

CURRENT STATUS OF HERBICIDE RESISTANT WEEDS IN OHIO. Jeff M. Stachler and Mark M. Loux, Weed Science Extension Program Specialist, Associate Professor, Ohio State University, Columbus, OH 43210.

Greenhouse research conducted in Ohio prior to 2002 confirmed the presence of ALS-resistant Powell amaranth in Hancock County, common cocklebur in Miami County, horseweed in seven counties, common ragweed in 20 counties, giant ragweed in 11 counties, shattercane in Fairfield County, and waterhemp in nine counties, atrazine-resistant common lambsquarters in Fairfield County, and 2,4-D resistant wild carrot in Williams County. Further greenhouse research has been conducted to confirm herbicide resistance in other species.

In 2001, smooth pigweed seed was collected from one field in Madison County, Ohio. Greenhouse studies conducted in late 2001 and early 2002 using thifensulfuron, flumetsulam, and imazamox POST at 2X rates (0.125 oz ai/A, 1.6 oz ai/A, and 0.625 lb ai/A, respectively) showed 20, 4, and 98% control of smooth pigweed, respectively.

In 2001, approximately 48 new Ohio horseweed populations were collected. Each population was screened with cloransulam at 1 (0.25 oz ai/A) and 4X rates and glyphosate (Roundup UltraMax) at 1 (0.75 lb ae/A) and 4X rates. The results of this study showed that ALS-resistant horseweed was in eight additional Ohio counties and there was no glyphosate-resistant horseweed, although there were a few populations that showed statistically lower control compared to the sensitive check, indicating increased tolerance to glyphosate.

Common lambsquarters seed was collected in 2001 from Putnam County, but greenhouse research was not conducted until 2003. Thifensulfuron and imazamox was applied at 2X rates (0.125 oz ai/A and 0.625 lb ai/A, respectively). Thifensulfuron and imazamox controlled this population at 34 and 90 %, indicating the presence of ALS-resistant common lambsquarters in Ohio.

Twelve horseweed samples were collected from six Ohio counties in 2002. These populations were screened with cloransulam at 1 (0.25 oz ai/A) and 4X rates and glyphosate (Roundup UltraMax) at 1 (0.75 lb ae/A) and 4X rates. Results indicated presence of 10 glyphosate-resistant horseweed populations from Brown, Clermont, Clinton, and Highland Counties (southwest Ohio) and two new ALS-resistant populations from two new counties.

The results from a demonstration study conducted early this fall confirmed the presence of atrazine-resistant common lambsquarters in Darke County.

During September and October 2003, approximately 90 new horseweed populations were collected from 23 Ohio counties. Based upon one preliminary study, glyphosate-resistant horseweed is present in Montgomery County, Ohio. Thirty-four of the 90 populations are currently being screened in the greenhouse with cloransulam at a 4X rate and glyphosate (Roundup UltraMax) at 1 and 4X rates.

In summary, Ohio has confirmed nine ALS-resistant biotypes and one glyphosate-, atrazine-, and 2,4-D-resistant biotype. To date glyphosate-resistant horseweed has been confirmed in a total of five Ohio counties and highly suspect that it is in several other counties.