

CHRISTY L. SPRAGUE*, Department of Plant, Soil, and Microbial Sciences, Michigan State University, 1066 Bogue Street, East Lansing, MI 48824. **Status of herbicide-resistant weed issues in Michigan sugarbeet**

The evolution of herbicide-resistant, including glyphosate and multiple-resistant, weeds continue to threaten U.S. growers, especially as they move into the sugarbeet production regions of the U.S. The increasing number of glyphosate-resistant weeds and the loss of herbicides that were once used in sugarbeet production will make it more of a challenge for sugarbeet growers to manage these weeds. In Michigan, populations of horseweed (maretail), Palmer amaranth, waterhemp, and more recently common ragweed have been confirmed resistant to glyphosate. In fact, some of these populations are also resistant to the ALS-inhibiting herbicides, making them even more difficult to manage. Over the last several years we have conducted field trials to evaluate several herbicide programs for the management glyphosate-resistant horseweed and Palmer amaranth in sugarbeet. Several different herbicide tank-mixtures and application timings were evaluated for control of these weeds. Control of glyphosate-resistant horseweed was dependent on clopyralid rate and the number of applications. Control of glyphosate-resistant Palmer amaranth was more variable over the years and many times needed multiple applications of the older herbicide, phenmedipham plus desmedipham at a minimum rate of 0.56 kg ai ha⁻¹ with the inclusion of an acetanilide herbicide like acetochlor. Due to the extended emergence patterns for both of these weeds, 100% control in sugarbeet with herbicides alone is likely not possible.