WINTER ANNUAL WEED IDENTIFICATION AND PREPLANT CONTROL Daniel B. Reynolds Mississippi State University, Mississippi State David L. Jordan North Carolina State University, Raleigh Stephen H. Crawford Crawford Ag Services, St. Joseph, LA P. Roy Vidrine Louisiana State University Agricultural Center, Baton Rouge

Abstract

Successful conservation tillage systems begin with good preplant weed control programs. The steps for achieving a successful weed control program are problem diagnosis, method evaluation, program selection, and program implementation. The diagnosis phase is probably the most important step when utilizing these tillage systems. Without proper identification of problem weeds, inappropriate weed control programs may be developed and implemented, which may in turn result in less than acceptable weed control and, in some instances, complete crop loss. Producers currently have few options to correct ineffective weed control programs after planting and crop emergence.

Individuals implementing stale seedbed or no-till cropping systems will encounter many new and different weeds than encountered in conventional tillage systems. Many of these winter and early-emerging spring and summer annuals are difficult to identify in their early growth stages and become very difficult to control by the time they are easily identifiable. Ideally one should know what species are present before making a herbicide recommendation, although a herbicide like Gramoxone Extra or Roundup Ultra can "cover-up" many mis-identified plants. However, there are some species which require special attention since they are not controlled, or not easily controlled, by application of Roundup Ultra or Gramoxone Extra.

Producers utilizing conservation tillage systems must become aware of key species which require specialized herbicide programs to avoid unsatisfactory or catastrophic results. Although not a comprehensive list, the most commonly encountered species in the mid-South are shown in Table 1. The most difficult to control species in our geographic area are annual ryegrass, cutleaf eveningprimrose, curly dock, horseweed, Pennsylvania smartweed, and swinecress. Table 1 also shows the expected response of these species to commonly used herbicides and herbicide combinations. These responses are based on the following herbicide use rates: Gramoxone Extra 2 pt/A; Gramoxone Extra + Bladex/Cy-Pro (2 pt/A + 1 pt/A); Gramoxone Extra + Bladex/Cy-Pro + Harmony Extra (2 pt/A + 1 pt/A + 0.25 oz pr/A); Gramoxone Extra + Goal (2 pt/A + 1 pt/A); Gramoxone Extra + Harmony Extra (2 pt/A + 0.33 oz pr/A); Gramoxone Extra + 2,4-D (2 pt/A + 1 pt/A); Roundup Ultra 2 pt/A; Roundup Ultra + Goal (2 pt/A + 1 pt/A); Roundup Ultra + Harmony Extra (2 pt/A + 0.33 oz pr/A); Roundup Ultra + 2,4-D (2 pt/A + 1 pt/A); and 2,4-D 2 pt/A. These are preliminary data, some of which were recorded as field observations without replicated data to verify their accuracy. Overall, they reflect observations made over a wide variety of growing conditions, weed growth stages, and soil types. All of these are factors that affect herbicide performance.

Few accurate generalizations can be made with regard to preplant weed control; however, the following may provide some insight to the data contained in Table 1: 1) Roundup Ultra and 2,4-D are most effective on relatively small, actively growing weeds; 2) Gramoxone Extra is most active on weeds that are either very young or have reached reproductive stages; 3) the addition of tank-mixture partners to Roundup Ultra with perhaps the exceptions of Goal, Harmony Extra, and 2,4-D, tends to substantially antagonize Roundup Ultra's activity on grasses; 4) the addition of tankmixture partners, particularly photosynthetic inhibitors such as Bladex/Cy-Pro, greatly enhance Gramoxone Extra's performance.

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Table 1.	Winter	Annual	Weed	Response to	Various	Preplant	Herbicide
Combinat	tions						

	Gramoxone Extra	Gramoxone Extra	Gramoxone Extra Bladex / Cy-Pro	Gramoxone Extra	Gramoxone Extra	Gramoxone Extra	Roundup Ultra	Roundup Ultra	Roundup Ultra	Roundup Ultra	2,4-D
Annual Bluegrass	90	100	100	100	90	90	100	100	100	100	0
Annual Ryegrass	40	60	60	50	50	40	70	70	70	70	0
Carolina Foxtail	80	90	90	90	80	80	90	90	90	90	0
Little Barley	90	100	100	100	100	90	100	100	100	100	0
Buttercup species	90	100	100	100	100	100	90	100	100	100	100
Carolina Geranium	90	100	100	100	100	90	70	80	80	90	60
Chickweed species	100	100	100	100	100	100	100	100	100	100	30
Curly Dock	40	50	60	50	60	70	60	70	90	80	70
Cutleaf Eveningprimr ose	40	70	80	70	80	100	60	70	70	100	100
Clover species	60	80	90	80	90	100	50	70	80	100	100
Dandelion	80	90	100	100	100	100	90	100	100	100	100
Groundsel	70	90	90	90	90	100	90	100	100	100	100
Henbit	80	90	90	90	90	80	70	90	90	80	50
Horseweed	50	70	70	70	70	60	90	90	90	90	60
Pennsylvania smartweed	40	60	100	60	100	60	70	80	100	80	60
Speedwell species	70	100	100	80	90	80	100	100	100	100	50
Sheperdspurs e	90	100	100	100	100	90	100	100	100	100	90
Sibara / Bittercress	90	100	100	100	100	100	90	100	100	100	70
Swinecress	20	30	70	30	70	60	80	80	90	80	60
Vetch, Hairy	80	90	90	90	90	100	50	60	70	100	100
Virginia Pepperweed	20	50	50	50	50	30	100	100	100	90	30
Wheat	70	90	90	80	70	60	90	100	100	90	0

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