

Look What's Out There

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Pest Spectrum Switch Documented for High-Lectin Potato

An attempt to make potato plants resistant to sap-sucking insects has demonstrated the potential for unexpected results. Since the *B.t.* toxin only deters consumption by lepidopteran species such as butterflies and moths, genetic engineers have been looking at other natural substances to keep insects at bay, such as the proteinaceous lectins found in many plants and seeds. Now a team at the Scottish Crop Research Institute (SCRI) has found that potato plants transformed with lectin genes have lower levels of bitter-tasting chemicals called glycoalkaloids that make plants unpalatable to many mammals and insects. Glycoalkaloid levels in the leaves of the lectin-transformed potatoes dropped by up to 44 percent. This seems to be due to the genetic modification (GM) technique itself, because introducing another type of gene, for another potential insect deterrent called cowpea trypsin inhibitor, also caused glycoalkaloid levels in the plants to drop substantially. The team warns that plants with lower glycoalkaloid levels could be more vulnerable to a range of insect pests, including the potato leafhopper. Additionally, reduced levels of the glycoalkaloid alpha-chaconine actually stimulate the potato aphid to feed.

While the potatoes were only experimental varieties, unexpected side effects have also turned up in commercial GM crops. The stems of a herbicide-resistant soybean were found to crack open in hot climates, for instance. However, unintended effects also occur in traditional breeding programs, points out Howard Davies of the SCRI. He adds that new

techniques should help address the problem. "Technologies are now being developed to measure several hundreds, if not thousands, of metabolites in plants using metabolic profiling procedures." (New Scientist Weekly Newsletter No. 138, 6/1/02).

Pesticide News

- On May 21, the EPA's Reduced Risk Committee granted Nichino America's miticide and insecticide, fenpyroximate, conventional "reduced-risk" status on apples, grapes and cotton. Fenpyroximate is "soft" on beneficial insects and predatory mites and will work with IPM strategies. Resistance management is a problem with mites since there are numbers of generations in a year. Fenpyroximate will add another miticide to the growers set of tools that will allow them to rotate this product with others on the market to control the mites. (USDA OPMP Newest News, 5/27/02).
- The Centers for Disease Control and Prevention is contemplating the grant of a worldwide exclusive license to Aventis Environmental Sciences to control the spread of ticks that vector Lyme disease. This invention prevents the maturation of deer ticks on whitefooted mice by exposing the mice to fipronil as they enter food-baited boxes. (*Federal Register*, 5/21/02).
- The Food and Drug Administration has approved a new animal drug application filed by Schering-Plough Animal Health Corp. The drug is a three-way combination of diclazuril, bacitracin methylene disalicylate, and roxarsone Type A medicated articles to make Type C medicated feeds for broiler chickens. The rule is effective as of 5/16/02. (*Federal Register*, 5/16/02).

- Of more than 1,000 grocery shoppers polled by the Food Marketing Institute in its 2002 "Trends" survey, 64 percent identified "residues from pesticides" and 33 percent named "foods produced by biotechnology" as a "serious health threat." Top concern among a list of 10, however, was "bacteria or germs" and "product tampering" followed by pesticides. Biotechnology ranked number nine on the list followed by irradiation. (CropLife America Spotlight, May 17, 2002).
- Rep. Dennis Kucinich (D-Ohio) introduced his long-anticipated legislative proposals on biotechnology in the form of five bills on May 22. The first is a consumer right-to-know measure to mandate labeling of biotech foods. The second would establish a food safety review regimen for such foods. The third and fourth proposals would offer forms of liability protection to non-biotech growers, and the final bill of the package would unveil "real solutions to world hunger" via "several new initiatives and protections to help developing nations resolve their hunger challenges." (CropLife America Spotlight, 5/31/02).
- The new six-year farm bill was signed by President Bush on May 13, and it contains some important incentive programs aimed at helping farmers: reduce air/water/soil impacts, protect wildlife habitat, and defend farmland from development. Some of the major environmental provisions of the bill include: a conservation security program to reward farmers for applying conservation practices to working land rather than idle land (\$2 billion); an environmental quality incentives program to fund producers who comply with soil/water/air, and wildlife habitat regulations (\$9 billion); a conservation reserve program which provides money to farmers who set aside sensitive lands (\$1.52 billion); a grassland reserve program to protect prairies by purchasing development rights from ranchers (\$254 million); a wetlands reserve program to pay farmers who preserve wetlands (\$1.5 billion); a wildlife habitat incentives program to pay farmers who create and protect wildlife habitat on their property (\$700 million); and a farmland protection program which provides matching funds for states, local governments, and organizations to buy farmers' development rights and prevent sprawl (\$985 million). (USDA OPMP Newest News, 5/27/02).
- On May 31, U.S. officials were cited as saying that Zimbabwe, facing severe food shortages, turned away a U.S. donation of 10,000 tons of corn because it wasn't certified as free from genetic modification. The U.S. Embassy was cited as saying in a statement that the food was diverted instead to neighboring Zambia, Mozambique and Malawi, adding, "Zimbabwe did not waive its requirement that entering commodities must be certified as entirely non-GMO," or not of genetically modified origin. (Wall Street Journal, 5/31/02 via Agnet).
- On June 12, FDACS approved an EUP for Syngenta's product thiamethoxam 25WG for evaluation of its efficacy against subterranean termites, carpenter ants in and around structures, and nuisance pests associated with the perimeter of structures. (FDACS PREC Agenda, 7/11/02)
- Monsanto Company has received an amendment/extension from the EPA for an EUP regarding *B.t.* corn. The crop destruction requirement was dropped to allow for tissue and seed collection, and 9,400 acres of the corn can be planted until February 28, 2003 in multiple states, including Florida. (*Federal Register*, 6/26/02).
- On June 11, DuPont Crop Protection released a statement regarding a decision to phase out its azafenidin (Milestone®) herbicide. The company stated that the decision to discontinue this compound was reached after a thorough project review process that led to the conclusion that slow growth in sales, coupled with production and registration delays, plus increased costs, make it unlikely that the company could deliver a high value offering for users at a competitive price while achieving an adequate return on its investment. The herbicide was slated to become an atrazine replacement in a number of crops, including citrus and sugarcane. (DuPont memo of 6/11/02 to FDACS).
- On June 5, EPA published a final rule to revoke 73 tolerances for residues of the insecticides methyl parathion and ethyl parathion. These pesticides are in the first priority group for tolerance reassessment. The 73 tolerances are revoked because there are no registered uses for methyl parathion or ethyl parathion on these commodities. All uses of ethyl parathion have been canceled. There are 25 remaining crop uses for methyl parathion, and the 29 tolerances associated with these uses are not being revoked. Certain ethyl

- parathion tolerances expire on December 31, 2005. All others are revoked effective September 3, 2002. EPA is amending 40 CFR 180.121 to list only the remaining tolerances for methyl parathion and will create a new section, 40CFR 180.122, to list the tolerances for ethyl parathion that expire on December 31, 2005. EPA believes that affected commodities should have cleared channels of trade before the proposed effective dates of these tolerance revocations. Commodities containing pesticide residues not covered by a tolerance are considered to be adulterated and are subject to seizure. (EPA OPP Update, 6/6/02).
- On June 5, EPA announced the tolerance reassessment decision for propanil. Propanil is a selective post-emergent herbicide registered on rice, barley, oat, and spring wheat to control broadleaf and grass weeds. Propanil is also registered (but not currently marketed) for turf use at commercial sod farms. The Agency's reassessment of dietary risk, including public exposure through food and drinking water indicates that propanil poses no risk concerns; therefore, no risk mitigation is needed and no further actions related to dietary risk are warranted at this time. The Agency will complete a Reregistration Eligibility Decision (RED) document for propanil later in 2002. The RED will address risk to workers and the environment and any additional data requirements. Also, some commodity definitions must be updated. The established tolerances remain in effect until such time as a full reassessment of the cumulative risk from all anilide pesticides, such as propanil, may be needed and completed. (EPA OPP Update, 6/6/02).
 - At the request of Uniroyal Chemical Company, the EPA has granted tolerances for the fungicide triflumizole and metabolites in or on cucurbit vegetables (0.5 ppm), strawberry (2.0 ppm), and sweet/tart cherry (1.5 ppm). (*Federal Register*, 6/12/02).
 - On June 13, the EPA announced the request by Aventis CropScience to delete nonbearing citrus tree from their Mocap® EC (ethoprop, EPA Reg. # 264-458) product label. (*Federal Register*, 6/13/02).
 - On June 13, the EPA announced the request by Universal Cooperatives to delete clover from their Trifluralin 4 EC (EPA Reg. # 1386-609) product label. (*Federal Register*, 6/13/02).
 - The EPA has reviewed existing tolerances for difenzoquat, diquat dibromide, fenbutatin-oxide, linuron, and norflurazon, and considers the 206 associated tolerances reassessed as having met the safety standard under the Federal Food, Drug, and Cosmetic Act. EPA had completed Reregistration Eligibility Decisions (REDs) for these four pesticides in the mid-1990s, prior to enactment of the Food Quality Protection Act of 1996. The Agency must review tolerances and tolerance exemptions that were in effect when FQPA was enacted to ensure that these existing pesticide residue limits for food and feed commodities meet the safety standard brought about by that Act. (EPA OPP Update, 6/19/02 & 7/1/02).
 - An examination of the acute dietary risk of endosulfan has revealed that for certain groups, dietary risks are slightly greater than allowed. Consequently, green bean, pea, summer squash, spinach and tomato are crops for which the use of this material may be deleted. (Endosulfan Task Force release of 6/7/02).
 - On June 4, the EPA's Reduced Risk Committee granted conventional "reduced-risk" status to the miticide, acequinocyl, for use on field ornamentals, pome fruit, citrus, and almonds. This chemical controls two spotted spider mites, European red mites, and citrus red mites on these crops. The major metabolite of acequinocyl inhibits electron transfer by binding at Complex III in the mitochondrion. This is a unique mode of action and the chemical should help with IPM and resistance management. (USDA OPMP Newest News, 7/1/02).