

Handy Bt Trait Table

The most up-to-date version of this bulletin is posted at:
<http://labs.russell.wisc.edu/cullenlab/extension/extension-publications/>

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Chris DiFonzo, Michigan State University, East Lansing, MI
and
Eileen Cullen, University of Wisconsin, Madison, WI

More corn hybrids contain multiple transgenic traits, and cost of this seed is steadily rising - \$300 and more per bag is not uncommon. Meanwhile, refuge requirements are changing for multi-trait corn. Some refuges remain 20% and 'structured', planted in a block or series of rows. Others are reduced to 5% or 10%, in a block or 'in the bag' mixed with the Bt seed itself.

Different products from different seed companies now have different refuges

Purchasing the right transgenic hybrid for the right pest, and planting it with the correct refuge in the proper location, is critical to profitability and insect resistance management. But this process is increasingly confusing. The table on the second page of this bulletin summarizes, to the best of our ability, the currently available Bt traits and their spectrum of control. The table also gives refuge percentages and locations. We make every attempt to provide the correct information for each Bt option and update the table promptly as changes occur.

However, it is still important for you to take the following steps:

- *Understand the *terminology* used by your seed company
- *Understand the *biology* of each trait, the expected level of control, and refuge requirements.
- **Confirm that the seed ordered* in late fall is the seed shipped the following spring.
- *Keep good *planting records*.
- *For herbicide applications, *Ask Twice-Spray Once*, especially if you hire a custom applicator.
- *Save a representative sample of *bag tags* = the first thing to check if something goes wrong.
- *Most important, if you see unexpected insect damage or poor performance of a trait during the field season, contact your seed dealer or county extension educator promptly so that the field can be visited while the problem is still visible and plant and insect samples can be taken.

Abbreviations used on page 2:



Insect targets

BCW black cutworm
CEW corn earworm
CRW corn rootworm
ECB European corn borer
FAW fall armyworm
SB stalk borer
WBC western bean cutworm

Herbicide traits

GT glyphosate tolerant
LL Liberty Link or glufosinate tolerant
RR2 Roundup Ready 2 (glyphosate tolerant)



Bt Trait Table November 1, 2013	Bt protein(s)	Insects controlled (bold) or suppressed (italics) Above-ground ----- In soil	Herbicide tolerance	Refuge %, location in the MIDWEST
Agrisure Trait Family				
Agrisure CB/LL	Cry1Ab	ECB <i>CEW FAW SB</i>	---	LL 20% within ½ mile
Agrisure GT/CB/LL	Cry1Ab	ECB <i>CEW FAW SB</i>	---	GT LL 20% within ½ mile
Agrisure RW	mCry3A	---	CRW	20% in field/adjacent
Agrisure GT/RW	mCry3A	---	CRW	GT 20% in field/adjacent
Agrisure CB/LL/RW	Cry1Ab mCry3A	ECB <i>CEW FAW SB</i>	CRW	LL 20% in field/adjacent
Agrisure 3000GT	Cry1Ab mCry3A	ECB <i>CEW FAW SB</i>	CRW	GT LL 20% in field/adjacent
Agrisure Artesian 3011A	Cry1Ab mCry3A	ECB <i>CEW FAW SB</i>	CRW	GT LL 20% in field/adjacent
Agrisure Viptera 3110	Cry1Ab Vip3A	BCW <i>CEW ECB FAW WBC SB</i>	---	GT LL 20% within ½ mile
Agrisure Viptera 3111	Cry1Ab Vip3A mCry3A	BCW <i>CEW ECB FAW WBC SB</i>	CRW	GT LL 20% in field/adjacent
Agrisure 3122 E-Z Refuge	Cry1Ab Cry1F mCry3A Cry34/35Ab1	BCW <i>ECB FAW WBC CEW SB</i>	CRW	GT 5% in the bag
Agrisure Viptera 3220 E-Z Refuge	Cry1Ab Cry1F Vip3A	BCW <i>CEW ECB FAW WBC SB</i>	---	GT 5% in the bag
Agrisure Duracade 5122 E-Z Refuge	Cry1Ab Cry1F mCry3A eCry3.1Ab	BCW <i>ECB FAW WBC CEW SB</i>	CRW	GT 5% in the bag
Agrisure Duracade 5222 E-Z Refuge	Cry1Ab Cry1F Vip3A mCry3A eCry3.1Ab	BCW <i>CEW ECB FAW WBC SB</i>	CRW	GT 5% in the bag
Herculex Trait Family				
Herculex I (HX1)	Cry1F	BCW <i>ECB FAW WBC CEW SB</i>	---	LL 20% within ½ mile
Herculex RW (HXRW)	Cry34/35Ab1	---	CRW	RR2 (most) 20% in field/adjacent
Herculex XTRA (HXX)	Cry1F Cry34/35Ab1	BCW <i>ECB FAW WBC CEW SB</i>	CRW	20% in field/adjacent
Optimum Trait Family				
Optimum AcreMax (AM-R)	Cry1F Cry1Ab	BCW <i>ECB FAW WBC CEW SB</i>	---	RR2 5% in the bag
Optimum AcreMax1 (AM1)	Cry1F Cry34/35Ab1	BCW <i>ECB FAW WBC CEW</i>	CRW	LL RR2 10% in the bag (CRW) & 20% - ½ mile (ECB)
Optimum AcreMax Rootworm (AMRW-R)	Cry34/35Ab1	---	CRW	RR2 10% in the bag
Optimum AcreMax Xtra (AMX-R)	Cry1F Cry1Ab Cry34/35Ab1	BCW <i>ECB FAW WBC CEW SB</i>	CRW	RR2 10% in the bag
Optimum AcreMax Xtreme (AMXT-R)	Cry1F Cry1Ab mCry3A Cry34/35Ab1	BCW <i>ECB FAW WBC CEW SB</i>	CRW	RR2 5% in the bag
Optimum Intrasect	Cry1F Cry1Ab	BCW <i>ECB FAW WBC CEW SB</i>	---	LL RR2 5% within ½ mile
Optimum Intrasect Xtra	Cry1F Cry1Ab Cry34/35Ab1	BCW <i>ECB FAW WBC CEW SB</i>	CRW	LL RR2 20% in field/adjacent
Optimum Intrasect XTreme	Cry1F Cry1Ab mCry3A Cry34/35Ab1	BCW <i>ECB FAW WBC CEW SB</i>	CRW	LL RR2 5% in field/adjacent
Optimum TRIsect	Cry1F mCry3A	BCW <i>ECB FAW WBC CEW SB</i>	CRW	LL RR2 20% in field/adjacent
YieldGard / Genuity Trait Family				
YieldGard VT Triple	Cry1Ab Cry3Bb1	ECB <i>CEW FAW SB</i>	CRW	RR2 20% in field/adjacent
Genuity VT Double PRO	Cry1A.105 Cry2Ab2	CEW <i>ECB FAW</i>	---	RR2 20% within ½ mile
Genuity VT Triple PRO	Cry1A.105 Cry2Ab2 Cry3Bb1	CEW <i>ECB FAW</i>	CRW	RR2 20% in field/adjacent
Genuity SmartStax	Cry1A.105 Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	BCW <i>CEW ECB FAW SB WBC</i>	CRW	LL RR2 5% in field/adjacent
Genuity VT Double PRO RIB Complete (GENVT2P)	Cry1A.105 Cry2Ab2	CEW <i>ECB FAW</i>	---	RR2 5% in the bag
Genuity VT Triple PRO RIB Complete (GENVT3P)	Cry1A.105 Cry2Ab2 Cry3Bb1	CEW <i>ECB FAW</i>	CRW	RR2 10% in the bag
Genuity SmartStax RIB Complete	Cry1A.105 Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	BCW <i>CEW ECB FAW SB WBC</i>	CRW	LL RR2 5% in the bag
Refuge Advanced Trait Family				
Refuge Advanced Powered by SmartStax	Cry1A.105 Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	BCW <i>CEW ECB FAW SB WBC</i>	CRW	LL RR2 5% in the bag