

BURNDOWN CONTROL OF COVER-CROP WHEAT AND LITTLE BARLEY. James R. Martin, Charles R. Tutt, and Dorothy L. Call, Extension Professor, Research Specialist, and Technician, Department of Plant and Soil Sciences, University of Kentucky, Princeton, KY 42445-0469.

Cool-season grasses tend to be difficult to control with burndown herbicides, especially when plants have overwintered and developed multiple tillers. Examples of grasses include wheat planted as a cover crop and little barley that occurs as a weedy plant during the winter following corn or soybean harvest. Studies were conducted to compare burndown control of these grasses with glyphosate or paraquat applied with a triazine herbicide at different times.

Cover-crop wheat control was evaluated in the spring of 2007 and 2008. The three application timings in the 2007 study were February 28, March 21, or April 18, when wheat was 3, 4.5, or 12.5 inches in height, respectively. The timings for the 2008 study were February 25, March 24, or April 21 when wheat was 4, 8, or 15 inches tall, respectively. Burndown herbicides included glyphosate at 0.56, 0.77 and 1.13 lb ae/A; or paraquat at 0.5 and 0.75 lb ai/A. These herbicides were applied either alone or in combination with atrazine at 1.5 lb ai/A.

When averaged across application timings, burndown control of wheat with all glyphosate treatments was 97%. Control of cover-crop wheat with glyphosate at 0.77 and 1.13 lb ai/A was least 88% regardless of timing. Glyphosate applied alone February 28, 2007 at the low rate of 0.56 lb ai/A provided 73% control of wheat; however, control improved to 88% when atrazine was included as a tank mix partner. Atrazine tended to limit the speed of control with glyphosate; however, in most instances the antagonism from atrazine to glyphosate diminished by mid May.

When averaged across application timings, burndown control of wheat with all paraquat treatments was 78%. Control with paraquat was inconsistent across application timings. Paraquat alone the high rate on March 21, 2007 provided 90% control, yet this treatment provided only 50% control when applied March 24, 2008. Including atrazine with paraquat tended to enhance wheat control in most timings. As expected, the initial burndown control was more rapid with paraquat than with glyphosate; however, in some cases regrowth of wheat occurred by four weeks after application of paraquat.

Little barley control was evaluated using early peplant applications made in the fall or spring. Treatments were applied November 14, 2006, February 21, March 14, or April 12, 2007 when plants were 4, 3.5, 5, or 11 inches in height, respectively. Glyphosate and paraquat were applied at the same rates as those in the cover-crop wheat studies. All burndown treatments in the little barley study included simazine at 1 lb ai/A as a tank mix partner. Burndown control was evaluated at weekly intervals during the first four weeks after application.

Results of the little barley study indicated that control was at least 95% when glyphosate or paraquat was applied with simazine on November 14 to 4 inches tall plants. However, control of little barley from applications on February 14, March 21, or April 12 was usually better with glyphosate than that with paraquat. Control at 4 weeks after application ranged from 96 to 100% when glyphosate plus simazine was applied February 21, March 14, or April 12. The use of paraquat at 0.5 or 0.75 lb/A in combination with simazine provided 63 or 77% control, respectively, when applied February 21. Delaying the application of paraquat treatments until March 14 or April 12 improved control of little barley, however the low rate of paraquat provided seven to 10 % less control than that of the high rate.

In summary, glyphosate tended to provide effective control of wheat and little barley more consistently than paraquat in spring burndown treatments. The use of atrazine with paraquat tended to enhance control of cover-crop wheat. Although atrazine tended to slow the activity of glyphosate on burndown control of cover-crop wheat, it seldom reduced control when evaluated in mid May. The use of glyphosate or paraquat with simazine in the fall provided effective season-long control of little barley. Applications of glyphosate plus simazine during late February through mid April were usually more effective than the low rate of paraquat plus simazine in controlling little barley.