

Refuge Requirements For Transgenic Insect Control Traits In Field Corn



DR. DOUG JOHNSON

PRINCETON, KY.

2013 is one of those transitional years for changes in refuge requirements for transgenic control traits in field corn. Several changes have been made over the last several years and one can expect for changes to continue as we (likely) move away from large structural refuges and toward refuge in a bag. Generally the percent of refuge seed (those seed without transgenic insect control traits) has dropped from 20 percent to 10 percent or even 5 percent depending upon the traits included and the company. In addition those products that require separate structural refuges (usually as blocks or a series of rows) is giving way to the inclusion of not traited seed within the bag of traited seed; the so called refuge in a bag (RIB). The result is a somewhat confusing situation where products are available that contain different refuge requirements. Obtaining the desired corn genetics which contains the correct transgenic traits to control the likely pests and planting this with the correct refuge in the proper location can be very confusing.

If you follow the link: <http://pest.ca.uky.edu/EXT/Recs/ENT16-Field%20corn.pdf>, it will take you to ENT-16. On pages 6 and 7 of this publication you will find a Bt Trait Table that list the various packages of transgenic insect control traits by trade name, insect toxins, and the event used to in-

clude the toxins in the corn plant. This table also includes relative ratings for how well these toxin packages work against the most common and important insect pests of field corn in Kentucky. Additionally, the type (block vs RIB) of refuge and the percent of non-traited seed required to be in the refuge.

In Kentucky producers can expect their greatest and most consistent return on investment from protection against European corn borer (ECB) and southwestern corn borer (SWCB). Traits for control of western corn rootworm (WCRW) are not needed nor recommended in corn fields that are rotated with non-corn crops. Corn that is not rotated (continuous corn) should be planted with products that contain more than one or "stacked" western corn rootworm (WCRW) traits. In any case products containing only the Cry3Bb1 corn rootworm toxin should not be planted in non-rotated corn. Though not yet noted in Kentucky, this is the trait for which resistance has been show in several states to our north. So far this has only occurred in corn planted in the same field for three successive years and using only the Cry3Bb1 trait for protection against western corn rootworm.

Black cutworm (BCW), corn earworm (CEW) and fall armyworm (FAW) infestations are very much dependent on the growing year. Very early planting may benefit from BCW traits while very late plantings will likely benefit from control of corn earworm and fall armyworm. Δ

DR. DOUG JOHNSON: Extension Entomologist, University of Kentucky