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### New Corn Trait Deregulated in U.S.

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Last week, the USDA [announced the deregulation of a new corn trait](#) from Syngenta Seeds, Inc. This new technology is called Agrisure Viptera and is the industry's first non-crystalline (non-Cry) protein for insect control. Viptera will compliment the corn traits in Agrisure 3000GT and should be commercially available for the 2011 field season. This new trait has already been approved in Mexico and Canada this year.

#### How Cry and Vip proteins work

Both Cry and Vip toxins are insecticidal proteins that were originally found in the bacterium *Bacillus thuringiensis* (Bt), although they are produced during different stages of the Bt life cycle. Genes encoding these proteins have been inserted into corn plants through genetic engineering. Vip and Cry toxins have many similarities, including a narrow range of target pests and virtually no harmful effects on non-target organisms. When a susceptible pest ingests Vip or Cry toxin, either through genetically modified plant material or a foliar application, the food moves into the midgut where the toxins bind to midgut receptors. Both toxins cause the death of cells that line the insect's midgut, which in turn causes the lining of the gut to rupture. Rupturing of the midgut leads to the death of the insect.

#### Target pests for Viptera

The Vip3A protein in Viptera has demonstrated control for a multi-pest complex, including corn earworm, black cutworm, western bean cutworm, dingy cutworm and stalk borers. The Vip3a toxin will be stacked with other Bt traits to protect against addition pests, including corn rootworm (which is targeted by Cry3Aa), European corn borer (which is targeted by Cry1Ab). Additionally, insect control traits will be stacked with glyphosate and glufosinate tolerance to allow for weed control.

#### Agrisure Viptera benefits

Growers can expect better control of secondary pests including corn earworm, black cutworm, dingy cutworm and western bean cutworm. However, corn borer is not affected by Vip3a and will continue to be controlled by Cry1Ab. In addition, Syngenta claims Viptera will reduce insect damage that enables growth of fungal pathogens that produce mycotoxins.

Syngenta is planning many large scale field trials of Agrisure Viptera 3111 throughout the U.S. this year. These stacked traits will be commercially available in elite corn hybrids through NK, Garst and Golden Harvest. Throughout the winter, we were able to see non-ISU entomologists report research using Viptera. Many of the small plot results looked very promising if the target pests were at high densities.

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