Look What's Out There

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Biotechnology: Future Look

Growers will have new options to control pests, and protesters will have new targets for their ire. Most of the introductions involve genes derived from the soil bacterium *Bacillus thuringiensis* (Bt). Some of the new varieties will be introduced in 2003; others are not ready for the market.

- A new corn variety will have a novel Bt trait toxic to *Agostis ipsilon* (black cutworm), *Spodoptera frugiperda* (fall armyworm), *Diatraea grandiosella* (southwestern corn borer) and *Ostrinia nubilalis* (European corn borer).
- Two or more Bt traits will be "stacked" in a crop plant to control multiple pest insect species or mutations. Industry hopes that stacking will delay or prevent resistance. "Stacked" is just industry jargon for more than one trait added to a single plant.
- A new Bt soybean has been developed for protection against *Anticarsia gemmatalis* (velvetbean caterpillar) and other insect pests.
- Insect toxins and herbicide (glyphosate) resistance traits have been added to the same plant.
- Plants will be engineered to increase the toxicity, specificity and longevity of Bt proteins. In some cases, the toxicity of the protein can be increased more than a thousand-fold, along with greater specificity for the target pest.
- Companies will be engineering plants to induce insecticidal characteristics in just the tissue where insects are feeding.

Monsanto's chief technology officer states that nearly all invertebrate plant pests can be managed with Bt technology. Keep in mind that people once said similar things about DDT. Things are a little different this time; Monsanto has a library of more than 8,000 Bt proteins. Only a handful of them have been introduced so far.

You can read the whole story at this web site: **http://www.agweb.com/pub_get_article.asp?sigcat=farmjournal&pageid=92806**

Even with all these new ideas, we can still safely say "You ain't seen nothin' yet." Industry progress with genetic engineering continues to accelerate, but that news it not all good. The public has not embraced genetically engineered products, and part of the reluctance can be attributed to the pace of change. People are uncomfortable with new technologies until they begin to understand them (or have forgotten about them), and public opinion drives the marketplace. If consumers do not want to buy genetically engineered foods, investments with biotechnology may not pay off as anticipated. Eventually, the public will grow accustomed to this brave new world; but, in my opinion, industry needs to do more to market the advantages of genetic engineering to the public. -- Excerpted with thanks from *Farm Journal,* November, 2002. (IPMnet NEWS #108, December, 2002)

The USDA seized and destroyed 500,00 bushels of soybeans that may have been contaminated with biopharmaceuticals produced by genetically engineered corn.

Reportedly volunteer corn from earlier experiments was discovered in a field of soybeans destined for the food/feed market. The company also destroyed 155 acres of corn that may have cross-pollinated with the volunteer corn.

The company, ProdiGene, did not admit or deny wrongdoing but agreed to pay a civil penalty of $250,000 and reimburse USDA for expenses associated with acquiring and destroying the soybeans. ProdiGene agreed to a $1 million bond and higher compliance standards, including additional approvals before field testing and harvesting genetically modified material. The company will develop a written compliance program with USDA to ensure that its employees, agents, cooperators and managers are aware of and comply with the Plant Protection Act, federal regulations and permit conditions.

The soybeans never reached the human or animal food supply, and different groups are applying their own spin to the situation. The USDA pointed out how the safeguards in place are working to protect human health and the environment. PANUPS, the Union of Concerned Scientists and others say that the incident demonstrates how easily unintended proteins or traits can be introduced into the human food chain.

The Grocery Manufacturers of America expressed concern about producing biopharmaceuticals in food crops. The National Food Processors Association supports mandatory regulatory oversight to prevent contamination and adulteration of the food supply with plant-made pharmaceuticals and industrial compounds not approved for human food or animal feed. Biotechnology companies had issued a self-imposed moratorium on biopharmaceutical testing in major corn states. The moratorium was softened after Iowa lawmakers complained that the policy discriminated against their state. (USDA News Release, 12-06-02; CropChoice news, 12-04-02; PANUPS, 11-22-02; GMA News Release, 11-14-02; NFPA News Release, 11-14-02)

A farmer in France was sentenced to 14 months in prison for destroying two fields of genetically modified crops. Jose Bove is described as a militant sheep farmer (is that an oxymoron?) who is also an anti-globalization activist (I don't see the clear link between biotech and globalization, but, then again, I am not a militant sheep farmer). Bove apparently took exception to fields of genetically modified rice. He had been sentenced to prison in 1999 for destroying a McDonald's restaurant near his sheep farm but he received a presidential pardon. (*South Florida Sun-Sentinel,* 11-20-02)

Pesticide News

* The USDA is considering regulations that could set acceptable levels for presence of biotech plants not approved for commercial sale in crops intended for food or feed. In a Chemical Policy Alert report Nov. 19, a USDA official said FDA and EPA are being asked by the administration to develop guidance for those asking tolerances to be set for such crops. Anticipated rules could allow biotech crops, shown to pose minimal risks to environment, to be planted near conventional crops. Any initiative would update policies related to the Plant Protection Act of 2000 and be based upon recommendations made by the National Research Council in its report "Environmental Effects of Transgenic Plants." The announcement came on the heels of action by APHIS to quarantine a half million bushels of Nebraska soybeans because of possible contamination by experimental biotech corn, and a call by the EPA in November for 155 acres of Iowa corn to be destroyed for much the same concern. The Nebraska situation stemmed from concern that volunteer corn planted on the same plot a year ago was harvested with about 500 bushels of soybeans this fall and commingled with 500,000 bushels of soybean in storage. In Iowa, inspectors are concerned that the biotech variety may have crossbred with conventional corn. (CropLife America *Spotlight*, 11/27/02).