

Nature and scientists play game of one-upmanship

By Camille Phillips

When you spray a pesticide to kill the weeds growing around a crop, you run the danger of hurting the crop itself. Unless, that is, your crop is specifically engineered to resist that pesticide.

That's one reason why genetically modified plants have become popular with some farmers: they allow for the use of powerful pesticides which in turn gives them better yields.

Recently, chemical companies have developed two new genetically modified plants: HPPD-resistant soybeans and 2,4 D resistant-soybeans. Like Monsanto's Roundup Ready and Bayer CropScience's LibertyLink, these plants have been genetically engineered to resist specific herbicides, in this case the herbicides HPPD and 2,4 D.

At last week's Pest Management Field Day, scientists at Bradford Research Center in Columbia, Mo. showed trials of these new soybeans. A patchwork of light green weeds and dark green plants dissected by lines of clear earth showed the varied success of different trials. In some spots, patches of light green weeds over-ran the dark green rows of soybeans. In other rows, bare earth stood out starkly around the dark green leaves of the soybean plants.

In his thick Tennessee accent, master's student John Schultz introduced the HPPD-resistant soybean trials, "These are beans that are resistant to herbicides that we normally can't spray on soybeans. So if you were to go out there and spray Balance-Pro pre-emergent on any run-of-the-mill soybeans, it would not look like this. So don't do that."

The crowd, sitting in tarp-covered wagons pulled by tractors, chuckled in response. Balance-Pro is an HPPD herbicide approved for sale on certain crops, like corn. As of now, use of Balance-Pro is not approved for soybeans.

These new genetically modified soybeans have been created, Schultz said, because new herbicides are needed. Weeds are developing a tolerance to the more commonly used herbicides, such as glyphosate. Glyphosate is the active ingredient in Monsanto's Roundup.

Schultz said they are testing HPPD on established weeds such as glyphosate-resistant waterhemp at other locations.

"And in the trials that we have there, the pre-emergent herbicides that we have put down in our HPPD trial have been spectacular, to say the least. It's been a month and a half, and there's still excellent, excellent control in those...So we're on track to have a very good technology with us in 2014, 2015, when these beans are starting to be released onto the market," Schultz said.

But despite the positive trial results, some are wary.

A man from the audience asked whether it was true that weeds were already developing a resistance to HPPD.

“There is some resistance; we should not lose sight of that,” said Dr. Kevin Bradley, the lead researcher on the trials. “There is some resistance to HPPD herbicides in waterhemp in Illinois, Iowa, and I believe even Nebraska now.”

“This is probably not that popular amongst my chemical folks here,” Bradley added, “but most all of these crops are just a bigger Band-Aid. If we abuse them, they will—you will get resistance to them as well.”