What You’ll Learn...

- Two-pass herbicide programs in corn have been shown to provide the most consistent weed control and highest yield potential.
- One-pass programs can help to manage time and application costs, but should be limited to low risk fields with light weed pressure.
- When choosing between programs, consider the density and types of weeds in the field, and carefully weigh the risks and benefits of each herbicide program.

Always Start Clean

Always start with a clean field using tillage or a burndown program that can include residual herbicides prior to planting. The following weed control programs using preemergence (PRE) and postemergence (POST) herbicides can be implemented at or near planting depending on the density and types of weeds in the field.

One-Pass PRE Program

This program utilizes full labeled rates of preemergence residual products, like Degree Xtra® or Harness® brand herbicides, and tank mixtures as appropriate, applied at or near planting.

- Target low risk fields with light weed infestations and no problem weeds such as large-seeded broadleaf weeds and perennials.
- Adequate and timely rainfall is essential for good activation of residual herbicides to help protect corn yield potential.

Time and cost savings can be the advantage of one-pass programs, with performance dependent on the year, environment, and weed spectrum. Fields infested with tough broadleaf weeds (such as ragweeds, velvetleaf, cocklebur, waterhemp, or morningglories), heavy grass pressure (such as foxtails or fall panicum), or perennial weeds are not good candidates for this program. Fields with low weed density and no weed species that can germinate later in the season are generally better candidates for this program.

One-Pass POST Program

This program utilizes tank mixtures of labeled POST and residual (PRE) herbicide products applied early-POST in the crop. The early-POST application needs to be made before weeds exceed 2 to 4 inches to avoid excessive crop competition.

- Target low risk fields with light weed pressure.
- Application timing is essential for effective weed control and to protect yield potential.

In glyphosate-tolerant corn systems, a tank mixture of a Roundup® brand glyphosate-only agricultural herbicide with a residual herbicide, such as Harness brands, Degree Xtra, IMPACT®, or others can be applied early-POST in-crop. Roundup agricultural herbicides provide control of emerged weeds, and the reduction of later season weed flushes are provided by the residual herbicide component of the weed control program. This program can work well in fields infested with annual weeds. However, this application is generally too early for good perennial weed control, and weeds that germinate later or throughout the season can escape to become problems at harvest or in subsequent crops. Since timely applications are needed to minimize early-season weed competition, the number of acres committed to this program should be limited to allow for weather or other delays in application.

Two-Pass (PRE followed by POST) Program

This program offers the least risk and best chance at obtaining optimum weed control and corn yield potential. A PRE followed by POST program, where the POST treatment is applied mid- to late-POST, can provide more consistent weed control over a greater range of conditions.

- Target high risk fields with moderate or heavy weed pressure.
- Provides better consistency and a wider window for the POST application.
- Helps minimize early-season weed competition that can reduce yield potential.

Fields with heavy grass pressure and high populations of tough broadleaf and perennial weeds are good candidates for this program. In a system with
Two-Pass Programs are More Consistent

PRE followed by POST programs are generally recommended to provide the most consistent weed control and minimize the likelihood of yield reductions (Figure 1). In university testing conducted on grower fields over two years in Wisconsin, a two-pass program provided greater or equal weed control 97% of the time when compared to a one-pass program. When evaluating trials over multiple years in Missouri, the highest corn yields were obtained with a two-pass program 67% of the time, compared to 28% of the time with a one-pass POST program, and only 5% of the time with a one-pass PRE program.

When selecting a herbicide program, five key concepts to consider are yield potential, profitability, feasibility, weed pressure and weed resistance. A PRE followed by POST herbicide program has benefits relative to all of those factors. There are certain situations where a PRE alone or a POST alone treatment may be feasible. However, carefully consider the risks and benefits of each type of herbicide program prior to making a decision.

Sources:

Figure 1. Differences in end of season weed control provided by a one-pass PRE and a two-pass PRE followed by (fb) POST program.