Summer

When Crops Become Weeds: Control Strategies

Donnie K. Miller, A. Stanley Culpepper, Steve T. Kelly, David Y. Lanclos, Alexander M. Stewart, James L. Griffin, Eric P. Webster, Ron E. Strahan, P. Roy Vidrine, Bill J. Williams and Alan C. York

A weed is a plant out of place, such as this corn plant emerging near soybeans. (Photo by Donna Morgan)

The introduction of glyphosate-resistant transgenic (Roundup Ready) technology has offered an alternative for control of troublesome weeds in cotton, soybean and corn. One drawback to this technology is that "volunteer" Roundup Ready crop plants originating from seed produced the previous crop year have become "weeds."

A weed is any plant growing out of place, even crop plants. For example a Roundup Ready corn or cotton plant would be impossible to control with glyphosate in Roundup Ready soybeans. Left uncontrolled, these volunteer plants not only compete with the crop in the same way as traditional weeds but also provide oviposition (reproductive) sites for insect pests, such as boll weevils in the case of cotton.

A team of researchers from the LSU AgCenter in cooperation with colleagues from North Carolina State University and the University of Georgia have been identifying optimum management strategies for control of volunteer crops that become weeds.

Success of herbicide treatments is greater when applied to plants less than six inches in height. Multiple applications or tank-mixtures of herbicides may be needed for optimum control. In many cases, volunteer plants will emerge before planting and require a "burndown" herbicide application or tillage to obtain a weed-free seedbed at planting. In most cases, pre-plant applications that include either paraquat or glufosinate (Ignite) for control of both Roundup Ready cotton and soybean, or flumioxazin (Valor) for control of Roundup Ready cotton, are most effective. Multiple herbicide applications may be needed for complete control.

Control of volunteer Roundup Ready cotton and soybean in corn and grain sorghum can be achieved with applications of atrazine alone or tank-mixed with halosulfuron (Permit), dicamba (Clarity), 2,4-D, nicosulfuron (Accent) or primisulfuron (Beacon) (corn only). In cotton, application of glufosinate over-the-top in transgenic Liberty Link cotton or under a hooded sprayer in conventional cotton will provide excellent control of both Roundup Ready cotton and soybean, if applied before the six-leaf stage.

Donnie Miller has planted cotton and soybeans next to each other at the Northeast Research Station to test herbicides and "weed" competition. (Photo by Linda Benedict)

Application of bromoxynil (Buctril) in transgenic BXN cotton will effectively control volunteer cotton plants. Most herbicides labeled for postemergence-directed application in cotton will exhibit fair to good activity on both volunteer cotton and soybean, although repeat applications will often be needed. Over-the-top cotton herbicides pyrithiobac (Staple) and trifloxysulfuron (Envoke) have similar activity on soybean as postemergence-directed treatments.

In a soybean crop, glufosinate herbicide is effective on volunteer plants. Combinations of preemergence followed by postemergence herbicides have provided the most consistent control of volunteer cotton in soybean. Cultural practices such as narrow-row soybeans, which provide a canopy cover more quickly, and tillage may be necessary to provide complete control of volunteer plants in a soybean field.

Control of volunteer Roundup Ready corn is easily accomplished in cotton and soybeans in-season or after corn harvest with graminicides (grass herbicides) such as sethoxydim (Poast Plus), clethodim (Select), fluazifop (Fusilade DX) and quizalofop (Assure II).

Donnie K. Miller, Associate Professor, Northeast Research Station, St. Joseph, La.; A. Stanley Culpepper, Extension Agronomist-Weed Science, Department of Crop and Soil Science, University of Georgia, Tifton, Ga.; Steve T. Kelly, Assistant Professor, Scott Research, Extension and Education Center, Winnsboro, La.; David Y. Lanclos and Alexander M. Stewart, both Assistant Professor, Dean Lee Research Station, Alexandria, La.; James L. Griffin, Professor, Eric P. Webster, Associate Professor, and Ron E. Strahan, Assistant Professor, Department of Agronomy, Baton Rouge, La.; P. Roy Vidrine, Professor, Dean Lee Research Station, Alexandria, La; Bill J. Williams, Associate Professor, Northeast Research Station, St. Joseph, La.; and Alan C. York, Professor, Department of Crop Science, North Carolina State University, Raleigh, NC.

(This article was published in the summer 2004 issue of Louisiana Agriculture.)

Last Updated: 10/7/2011 11:41:49 PM

Please click a number to rate this article:

Not Useful **Very Useful**

1 2 3 4 5 6 7 8 9 10

Submit Rating

view current rating »

Have a question or comment about the information on this page?
Click here to contact us.

© Copyright 2013 LSU AgCenter All Rights Reserved
Privacy | Disclaimer | EEO | Search | LSU | Contact Us | Site Map