

Superweeds



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In the 1970s, a weed killer was introduced that proved to kill nearly any plant. The weed killer known as Roundup was still safer than many other herbicides as it allowed farmers to do away with harsh chemicals and reduce tilling. But only about 35 years later, study has shown that a certain species of weed which is resistant to roundup has evolved. This has forced farmers to return to the less environmentally safe practices that they abandoned years ago. The first genetically engineered plants were at first praised by the industry as being a panacea due to their resistance to herbicides. But the reality now is that the weeds have become resistant to the herbicides, they have turned into “superweeds”. The consequence has been that other herbicides have to be applied raising production costs. This paper will discuss about superweeds and reasons why the superweeds are increasing in farms in the U. S. The paper will specifically discuss on three main reasons why superweeds are increasing in U. S. Farms.

Superweeds definition

A superweed is defined as a weed that occurs when a hybrid plant is produced as a result of pollen transferred from a crop plant (either GM or non-GM plants) to a related weeds species. The emergence of superweeds has proved to be resistant to herbicides. This has been an issue for farmers planning to plant GM crops. The fact is that the more a single herbicide is used, the chances of weeds evolving are increased. Herbicide resistance here means the ability of the plant to survive and reproduce under a normal lethal dose of herbicide usage. The number of superweeds has been increasing over time and since 1980s, more than 300 types of weeds have evolved (GmoInfo. ie).

In 1996 when GE soybeans (Monsanto “ Round Ready”) began to be grown in the U. S., it was seen as an industrial agriculture of a new kind. The GE soybeans were made resistant to the herbicide Roundup and the system of managing the GE soybeans was easier than the usual herbicide spraying that farmers were accustomed to. It was also a plus to farmers as they needed less herbicide through using GE soybeans. By then, Monsanto claimed that the unique form of action of roundup meant that resistant weeds were unlikely but warned that unwanted plants (weeds) would adapt to the herbicides. This according to them meant an increase in pesticides application and contamination as well. Recent findings in the U. S. have confirmed these fears and in several U. S. states, different species of resistant weeds have emerged. (greenspace, p1).

The first weeds in the U. S. to show resistance were found about 10 years ago in Delaware; these weeds survived Roundup. The situation spread across the U. S and became worse in the south. Farmers now have resorted to walking into the fields with hoes and doing it the traditional way; killing weeds with hoes one by one. The problem has quickly spread across to the Corn Belt and beyond, Roundup has proved ineffective and unrealizable. Roundup is only able to killing at least 10 species of the weeds in some 22 states but unable to eliminate some of these many superweeds. Some of the reasons that are attributed to faster growth and spread of the superweeds is that the superweeds species like the Palmer amaranth and the water hemp grow so fast and big, producing thousands and thousands of seeds making their elimination almost impossible (April, By).

Danish researchers say that some of the genetically engineered plants that are designed to withstand herbicides can pass the new genes to nearby weeds; the weeds in turn will become resistant to chemicals that are meant to wipe them. In a debate over the risks posed by transgenic crops, one of the biggest concerns was that wild relatives have commandeered valuable traits and turned them into superweeds. In the U. S. these weeds spread across the land unchecked. One of the explanations for this is that genes from a crop can persist in a weed for many generations and also that if genes that protect against viral infection slip into wild plants, they pose more danger. Although neither study finds have confirmed all this, they have nevertheless convinced that GM crops may be the reason for increasing number of the superweeds. As a caution, farmers should not hastily go into planting these GM crops. According to Ferber and Kaiser, the reason why these weeds are outlasting competition is that a gene that they acquired is able to help them fend off viral attack (Ferber, D. and Kaiser, J.).

In a report titled transgenic crop trial's gene turns weeds into wimps by David Adam, it reports that in an experiment run at the University of Tennessee, an oil seed rape crop was given genes from the bacterium *Bacillus thuringiensis* enabling it to produce a toxin that repels insects. The GM crop was crossed with a relative brassica rapa and the resulting superweed released into wheat environment. The resulting superweed was then assessed for its ability to compete as a pest. As a control experiment, normal weeds were also released in other fields. The result was that the transgenic weed was far more dominant. One of the researchers asserts that

“weeds have undergone years of selection that make them very good at what they do.” (Adam, D.).

But a document by Milius shows that tests done on sunflowers shows that a gene from GM crops gives a superweed relative in life outdoors. The issue of escaping transgenes haunts some crops than others. For example, the haunt is less on corn and soybeans because they do not have close relative while others like rice, sorghum, strawberries and turf grasses have wild relatives and thus more haunted. The main aim of the project was to show that transgenes add an edge and makes superweeds increase in farms in the U. S. (Milius, S.).

Another reason for the rapid increase of the superweeds in the U. S. is due to introduction of engineered plants, in this case grass, in U. S. markets without government review. The department of agriculture on 1 July, 2011, announced that it had exempted Scotts Miracle-Gro's herbicide resistant Kentucky from the required transgenic tests. The grass is known to be resistant to Roundup. Experts warn that such grass will require more chemicals to be used to wipe it out and as more chemicals are used the more it becomes resistant. Many crops have been engineered to be Roundup resistant and the heavy use of herbicides seems to have fueled evolution of superweeds. (Keim, Brandon).

The centre for food safety has criticized the U. S. department of agriculture for announcing that it will allow unlimited commercial planting of Alfafa, a Monsanto GE Roundup. The executive director for the centre attributed the increase of superweeds to USDA's inability to regulate biotech crops and its

decision based on appeasing some of the companies wanting to benefit from technology (Rise of Superweeds).

Conclusion

The emergence and uncontrolled increase in the number of superweeds in U. S. farms has been pegged mostly on three reasons; continued use of the same herbicide (Roundup), pollination and transgenes. Continued use of herbicides and in this case Roundup has been blamed on making normal weeds acquire resistance and turning weeds to superweeds. Although not yet fully confirmed, biotechnology has been also blamed for transferring some of a plant's qualities to its wild relative making them resistant. The last reason is due to pollination. A relative of the plant can be pollinated by a plant making the resultant a superweed.