A o E FIELD CROPS TEAM

Do you suspect herbicide resistance?

Steven Gower, MSU Diagnostic Services

Several weed species have developed resistance to popular herbicides used in Michigan. There are at least 12 weed biotypes resistant to one or more herbicides in the state (Table 1). These herbicide-resistant weed species have been documented in field, vegetable, and fruit crops, as well as tree plantations and nurseries throughout Michigan.

Once growers identify and confirm an herbicide-resistant weed, they can then implement appropriate management strategies to prevent or limit weed seed spread. If you suspect resistance in any weed species and would like to confirm this, seedheads can be collected upon maturity and submitted to MSU Diagnostic Services for an herbicide resistance screen.

Late summer to early fall just prior to harvest is the time to collect mature, viable weed seed. Select weeds that were definitely sprayed (not along field edges or sprayer skips). Harvest seedheads by cutting the stem just below the seedhead. Place seedheads into a brown paper bag or collect seed in a small envelope or container. Never seal plants or seed in plastic!

Fees associated with herbicide-resistant weed testing are generally $40 per sample (a sample could include multiple plants of the same species from one field). Two exceptions to this fee are marestail (Conyza canadensis) and common lambsquarters (Chenopodium album) from Michigan soybean fields. These two weeds will be screened for resistance and costs will be covered by checkoff dollars through the Michigan Soybean Promotion Committee.

Please contact Steven Gower (517-432-9693, sgower@msu.edu) with any questions regarding sample collection. Send samples to:

Diagnostic Services
101 Center for Integrated Plant Systems
East Lansing, MI 48824-1311
Attn: Steven Gower

Table 1. Herbicide-resistant weeds in Michigan. Updated 11-15-04.

Weed species	Site of action	Chemical family
Common groundsel (Senecio vulgaris)	Photosynthesis Inhibitor	Triazine
Common lambsquarters (Chenopodium album)	Photosynthesis Inhibitor	Triazine
	ALS Inhibitor	Imidazolinone and Sulfonylurea
Common purslane (Portulaca oleracea)	Photosynthesis Inhibitor	Triazine and Phenylurea
Common ragweed (Ambrosia artemisiifolia)	Photosynthesis Inhibitor	Triazine
	ALS Inhibitor	Imidazolinone, Sulfonylurea and Sulfonamide
Ladysthumb smartweed (Polygonum persicaria)	Photosynthesis Inhibitor	Triazine
Late-flowering goosefoot (Chenopodium strictum var. glaucophyllum)	Photosynthesis Inhibitor	Triazine

Marestail/Horseweed (Conyza canadensis)	Photosynthesis Inhibitor	Triazine and Phenylurea
	ALS Inhibitor	Sulfonylurea and Sulfonamide
Powell amaranth (Amaranthus powellii)	Photosynthesis Inhibitor	Triazine and Phenylurea
Redroot pigweed (Amaranthus retroflexus)	Photosynthesis Inhibitor	Triazine and Phenylurea
Smooth pigweed (Amaranthus hybridus)	ALS Inhibitor	Imidazolinone and Sulfonylurea
Tall waterhemp (Amaranthus tuberculatus)	ALS Inhibitor	Imidazolinone, Sulfonylurea, and Sulfonamide
Wild carrot (Daucus carota)	Growth Regulator	Phenoxy Acetic Acid

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