Weed Resistance in RR Crops – An update (summary¹)

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There are 21 weed species globally now resistant to the herbicide glyphosate (the active ingredient in Monsanto’s Roundup). Before 1996 no weeds were resistant to glyphosate anywhere on the planet. Two new species have been added to the list since 2010. Resistance in weeds is mainly due to natural evolution, but control problems can also arise when resistant RR “volunteers” come up in other RR crops (eg, due to seed spillage or transfer by birds, etc).

The acceleration of resistance is mainly due to the overuse of glyphosate to control weed in Monsanto’s GM Roundup Ready (RR) soya, cotton and maize.

The worst effected country is the US, where 13 resistant species cover about 4.5 million hectares, mostly in soya, maize and cotton crops. The spread of resistance in Palmer Amaranth in RR cotton has been described by Robert Nichols of Cotton Incorporated as “exponential”, and the weed can only be controlled by hand pulling after it has reached a certain size.

One investment company now cites weed resistance in advice to sell Monsanto shares. Monsanto’s warranty on Roundup does not cover its failure to control resistant weeds. Instead the company has responded to the glyphosate resistance problem by developing a multi-herbicide “platform” using other chemicals to try to kill resistant weeds as they germinate in the soil, just after germinate (burn down) and by “stacking” additional dicamba tolerant genes with RR to allow herbicide mixtures to be sprayed on the growing crop.

Rival companies are seeking to gain from Monsanto’s problems. Dow is introducing GM seeds with tolerance to glyphosate, glufosinate ammonium and 2,4-D tolerance genes (called “Enlist”) so mixtures of weedkillers can be sprayed on the growing crop or rotated in turn. Bayer CropScience is pushing its own glufosinate tolerant GM seeds (called “Ignite”) to be rotated with RR seeds to try to delay resistance developing. Bayer is also running a “Respect the Rotation” campaign, including using coloured flags to mark crops with different tolerances to help ensure only the correct herbicide is used. Ironically they suggest glyphosate tolerant crops be marked with a white flag.

Simple and cheap weed control in RR crops is a thing of the past, and the toxic burden on water, food and the environment will increase as weed control by chemicals becomes more complex. Scientific evidence about the adverse impact of glyphosate/ Roundup on health, the soil, the environment and wildlife is mounting.

US farmers find themselves in a weak position because Monsanto has market control over the supply of seeds and herbicide packages used on RR soya, maize and cotton, which means switching to cheaper non-GM crop varieties is not always possible or straightforward. Monsanto is the “dominant firm”² and is currently subject to Federal Investigations in the US³.

Alternative effective means of weed control based on the agroecological methods do not use chemicals but instead include rotating crops, crop breaks, greater diversity of crops and grazing and mechanical weed control and mulching.

Notes

¹ See GM Freeze briefing Weed Resistance in RR Crops – An update