

AGRONOMIC Spotlight



Managing Biotech Corn Traits in 2010

As field season approaches, there are several aspects to keep top of mind regarding each field. While not all inclusive, some of the most important issues are herbicide tolerance and insect protection.

With several different options for trait technology available in the marketplace, it is very important to know what traits each product contains and where each is planted. Figure 1 outlines various key attributes of the key Monsanto biotech traits that are currently available. These characteristics are important to remember for each field. Remember to pay special attention to the differences between the refuge and the remainder of the field, as well as the differences between refuge requirements. Planting the correct refuge requirement is essential for an effective Insect Resistance Management (IRM) strategy.

What is the Herbicide Tolerance?

Roundup Ready® 2 Technology confers tolerance to glyphosate herbicides, such as Roundup® agricultural herbicides. LibertyLink® technology confers tolerance to glufosinate herbicides, such as Ignite®. Glyphosate and glufosinate are NOT the same. Consider the situation where corn with the Genuity™ SmartStax™ trait is planted in the majority of the field and the refuge is planted to a corn with Roundup Ready 2 Technology. Roundup® brand agricultural herbicides can be applied to the whole field. However, if Ignite® herbicide was applied to the entire field, the refuge could sustain significant damage or crop death.

Here are some items to remember regarding herbicides and herbicide traits going into the 2010 growing season:

- 1) What herbicide tolerant traits are in the seed planned for your farm? Does it have Roundup Ready 2 Technology, LibertyLink, or both? Figure 1 can help with this.
- 2) Have a placement plan outlining in what part of each field specific hybrids are to be planted. Everyone helping in the field in your operation should be aware of the plan. If changes occur, make sure there is adequate communication and the changes are recorded accurately.
- 3) When applying herbicides, especially post emergence, make sure everyone in your operation involved with spraying is aware of what is in the tank and where it is to be applied.
- 4) Measures should be taken to minimize the potential for herbicide drift to susceptible crops or adjacent fields with different traits. Applications should be made when the wind speed is 10 miles per hour or less. Nozzles and pressures should be adjusted to supply the largest droplet with the lowest pressure while still allowing for proper performance of the herbicide.
- 5) When changing herbicides in the tank, especially when switching away from or between non-selective herbicides such as Roundup brand agricultural herbicide or Ignite herbicide,

make sure the tank is thoroughly cleaned. More detailed information regarding cleaning out sprayer systems can be found in the *Agronomic Spotlight—Sprayer Cleanout to Avoid Crop Injury*.

What is the Insect Protection?

As more options for insect protection are now available, it becomes more important to understand which traits offer protection from which insects. This knowledge can help prevent errors such as planting the wrong seed or forgetting to turn on soil insecticide. These errors can potentially reduce yield. Additionally, this knowledge can help make appropriate post emergence insecticide application decisions to help protect yield potential while upholding Insect Resistance Management (IRM) guidelines.

Here are some items to remember regarding insecticides and insect traits going into the 2010 growing season:

- 1) Know what insect protection traits are in the seed, and which insects they provide protection from. This can aid in scouting appropriately later in the season.
- 2) Know what insecticides are in the seed treatment and what insects they control.
- 3) Have a placement plan outlining in what part of each field specific hybrids are to be planted. Everyone helping in the field in your operation should be aware of the plan. If changes occur, make sure there is adequate communication and the changes are recorded accurately.
- 4) Insecticide boxes should be calibrated and working properly for refuge acres.
- 5) When scouting in-crop, pay special attention to borders between fields of different traits or refuges, as insect populations may be higher. Remember to check with your IRM guidelines prior to making any post emergence applications of insecticides.
- 6) Consider having a consistent system (such as always having the refuge in the same planter boxes or always loading the refuge seed onto a certain part of the trailer) to help make sure the refuge gets planted and soil insecticide is turned on, if appropriate.

Summary

Take time to plan and prepare. When field season gets here, try and adhere to the plan. Make sure everyone in your operation is aware of the plan. Communication is key, especially when things change from the original plan. Taking the time to focus, stay organized, and communicate can help reduce the risk of planting or application errors that can affect yield potential.

from previous page

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Figure 1. Biotech traits and their characteristics.

	Genuity™ SmartStax™	Genuity™ VT Triple PRO™	Genuity™ VT Double PRO™	YieldGard VT Triple®	Roundup Ready® Corn 2
Herbicide Trait					
Roundup Ready® 2 Technology	YES	YES	YES	YES	YES
LibertyLink®	YES	NO	NO	NO	NO
Above Ground Insect Protection					
Proteins	Cry1A.105 Cry2Ab2 Cry1F	Cry1A.105 Cry2Ab2	Cry1A.105 Cry2Ab2	Cry1Ab	
Primary Pests:					
European Corn Borer	Control	Control	Control	Control	
South Western Corn Borer	Control	Control	Control	Control	
Corn Earworm	Control	Control	Control	Suppression	
Fall Armyworm	Control	Control	Control	Suppression	
Western Bean Cutworm	Control				
Black Cutworm	Control				
Below Ground Insect Protection					
Proteins	Cry3Bb1 Cry34/Cry35Ab1	Cry 3Bb1		Cry 3Bb1	
Primary Pests:					
Corn Rootworm	Control	Control		Control	
Refuge					
Corn Belt	5%	20%	5%	20%	

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Before opening a bag of seed, be sure to read and understand the stewardship requirements, including applicable refuge requirements for insect resistance management, for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with those stewardship requirements.



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