

PREPLANT WEED CONTROL OF WINTER ANNUAL WEEDS

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 using these tillage systems. Without proper identification, unsuccessful weed control programs may be implemented, and, in some cases, complete crop loss could occur. Producers have few options to correct ineffective weed-control programs after planting and crop emergence.

More new and different weeds will occur in stale seedbed or no-till cropping systems than in conventional tillage systems. Many of these winter and early emerging spring and summer annuals are difficult to identify in early growth stages, and they become difficult to control by the time they are easily identifiable. Ideally, producers should know what species are present before using a herbicide, although a herbicide such as paraquat or glyphosate can control many plants that are not identified correctly. However, some species require special attention because they are not easily controlled by glyphosate or paraquat.

Producers using conventional tillage systems must become aware of key species that require specialized herbicide programs to avoid unsatisfactory or catastrophic results. Although not a complete list, the most commonly encountered species in the mid-South are shown in the table on the following page. The most difficult to control species in our geographic area are annual ryegrass, cutleaf

eveningprimrose, curly dock, horseweed, Pennsylvania smartweed, and swinecress. The following table also shows the expected response of these and other species to commonly used herbicides and herbicide combinations. Weed responses in the table on the following page were compiled from a variety of sources and offer a relative comparison of control provided by different herbicides and combination. Some data should be considered preliminary data and were recorded as field observations without replicated field trials to verify their accuracy. In addition, the ratings provided may be lower than those expected with rates labeled for specific weeds. 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. Therefore, use these expected responses as guidelines only and always refer to the herbicide label.

Few accurate generalizations can be made with regard to preplant weed control; however, the following may provide some insight to the data contained on the following page: (1) glyphosate and 2,4-D are most effective on small, actively growing weeds; (2) paraquat is most active on weeds that are either very young or have reached reproductive stages; (3) the addition of tank-mixture partners to glyphosate, with perhaps the exceptions of Goal, Harmony extra, and 2,4-D, tends to substantially antagonize (reduce) glyphosate's activity on grasses; (4) the addition of tank-mixture partners, particularly photosynthetic inhibitors, greatly enhances paraquat's performance.

