

ROUNDUP READY SUGARBEET: AN INDUSTRY CHANGING TRAIT. Christy L. Sprague, Associate Professor, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824.

The 2008 growing season marked the initial wide-scale launch of the first ever biotechnology trait in sugarbeet. Roundup Ready (glyphosate-resistant) sugarbeet first developed in the late-1990s has had a slow start to the market. However, now that Roundup Ready sugarbeets are commercially accepted the adoption rate of this technology could surpass all other biotechnology crops. It is estimated that there will be over 90% adoption of this technology in the second year of its commercialization. This technology will lead to wide-spread changes in how growers manage weeds in sugarbeets. Conventional weed management programs commonly consisted of mixing four or five herbicide active ingredients and were applied anywhere from two- to five-times on weeds less than 1-cm tall. Sugarbeet injury and inconsistent weed control were common with many of these programs. When these herbicide programs did not work cultivation and hand-weeding were often used to supplement weed control. The commercialization of Roundup Ready sugarbeet provides growers with an alternative weed management program that is safer to the crop, more consistent, and is truly more flexible in application timings. Glyphosate applications in Roundup Ready sugarbeets should start when weeds are 5-cm in height and subsequent applications are usually when weeds are 10-cm tall. Changes in the intensity of weed control can also lead to major changes in production practices. If cultivation is no longer needed, sugarbeets may be planted in narrower row widths. Because glyphosate is effective on a number of plants including perennials and cover crops there may also be opportunities to plant sugarbeets no-till or in systems that utilize cover crops. Sugarbeets are also intensively managed for diseases and the flexibility in glyphosate application timing may also allow for the use of tank-mixtures with fungicides ultimately saving in trips across the field. However, as with most benefits there are also potential disadvantages to the wide-spread adoption of the technology. Because glyphosate is the main component of the weed control program in Roundup Ready sugarbeet, many of the conventional herbicides currently used for sugarbeet weed control are being discontinued. This leaves sugarbeet growers very few alternatives when glyphosate-resistant weeds develop. This trait is extremely important to sugarbeet growers and needs to be managed to make it sustainable in the future.