

Look What's Out There

in

Integrated Pest Management

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Bayer Pesticide Plant Explosion Reveals Shaky Safety Record

(*Beyond Pesticides*, September 5, 2008) On the night of August 28, a pesticide waste tank exploded at Bayer's Institute, West Virginia plant. One worker was killed, another injured, and the blast was heard in Mink Shoals, more than ten miles away. Despite individual accounts of the resulting air pollution, Bayer officials assured the public that no chemicals had escaped the plant. An investigation of Bayer's safety history and the area's emergency response reveals a shaky safety record. The tank involved in the explosion contained waste products from the production of Bayer's insecticide, thiodicarb, which is banned in the European Union. Included in those were methyl isobutyl ketone (MIBK), hexane, methomyl, and dimethyl disulfide, all of which are acutely toxic to humans. According to chief of homeland security and emergency response for the state Department of Environmental Protection, Mike Dorsey, "The thing that blew up was the least dangerous of the stuff that's there." Jeannie Young, who lives near the plant, said that following the blast, "My daughter and I have headaches." When taking her dogs outside half an hour following the explosion, "They acted really funny. They wanted to come right back in the house." In spite of a noticeable odor and reactions like Young's, Mr. Dorsey said, "People should not be concerned about coming outside."

In response to the explosion, officials closed Interstate 64, U.S. 60, and state Route 25 and ordered a shelter in place, but a conflicting rumor of an evacuation also circulated. Complicating the issuance of emergency instructions was an initial lack of information from the plant. Kanawha County Commission president Kent Carper said, "We are getting such poor information from the plant, it's worthless," and County Commissioner Henry Shores said the county relies on advice on chemicals to come from the companies themselves. "We follow their lead really," he said. The Institute plant, formerly owned by Union Carbide, also produces methyl isocyanate (MIC), the chemical involved in the sister plant's deadly leak in Bhopal, India that killed at least 3500 people in December 1984 and is linked to the death and maiming of tens of thousands of people since then. MIC is an intermediate chemical in the production of the insecticide carbaryl (Sevin). The Institute plant currently stores more than four times the amount of MIC than that which leaked in Bhopal. In 1994, then-owner of the plant, Rhone-Poulenc Ag Co., estimated that a worst-case leak of the MIC stockpile could kill people in a 10-mile radius of the plant. Today, almost 26,000 people live within just three miles of the plant. In the wake of this explosion, teams of inspectors from the Occupational Safety and Health Administration (OSHA) and the federal Chemical Safety Board have arrived to reevaluate Bayer's safety measures. In OSHA's

latest examination, “We found serious issues related to process safety,” said assistant area director Prentice Clay. “There were some significant deficiencies.” Since 2005, OSHA has issued eight serious and two willful citations to Bayer following a plant inspection. Philipp Mimkes, spokesman for the Coalition Against Bayer Dangers (CBG), said, “Bayer managers have often enough downplayed the risks of the Institute plant. Bayer has to make clear which amounts of which substances escaped into the air. We repeat our demand that MIC and phosgene stockpiles at Institute have to be dismantled. The explosion once more shows that the neighborhood of the plant is constantly endangered.” CBG has posted a partial list of accidents at the Institute plant, including a small MIC leak in 1997.

(Sources: CNN, The State Journal, The Charleston Gazette, Huntington News, CBG)

Federal Court Upholds Ban on Genetically Engineered Alfalfa

(*Beyond Pesticides*, September 4, 2008) On September 2, 2008, the U.S. Court of Appeals for the Ninth Circuit upheld a nationwide ban on the planting of genetically-engineered (GE) Roundup Ready alfalfa pending a full Environmental Impact Statement (EIS). The Court determined that the planting of genetically modified alfalfa can result in potentially irreversible harm to organic and conventional varieties of crops, damage to the environment, and economic harm to farmers. *Beyond Pesticides* is a co-plaintiff in the lawsuit. Although the suit (*Geertson Seed Farms, et al. v. Johanns*) was brought against U.S. Department of Agriculture (USDA), Forage Genetics and Monsanto entered into the suit as Defendant-Intervenors. In her opinion, Circuit Judge Mary M. Schroeder held that, “Monsanto and Forage Genetics contend that the District Court disregarded their financial losses, but the district court considered those economic losses and simply concluded that the harm to growers and consumers who wanted non-genetically engineered alfalfa outweighed the financial

hardships to Monsanto and Forage Genetics and their growers.” “This ruling affirms a major victory for consumers, ranchers, organic farmers, and most conventional farmers across the country,” said Andrew Kimbrell, executive director of the Center for Food Safety, lead plaintiff and counsel in the lawsuit. “Roundup Ready Alfalfa represents a very real threat to farmers’ livelihoods and the environment; the judge rightly dismissed Monsanto’s claims that their bottom line should come before the rights of the public and America’s farmers. This ruling is a turning point in the regulation of biotech crops in this country.” The decision upholds U.S. District Court Judge Charles Breyer’s May 2007 ruling, in which he found that the USDA failed to address concerns that Roundup Ready alfalfa will contaminate conventional and organic alfalfa. Judge Breyer specifically noted that Monsanto’s fear of lost sales “does not outweigh the potential irreparable damage to the environment.” Judge Schroeder’s decision affirms that USDA violated national environmental laws by approving GE alfalfa without a full Environmental Impact Statement. It also affirms that USDA failed to address the problem of Roundup-resistant “superweeds” that could follow commercial planting of GE alfalfa. In addition to *Beyond Pesticides*, the Center for Food Safety represented the following co-plaintiffs and itself in the suit: Western Organization of Resource Councils, National Family Farm Coalition, Sierra Club, Cornucopia Institute, Dakota Resource Council, Trask Family Seeds, and Geertson Seed Farms. For more information on the lawsuit, please visit the Center for Food Safety website. For more information on GE alfalfa and other GE food issues, see *Beyond Pesticides* GE Food and Organic Food program pages, as well as past news articles in *Beyond Pesticides*’ Daily News Blog archives.

Wood Preservative Contaminant Linked to Childhood Obesity

(*Beyond Pesticides*, August 25, 2008) A recent study by Spanish researchers has found a connection between an increased risk of

childhood obesity and exposure to the organochlorine pesticide and contaminant hexachlorobenzene (HCB) before birth. Entitled “Exposure to hexachlorobenzene during pregnancy increases the risk of overweight in children aged 6 years,” the article was published online by *Acta Paediatrica* at the end of July. Found as a contaminant in the wood preservative pentachlorophenol, widely used in the U.S., HCB is extremely persistent in the environment. The Environmental Protection Agency (EPA) says it “has been listed as a pollutant of concern to EPA’s Great Waters Program due to its persistence in the environment, potential to bioaccumulate, and toxicity to humans and the environment.” Researchers studied 405 infants in Menorca, Spain. They measured persistent organic pollutants (HCB, PCBs, p,p’-DDE, and p,p’-DDT) in their cord blood and then measured each child’s height and weight at 6.5 years of age. “Overweight” was defined as the 85 percentile or higher on the US National Center for Health Statistics/WHO reference body mass index (BMI). They also took into account information about the mothers, such as age, education, socio-economic status, smoking, alcohol use, weight, and diet. All 405 children studied had contaminants in their cord blood. P,p’-DDE averaged the highest level, and p,p’-DDT had the lowest. The median level of HCB was third-highest, at 0.68 ng/mL. The children in the group with highest HCB exposure also had the highest exposure to the other organochlorines, and their mothers were older and had higher BMI. The children in this group also had the highest BMI. After sorting factors like the mother’s weight during pregnancy, HCB exposure related to obesity remained significant. Children with higher exposure had a 1.7 risk of being overweight compared to the low exposure group, and a risk of 2 for obesity. The researchers concluded, “The prevalence of obesity has increased at an alarming level of at least 300 million people worldwide. Additionally, other diseases like diabetes will increase in prevalence as well. Protection for this possible diabetes epidemic is needed. The risk on increased BMI at a young age, caused by prenatal exposure to OCs like HCB, has to be

minimized. Therefore, it is important that pregnant women are informed about the possible effects on prenatal exposure to HCB on the BMI of the child later in life.” HCB has also been linked to non-hodgkins lymphoma and behavioral disorders. EPA’s fact sheet on HCB lists a variety of health effects, as well as possible sources of exposure.

(*Source:* Environmental Health News)

ARS and Seed Company Examine Commercial Potential of Ethanol Coproduct

Studies by Agricultural Research Service (ARS) scientists have shown that dried distiller's grains (DDGs)—co-products of corn ethanol production—have potential as an organic fertilizer and for weed control. But some ethanol producers are adopting new corn-grinding methods that may affect the DDGs' usefulness. To further study DDGs, ARS plant physiologist Steve Vaughn and colleagues entered into a one-year cooperative research and development agreement (CRADA) with Summit Seed, Inc., a Manteno, Ill.-based company specializing in turfgrass production. America's ethanol industry generates an estimated 10 million to 14 million metric tons of DDGs annually from both wet and dry milling of corn, processes that yield fermentable sugars for conversion into fuel alcohol. About 75 percent of the DDGs are fed to livestock. But since 2005, Vaughn has led a team at the ARS National Center for Agricultural Utilization Research (NCAUR) in Peoria, Ill., to develop new, value-added uses for DDGs. In greenhouse and field studies, Vaughn showed that the DDGs can be used as an organic fertilizer for tomatoes and other crops. Indeed, in 2007, DDG-treated plots of Roma tomatoes yielded 226 total pounds of fruit, versus 149 pounds from untreated plants. And in turf-grass trials, the DDGs stopped annual bluegrass and other weed seeds from germinating in stands of Kentucky bluegrass. But now, with more ethanol plants using dry-grinding methods, the DDGs, germ and fiber fractions are generated before—rather than after—corn sugars are fermented into ethanol. Determining how this new practice

changes the DDGs' biochemical and physical properties is a chief focus of ARS' CRADA with Summit Seed. Vaughn's ARS colleagues are Jill Winkler, Kathy Rennick, Fred Eller, Mark Berhow and Brent Tisserat—all with NCAUR in Peoria—and Rick Boydston and Hal Collins, both with ARS in Prosser, Wash.

(By Jan Suszkiw, *Agricultural Research Service* July 10, 2008)

New Crop Model Should Speed Resistance to Wheat Diseases

An Agricultural Research Service (ARS) scientist's work with a wild grass could help breeders to more quickly develop wheat that's resistant to key diseases. David Garvin, a plant geneticist at the ARS Plant Science Research Unit in St. Paul, Minn., was perhaps the first scientist in the United States to work on the small grass *Brachypodium distachyon* as a model species for cereal crops. Garvin can produce seed in less than two months with some of his *Brachypodium* genetic stocks. That's important because it reduces the time required to perform experiments that may lead to improved resistance of wheat, barley and other related cereal crops to major diseases like rusts. Rusts are the most common wheat diseases in the United States and worldwide, causing yearly losses in all wheat market classes. New races of these diseases continually appear in the United States, overcoming the resistance that breeders build and re-build continually into wheat varieties. His work attracted the attention of John Vogel, the first scientist to see the potential of using *Brachypodium* as a model for improving grasses like switchgrass for biofuel use. Vogel is a geneticist at the ARS Western Regional Research Center in Albany, Calif. Together with their ARS colleagues, this team made ARS a leader in getting *Brachypodium* adopted worldwide as a model for grass research. Seeds of Garvin's genetic stocks have been shared with research scientists in 25 states and 20 countries. Garvin has also developed populations of *Brachypodium* that are being used to create the first genetic maps of *Brachypodium*. ARS has given scientists

worldwide free access to not only the seeds but also to genes and a draft sequence of the entire *Brachypodium* genome. This has contributed greatly to the adoption of *Brachypodium* by plant researchers worldwide as a model grass just a few years since it emerged from obscurity. Read more about the research in the September 2008 issue of *Agricultural Research* magazine.

(By Don Comis, *Agricultural Research Service* September 8, 2008)

Tracking and Taming a Tomato Virus

A tomato that can stand up to attack by a damaging virus in greenhouse production systems is being developed by an Agricultural Research Service (ARS) scientist. ARS plant pathologist Kai-Shu Ling is studying the origins and evolution of Pepino mosaic virus (PepMV), which can damage tomato fruit, stunt growth and leave the plant vulnerable to other infections. It's important to find tomatoes that resist the virus in the greenhouse. In 2006, some 652,000 metric tons of greenhouse tomatoes were produced in North America. Two PepMV strains that infect tomato plants in the United States show a distinct genetic divergence from strains that infect tomato plants in Europe. Ling, who works at the ARS U.S. Vegetable Laboratory in Charleston, S.C., studied the genetic makeup of some PepMV strains found in South America, where the virus was first found. He wanted to see if he could tease out the relationships between the PepMV strains found in Europe, South America and the United States. When Ling examined the makeup of U.S. PepMV strains, he observed a strong similarity to the South American strains. One U.S. strain exhibited almost 99 percent of the same DNA sequence as a South American strain. Another U.S. strain shared almost 91 percent of its genetic traits with a different South American strain. However, European strains only shared from 78 percent to 86 percent of the genetic characteristics found in South American strains. Ling also identified three varieties of wild tomatoes with a range of genetic resistance to PepMV. He used the most robust of these varieties to generate new progeny that remained

symptom-free after they were exposed to PepMV strains found in South America. Ling will now use this symptom-free variety to see if he can create a tomato plant with genetic resistance to two U.S. PepMV strains. If he succeeds, he will try to develop a tomato type that has a more general resistance to the European strain of PepMV. Read more about this research in the September 2008 issue of *Agricultural Research* magazine.

(By Ann Perry, *Agricultural Research Service* September 5, 2008)

YET ANOTHER REMINDER! Online First Detector Training

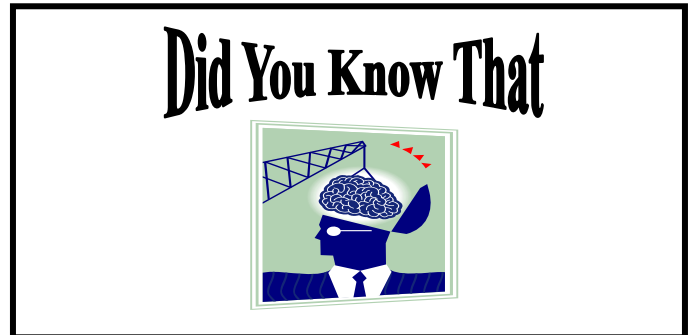
The National Plant Diagnostic Network (NPDN) is pleased to announce that the Online First Detector Training modules are up and running and can be found at: <http://cbc.at.ufl.edu/>. The site allows anyone to participate in the First Detector Program. The course is composed of several modules, and includes 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.



Movement of firewood, any woody material, or even automobiles and mobile/motor homes may transport ornamental pests or pathogens from state to state. Wood boring and fungus vectoring insects live or reproduce in woody material, and defoliating insects often lay eggs on buildings (including mobile homes) or vehicles. Therefore, firewood, wood products, and mobile homes should not be moved haphazardly across state lines. You also may want to inspect your vehicle when traveling to avoid transporting ornamental pests and pathogens.



September 15–17 (Terrestrial) and September 18 (Aquatics) 2008

Northeastern Weed Science Society Noxious and Invasive Vegetation Management Short Course
Location: Gretna Glen Camp & Retreat Center, Lebanon, PA 17042
Sponsoring State this year is Pennsylvania

September 16 2008 10am – 3pm

IPM Strategies, Compost Tour and Pollinator
Research

Location: Dickinson College Farm, Carlisle,
Cumberland County

October 22-23, 2008

State of the Lakes Ecosystem Conference

Niagara Falls, Ontario

Contact EPA or Environment Canada for info.

Questions?

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any of the material presented, please let us know
by sending an e-mail to:

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