



Developing management strategies for glyphosate/ALS-resistant Palmer amaranth in Michigan corn production systems

**2013 - 2014
Research Report**

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A population of Palmer amaranth resistant to three different herbicide sites of action, Group 9 (glyphosate), Group 2 (ALS-inhibitors), and Group 5 (atrazine) herbicides has been identified in Michigan. A population with this breadth of resistance makes it much more difficult to manage in corn. It also provides the opportunity for greater selection pressure of the Group 27 (HPPD-inhibitors) herbicides that could ultimately lead to the development of a four-way herbicide resistant population. If this occurs Palmer amaranth management in corn would almost be impossible.

Over the past two seasons with funding from the CMPM Dr. Christy Sprague and graduate student Jon Kohrt at Michigan State University have conducted four different field trials examining management strategies for herbicide-resistant Palmer amaranth in corn. Over the two years they have observed variable results, determined that there is a three-way resistant Palmer amaranth population, observed a potential synergism between Group 5 and Group 27 herbicides, and have gained a greater understanding of management strategies for this weed.

A brief summary of results to date:

- Significant crop injury was not an issue with any of the herbicide programs.
- Overall control was greatest when multiple herbicide sites of action were used in the PRE and POST herbicide applications (Table 5).
- None of the herbicide programs provided greater than 90% control at harvest in 2013.
- Group 15 herbicides (i.e., Zidua, Warrant, and metolachlor premixes) helped aid in season-long control when applied POST.
- The addition of atrazine to the HPPD-inhibitors seemed to help improve POST Palmer amaranth control.
- In 2014 several programs provided good control of Palmer amaranth at harvest. However, again it was important to use multiple effective herbicide sites of action.

[Click here](#) to access the full research report for this project.