

Tips for Collecting Weed Seeds

Ensure your resistance sample gets tested

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Herbicide resistant weeds are a growing concern for MI growers due to the recent occurrence and spread of glyphosate-resistant horseweed, Palmer amaranth, common waterhemp, common ragweed, and the occasional failure to control common lambsquarters and giant ragweed.

Confirming herbicide resistance in weed populations is the first step of any resistance management program and will provide producers with knowledge to implement best management practices to prevent the spread of these resistant weeds.

Greenhouse bioassays are required to confirm herbicide resistance in weeds, making it vital that mature seed samples are collected and properly packaged for submission to MSU Diagnostic Services.

Table 1. Seed shapes, colors, sizes and locations for common Michigan weeds.

	Seed shape	Seed color at maturity	Seed size	Location on plant
Palmer amaranth, waterhemp	 Round	Dark brown-black	~1 mm	Seedhead at top (FEMALE plants ONLY)
Powell amaranth, redroot pigweed	 Round	Dark brown-black	~1 mm	Seedhead at top (all plants will have seed)
Horseweed/ marestalk	 Oblong	Yellowish-brown	1 mm	End of pappus (fluff)
Common ragweed	 Obovate with points at the end	Brown-gray	3-4 mm	Leaf axils of upper leaves (uppermost part of plant has male flowers only)
Giant ragweed	 Obovate with points at the end	Brown-gray	5-10 mm	Leaf axils of upper leaves (uppermost part of plant has male flowers only)
Common lambsquarters	 Round	Black or brown	1.3 mm	Clusters at the ends of branches

Tips for Collecting Weed Seeds

Palmer amaranth and common waterhemp



Female plant with seeds

Male plants do not have seeds

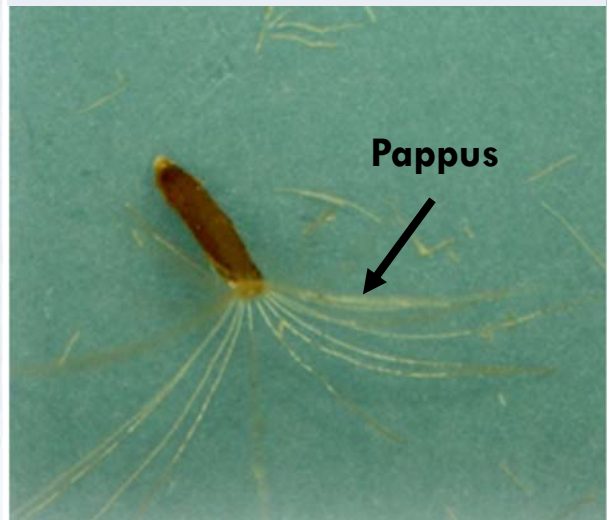
Horseweed/marestail



Mature horseweed plant with "fluff"



Immature horseweed seed



Mature horseweed seed

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Common and giant ragweed



Seeds located in leaf axils, not top of plant



Common ragweed seeds

Common lambsquarters



Brown or black seed is formed at the top of the plant and end of branches

Tips for Collecting Weed Seeds

Submitting samples for herbicide resistance screening

- 1) Check for the presence of mature seed (see previous photos and descriptions)
- 2) Collect seed from 5 plants or more from the same field and group together; this ensures there is enough for testing
- 3) Carefully package seed
 - Seal in paper bags (plastic promotes mold growth)
 - Double contain in a sealed cardboard box
- 4) Fill out the submission form found at pestid.msu.edu
 - “MSPC Herbicide Resistance Submittal Form” located in the Forms section
 - Please note the location where the seeds were collected, in addition to the addresses where you would like results mailed and emailed
- 5) Bring the sample(s) in person or mail to the following address:

Diagnostic Services
578 Wilson Rd., Room 107
East Lansing, MI 48824-6469
(517) 355-4536
- 6) For current pricing please check the ‘Services & Fees’ at pestid.msu.edu



Process and results

The herbicide resistance screening process includes the following tasks:

- Seed cleaning
- Dormancy breaking measures (6 winter weeks for ragweed species)
- Initial growth and transplanting
- Herbicide application
- Rating 2 weeks after the application

Therefore, **results are available 3-4 months after submission, some times longer**, depending on the number of samples received.

