounds simultaneously.

Bees are exposed to the test strips for 6 hours. Then, the jars are inverted and gently tapped to cause dead mites to fall out onto a light-colored surface, where they can be counted. The beekeeper counts any surviving mites by washing them off of the bees in the jar.

Next, the percentage of mites killed by the treatments is calculated. "Mite kills below 50 percent indicate approaching resistance," Pettis says. "Kills below 25 percent generally indicate full resistance."

Pettis verified the bioassay's reliability at commercial apiaries in Maine and Florida and on hives at ARS's Beltsville bee lab.

Mite resistance prompted by continuous use of coumaphos and fluvalinate, Pettis notes, "is forcing beekeepers to adopt integrated pest-management approaches, using selective stocks of honey bees resistant to the mite, other chemicals like formic acid and thymol, and rotation—alternating between coumaphos and fluvalinate."

In some states, Pettis reports, bee inspectors have used the bioassay results to apply for emergency-use exemptions from the U.S. Environmental Protection Agency, which requires documented mite resistance before allowing use of alternative control products.

State inspectors are also using the bioassay to conduct mite surveillance. Says Pettis: "Inspectors want to have a handle on where mite resistance is spreading within a state to give beekeepers a heads-up."— By Jan Suszkiw, Agricultural Research Service Information Staff. (Agricultural Research magazine, April 2005)

Agricultural and Environmental News

- EPA is announcing the results of the second part of its preliminary risk assessment for the wood preservative, pentachlorophenol (PCP or "penta"). This notice announces the availability of documents that were developed as part of EPA's six-phase public participation reregistration process for hexachlorobenzene (HCB) and dioxins/furans, contaminants of PCP. The Federal Register notice for this current action can be found at

<http://www.epa.gov/fedrgstr/EPA-PEST/2005/March/Day-30/p6297.htm> .

The comment period begins on March 30, 2005, and ends on May 31, 2005 (US-EPA, Pesticide News, April 4, 2005).

- The University of Florida reported on March 1, that scientists have found highly contagious soybean rust disease in a field in Pasco County, the first detection of the disease this year, adding, "The most recent detection of soybean rust in Florida is a find February 23 on overwintered foliage of kudzu in Dade City, Pasco County. That is the most southerly find so far in Florida." A spokesman for the American Soybean Association, was quoted as saying, "We anticipated rust was going to be in the South all winter. We knew there would be areas where it would not freeze enough to kill the rust spores." Traders at the Chicago Board of Trade brushed off Florida's finding, saying it was too early to worry about the spread of soybean rust. Planting season for soybeans does not start until May. (Reuters, 3/1/05, via Chemically Speaking, University of Florida).

- As early as this year, China could start commercial production of a new breed of genetically engineered rice, which some say would provide an environmentally friendly answer to the food problems of the world's poor. The Xa21 strain, which was developed through publicly funded international research, is resistant to bacterial blight - one of the most serious crop diseases in Africa and Asia. It is derived from wild rice, and has emerged as the front-runner in the race to be the first GMO rice crop, ahead of insect-resistant Bt-rice. (Reuters, 3/9/05, via Chemically Speaking, University of Florida).

Did You Know That



Strawberries (*Rosaceae fragaria* spp.) were grown on 48 farms on a total of 35 acres in 2002

- The average planting was less than 2.0 acres.
- The average annual production cost is \$750 and \$1,800 to \$3,000, if fumigation is used.
- Most of the crop is sold directly to the consumer. Generally, customers either pick their own strawberries or buy them at roadside stand markets. U-pick prices range from \$1.05 to \$1.33 per pound, while roadside stand prices range from \$2.50-\$3.75 per quart.
- West Virginia's strawberry crop is grown in scattered locations across the state. Most of the Mountain State's strawberry farms are located in Upshur, Monongalia, Mineral, Randolph, Lewis, and Grant counties.