

Palmer amaranth – what it is and what to do now

What is Palmer amaranth and where is it coming from?

Palmer amaranth is an *Amaranthus* (pigweed) species that has become a devastating glyphosate-resistant weed problem in the South and parts of the Midwest over the past decade. It has caused substantial losses in crop yield and farm income, and a permanent increase in the cost of herbicide programs. Preventing additional Palmer infestations in Ohio is a primary goal of the OSU weed science program, and will require efforts from the entire Ohio agricultural community. There are several mechanisms for the movement of Palmer amaranth into Ohio:

- Movement of equipment from Palmer-infested areas into Ohio
- The presence of Palmer seed in cotton-derived feed products that are transported from the south into Ohio, or in hay from Kansas
- The presence of Palmer seed in cover crop and wildlife seed that originates in areas infested with palmer amaranth, such as Texas and Kansas



What makes Palmer amaranth such a problem?

- Female Palmer plants produce 100,000 to upwards of 500,000 seed
- Broad period of emergence - April to August
- Small seed that is well-adapted to minimum and no-tillage
- Rapid growth – up to 3 inches a day. Postemergence herbicides must be applied when Palmer plants are less than 3 inches tall
- Readily develops herbicide resistance
- Dioecious reproductive system (male and female plants). Obligate outcrossing results in rapid spread of herbicide resistance

Palmer amaranth distribution – late 2018

Most counties shown on the map as “infested” (red square) have only a few populations of Palmer amaranth. In some cases only a few plants were found and the “infestation” has been completely remediated. Palmer is more widespread in several areas:

- Near two dairies along the Madison-Fayette county line
- Wayne County east of Orrville
- Highland County east of Hillsboro
- Preble County
- Eastern Mahoning and Columbiana Counties



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Herbicide resistance in Palmer amaranth

- Most populations of Palmer in Ohio are resistant to glyphosate (group 9) and ALS inhibitors (group 2). Palmer will not be controlled by burndown or postemergence applications of glyphosate alone. The addition of ALS inhibitors such as Classic and Pursuit will not improve control.
- Populations in the South have developed resistance to site 14 herbicides (fomesafen, Cobra, etc), and appear to be developing resistance to glufosinate (Liberty, Cheetah, Interline).
- Diversification of herbicide programs and preventing escapes from going to seed are essential to prevent the development of resistance to additional sites of action – use different sites of action in corn versus soybeans and multiple sites of action in postemergence treatments

Bottom line – steps to take for prevention

- Know what Palmer amaranth looks like and if there is any in the neighborhood.
- When purchasing used equipment, know where it has been previously. Avoid purchase of combines that come from Palmer-infested areas. Know where custom harvesting equipment has been previously.
- Scout recently seeded CREP, wildlife, and similar areas for the presence of Palmer. For any intended seedings of this type, ODA will test seed lots for the presence of Palmer seed. They must pick it up from your operation (do not mail or drop off). Contact ODA for information - 614-728-6410. Seed can also be tested for a fee by the University of Illinois: web.extension.illinois.edu/plantclinic/downloads/herbicide.pdf
- Avoid use of cotton feed products or hay that might contain Palmer amaranth seed - check with feed supplier for more information. When using manure from another animal operation, know whether they are using cotton feed products or hay from Kansas.
- Include residual herbicides in corn and soybean programs to control the early-emerging Palmer plants.
- Scout fields starting in mid July for the presence of Palmer that escaped herbicide programs. Get help with identification if in doubt.
- Plants without mature seed (black) should be pulled out (uprooted) or cut off just below soil and removed from field, and then burned or buried at least a foot deep or composted. Plants with mature seed should be bagged and removed from field.
- Do not run the combine through Palmer patches that are discovered during harvesting.
- Consult OSU and USB Take Action resources for additional information on management of established populations. u.osu.edu/osuweeds/; takeactiononweeds.com

No pigweed left behind 
Go Rogue! Stop the seed



Author: Mark M. Loux, Horticulture and Crop Science, The Ohio State University. Revised 11/18

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