INSTITUTE FOR AGRICULTURE AND TRADE POLICY
COMMENTARY

Monsanto's Roundup-Ready crops increasing herbicide use

About Dennis Keeney

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About IATP

Institute for Agriculture and Trade Policy works locally and globally at the intersection of policy and practice to ensure fair and sustainable food, farm and trade systems. IATP is headquartered in Minneapolis, Minnesota with offices in Washington D.C. and Geneva

MINNEAPOLIS, NOVEMBER 1, 2011 - In 2003, at an Integrated Pest Management (IPM) conference in Indianapolis, I presented a paper entitled "GMO's and IPM: are they compatible?" One focus of the discussion centered on the question of whether GMO's will increase or decrease pesticide use over time? I, and others—especially Chuck Benbrook—predicted that over time pesticide use will actually increase as pest resistance develops. I also covered this issue recently in a previous Think Forward blog.

The broad-spectrum herbicide glyphosate (Roundup, until recently manufactured exclusively by Monsanto), when used with corn or soybeans containing a transgenic gene resistant to the effects of the herbicide has provided excellent control of both grass and broadleaved weeds. This permitted more use of no-till and narrow row farming, and increased the acreage that can be managed per farm unit. Thus, it has indirectly contributed to yield and to profits. In short, it has been a major contributor to large-scale industrial agriculture that has decimated the countryside. As Andrew Wargo III, president of the Arkansas Association of Conservation Districts, states in a New York Times article, "It (Roundup) is the single largest threat to production agriculture that we have ever seen."

Chuck Benbrook estimates that it takes about 12–15 years to develop resistance to a pharmaceutical in a general population, which fits the time frame that is occurring for Roundup-resistant weeds (Roundup-Ready soybean was first introduced in 1996). Dr. Mike Owen, the Extension Weed Scientist at Iowa State University, calls this "Darwinian evolution fast forwarded." Owen, in a "Stewardship Tips" fact sheet from ISU Extension, recommended timely weed control, knowing the weed issues in the field, using a pre-followed post herbicide system to control weeds and using full labeled rates of glyphosate. These recommendations were in general ignored. Many publications have been widely available over the years

giving the facts behind the occurrence of resistance. Yet now Roundup resistance is a big problem and growing bigger.

Why? Basically, it was overused and poorly managed.

Benbrook wrote "glyphosate herbicide and genetically engineered corn, soybeans and cotton (are) the most stunning and profitable market success story in the history of the pesticide and seed industry." Dr. Owen points out that while it is logical to blame GMO crops, the real blame lies with the cropping and weed control system that has come out of the Roundup-Ready marketing and promotion efforts, coupled with the convenience and simplicity of the Roundup-based systems. He also faults the aggressive marketing by industry that downplayed the risks involved. And after going off patent, glyphosate prices dropped, encouraging farmers to increase herbicide rates to kill the more resistant weeds. Of course, this only encouraged the weeds to fight back with increased resistance. It has becoming a losing arms race, or what Willard Cochrane called—years ago—the "Technology Treadmill." Chemical companies are delighted with the new business opportunities; now they can revive old chemistry.

The most persistant problems have been seen in only a few weed species. Among these are pigweed (Palmer amaranth), horseweed and giant ragweed. Even though only about 7 to 10 million acres are currently impacted, resistant weeds will spread rapidly as forces such as birds, dirty combines and wind and soil erosion spread resistant weed seeds from field to field.

While Monsanto spent precious years in denial, it now recognizes the problem and realizes that if the effectiveness of glyphosate is diminished, farmers will be reluctant to pay the premium for Roundup-Ready seeds. Recently, Monsanto became aggressive, actually subsidizing the use of alternate herbicides that control the Roundup-resistant weeds in cotton, where the problem first surfaced and is the most severe. In 2010, they began paying farmers to use these alternatives as well as developing crops that have resistance to other herbicides.

The herbicide subsidy program by Monsanto has been extended in 2011 to corn and soybeans. This is admittedly an effort to extend the use of glyphosate, but also likely has a financial return because Monsanto is forming partnerships with chemical companies such as Sumitomo Chemical and Valent that produce the alternatives. Valor, a herbicide made by Monsanto, has also been approved but it is a very toxic herbicide. Warrant is another subsidized herbicide (made by Monsanto) which is particularly effective for pigweed control in soybean.

Of course, these subsidy programs fall back into the old pattern; the overuse of glyphosate has lead to the use of more herbicides and these are more toxic. And while Monsanto and other companies are racing to develop crops resistant to alternate herbicides, no silver bullet has emerged. While farmers might think a new magic herbicide-GMO combination is in the works, it is not likely.

Still with the high and rising demand for soybeans worldwide (The October 28, 2010 Chicago Board of Trade Price was $12.25) growers will be looking for all the ways possible to maintain their current soybean production systems. Industry will benefit but farmers will be paying higher input costs.

As long as the free market reigns supreme and corporations control agriculture's destiny, there will be no way to halt the development of even more pest resistance and more dominance by the chemical/seed industry. Will the loss of the ability to control weeds cripple agriculture's economy? Some think so. And they may be right. Remember, Bt insect control through GMOs has greatly expanded recently. The clock is ticking.