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East central Iowa -- weed control in no-till

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East central Iowa -- weed control in no-till

Abstract

When using no-till as a soil conservation measure in row crops, producers often find themselves faced with one of no-till's biggest challenges--weed control. For the past 11 years, ISU Extension field specialists have conducted no-till weed management demonstrations in east central Iowa. The purpose of the demonstration plots was to exemplify the technology available to producers for controlling weeds with no-till, including the herbicide-resistant hybrids. In this article, we present some of practices recommended from these demonstrations.

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INTEGRATED CROP MANAGEMENT

East central Iowa -- weed control in no-till

When using no-till as a soil conservation measure in row crops, producers often find themselves faced with one of no-till's biggest challenges--weed control. For the past 11 years, ISU Extension field specialists have conducted no-till weed management demonstrations in east central Iowa. The purpose of the demonstration plots was to exemplify the technology available to producers for controlling weeds with no-till, including the herbicide-resistant hybrids. In this article, we present some of practices recommended from these demonstrations.

Several common weeds occur in east central Iowa. Waterhemp is the main concern, with woolly cupgrass increasing in some areas. Giant ragweed and common lambsquarters have become more of a problem, and velvetleaf and giant foxtail continue to be widespread.

Every producer should be able to recognize the problem weeds in his or her fields so that the most appropriate weed-control strategies can be used. In herbicide-resistant crops, remember that early-season weed competition can reduce yields. With no-till, consider using a preplant herbicide followed by a nonselective postemergence herbicide, or an early timing of a nonselective, postemergence herbicide followed by a second application or row cultivation.

For no-till soybean producers, the rule-of-thumb is be sure to have weeds under control at planting time, either with a burndown herbicide or an application of an early preplant herbicide. With the introduction of Roundup Ready soybeans, it is sometimes appropriate to bend this rule. In 1997 demonstration plots (north of Vinton), very few weeds had emerged at planting, making a "delayed burndown," early postemergence application more appropriate on Roundup Ready soybeans.

In no-till corn, producers need to be aware of the advantages and limitations of the products they are using. Liberty and Roundup have no soil activity, which can sometimes impact the weed control if applications are made too early. Applications of Liberty and of Roundup in 1998 demonstration plots (near Cedar Rapids) did not provide adequate control of common cocklebur because of weed emergence after application. Detailed plot data are available from the second author (e-mail x1fawcet@exnet.iastate.edu). Adding atrazine improved the control. A later timing of the application would probably have improved the control, but also would have resulted in a longer period for the weeds to compete with the corn. A postemergence application of Lightning provided greater control of the common cocklebur than did Liberty or Roundup because of its soil activity.

Producers should evaluate the weed species in their fields to make the best decisions on selecting herbicides and other control methods. Because there is no preplant tillage with no-

till, weeds will be at various growth stages, from germinated to ready to emerge and emerged when the crop is planted. It's risky to try to get by with only one herbicide application.

Weed control strategies do vary a lot from grower to grower and from field to field, partly because different fields have different weeds and because so many weed control options are available to farmers. The emergence of problem weeds, such as waterhemp, woolly cupgrass, and giant ragweed forces some producers to change their weed control strategies.

Most weed control options that are available for conventional tillage also are available for no-till. Preplant tillage, however, is not an option, which rules out preplant herbicides that must be incorporated. But, row cultivation can be considered an important tool for controlling weeds if the crops are planted in rows.

Many no-till producers use both soil-applied and postemergence herbicides. Although crop residue does not "tie-up" soil-applied herbicides, it can interfere somewhat with their distribution on the soil. So soil-applied herbicides are often followed with a postemergence herbicide application, row cultivation, or both.

There are other strategies that help control weeds in no-till, including managing crop residue. When harvesting, keep residues spread evenly throughout the field. The residues from last year's crop help protect the soil from potential erosion. Also, evenly spread residues provide for uniform performance of herbicide applications and ensure consistent operation of no-till planters.

Producers also should ensure that their herbicide and fertilizer applications are timely and accurate. Knife in anhydrous ammonia before spraying herbicides to avoid chemical displacement or weed invasion in the seedbed. Apply starter fertilizer in a band with your planter. Also, be certain that the timing and application rates for herbicides are correct. Although no-till can work in weedy fields and in a variety of soil types, it is not as well suited for poorly drained soils.

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