Handy Bt Trait Table

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The most up-to-date version of this bulletin is posted at: www.msuent.com

More corn hybrids contain multiple transgenic traits, and cost of this seed is steadily rising - $300 or 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 maximizing profitability and delaying resistance. 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 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 fresh 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 (glufosinate tolerant)
RR2	Roundup Ready 2 (glyphosate tolerant)

**Current ** January 18, 2012	Bt protein (s)	Insects controlled (bold) or *suppressed (italics)* *Above-ground---------- In soil*		Herbicide tolerant?	Refuge % & location in the MIDWEST
Agrisure products					
Agrisure CB/LL	Cry1Ab	**ECB** *CEW FAW SB*	---	LL	20% - ½ mile
Agrisure GT/CB/LL	Cry1Ab	**ECB** *CEW FAW SB*	---	GT LL	20% - ½ mile
Agrisure RW	mCry3A	**---**	**CRW**	---	20% - adjacent
Agrisure GT/RW	mCry3A	**---**	**CRW**	GT	20% - adjacent
Agrisure CB/LL/RW	Cry1Ab mCry3A	**ECB** *CEW FAW SB*	**CRW**	LL	20% - adjacent
Agrisure 3000GT	Cry1Ab mCry3A	**ECB** *CEW FAW SB*	**CRW**	GT LL	20% - adjacent
Agrisure Viptera 3110	Cry1Ab Vip3A	**BCW CEW ECB FAW WBC SB**	---	GT LL	20% - ½ mile
Agrisure Viptera 3111	Cry1Ab mCry3A Vip3A	**BCW CEW ECB FAW WBC SB**	**CRW**	GT LL	20% - adjacent
Agrisure 3122 Refuge Renew	Cry1Ab Cry1F mCry3A Cry34/35Ab1	**BCW ECB FAW WBC** *CEW SB*	**CRW**	GT LL	5% adjacent
Agrisure Viptera 3220	Cry1Ab Cry1F Vip3A	**BCW CEW ECB FAW WBC SB**	**---**	GT LL	5% - ½ mile
Herculex products					
Herculex 1 (HX1)	Cry1F	**BCW ECB FAW WBC** *CEW*	---	LL RR2 (some)	20% - ½ mile
Herculex RW (HXRW)	Cry34/35Ab1	**---**	**CRW**	LL RR2 (some)	20% - adjacent
Herculex XTRA (HXX)	Cry1F Cry34/35Ab1	**BCW ECB FAW WBC** *CEW*	**CRW**	LL RR2 (some)	20% - adjacent
Optimum products					
Optimum Intrasect	Cry1F Cry1Ab	**BCW ECB FAW WBC** *CEW SB*	---	LL RR2	5% - ½ mile
Optimum AcreMax (OAM)	Cry1F Cry1Ab	**BCW ECB FAW WBC** *CEW SB*	---	RR2	5% ***in the bag***
Optimum AcreMaxRW	Cry34/35Ab1	---	**CRW**	RR2	10% ***in the bag***
Optimum AcreMax1	Cry1F Cry34/35Ab1	**BCW ECB FAW WBC** *CEW*	**CRW**	LL RR2	10% ***in the bag*** (CRW) & 20% - ***½ mile*** (ECB)
Optimum AcreMax Xtra	Cry1F Cry1Ab Cry34/35Ab1	**BCW ECB FAW WBC** *CEW SB*	**CRW**	RR2	10% ***in the bag***
YieldGard products					
YGCB	Cry1Ab	**ECB** *CEW FAW SB*	---	RR2 (some)	20% - ½ mile
YGRW	Cry3Bb1	**---**	**CRW**	RR2 (some)	20% - adjacent
YieldGard Plus	Cry1Ab Cry3Bb1	**ECB** *CEW FAW SB*	**CRW**	RR2 (some)	20% - adjacent
YieldGard VTRW	Cry3Bb1	**---**	**CRW**	RR2	20% - adjacent
YieldGard VT Triple	Cry1Ab Cry3Bb1	**ECB** *CEW FAW SB*	**CRW**	RR2	20% - adjacent
Genuity / SmartStax products					
Genuity VT Double PRO (VT2P)	Cry1A.105 Cry2Ab2	**CEW ECB FAW**	---	RR2	5% - ½ mile
Genuity VT Double PRO Complete	Cry1A.105 Cry2Ab2	**CEW ECB FAW**	---	RR2	5% ***in the bag***
Genuity VT Triple PRO (VT3P)	Cry1A.105 Cry2Ab2 Cry3Bb1	**CEW ECB FAW**	**CRW**	RR2	20% - adjacent
SmartStax (Dow) or Genuity SmartStax (Monsanto)	Cry1A.105 Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	**BCW CEW ECB FAW WBC**	**CRW**	LL RR2	5% - adjacent
Genuity SmartStax RIB Complete	Same as Smartstax	**BCW CEW ECB FAW WBC**	**CRW**	LL RR2	5% ***in the bag***
REFUGE ADVANCED Powered by SmartStax	Same as Smartstax	**BCW CEW ECB FAW WBC**	**CRW**	LL RR2	5% ***in the bag***