

# The Handy Bt Trait Table for U.S. Corn Production

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The most up-to-date version and related extension materials are free online at: [www.texasinsects.org/bt-corn-trait-table.html](http://www.texasinsects.org/bt-corn-trait-table.html)  
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**Several formatting changes for 2025**

Resistance to Bt proteins continues to be a major theme for 2025. Localized populations of southwestern corn borer (SWCB) and European corn borer (ECB) have been found which survive one or more of the Bts labeled for their control (except VIP for SWCB). Both species developed resistance in isolated regions, often where single-trait hybrids were still being planted. For SWCB, this was in corn production on irrigated pivots in the southern New Mexico. For ECB, this was in small production areas outside of the corn belt in the Canadian Maritime provinces, Quebec, and Connecticut.

With the increase in species surviving Bts, the table was redesigned to eliminate a separate resistance column. That information is now captured in the control column. An 'x' means a trait package is effective against that insect. Resistance to all Bts in a package is indicated by 'R' if widespread or 'RL' if currently in limited areas.

All single-trait packages were moved from Table 2 to Table 1 (below), the 'time capsule' of older products. Single-trait hybrids increase the chance of resistance development and thus were supposed to be phased out after introduction of seed-blend refuge fourteen years ago. In 2025, single trait hybrids are still listed in some seed catalogs. Moving single traits out of the main trait table draws attention to the problem of their continued availability.

**ABBREVIATIONS & TERMS used in the TRAIT TABLE**

**Insect Pests**  
 BCW black cutworm  
 CEW corn earworm  
 ECB European corn borer  
 FAW fall armyworm  
 NCR northern corn rootworm  
 SB stalk borer  
 SCB sugarcane borer  
 SWCB southwestern corn borer  
 TAW true armyworm  
 WBC western bean cutworm  
 WCR western corn rootworm

**Herbicide Tolerance**  
 GLY glyphosate/Roundup-Ready  
 LL glufosinate/Liberty Link  
 LL? check bag tag for LL status  
 Enlist 2,4-D & fops/Enlist trait

**Refuge:** Unless specified as a seed blend, percentages in table assume a separate 'structured' refuge planted in strips, blocks, borders, or in an adjacent field

TABLE 1: TIME CAPSULE Trait packages phased out by industry & single-traits in limited supply	Bag tag code	Proteins in trait package ***** Font type denotes target: caterpillar or rootworm	Insects controlled: One or more Bts in package still effective (x) Resistance to Bts in package: widespread (R) or limited (RL)											Refuge, northern states (higher in the south)	Herbicide tolerance	
			B	C	E	F	S	S	T	W	N	W				
			C	E	C	A	C	C	A	B	C	C	C			
AcreMax1	AM1	Cry1F Cry34/35Ab1	x		RL	R	x	x	RL			R	RL	R	10% blend 20% ECB	GLY LL
AcreMax RW	AMRW	Cry34/35Ab1											RL	R	10% blend	GLY LL
AcreMax TR1sect	AMT	Cry1Ab Cry1F mCry3A	x	R	RL	R	x	x	RL			R	x	R	10% blend	GLY LL
Agrisure 3010 (Agrisure GT/CB/LL)	3010	Cry1Ab		R	RL			x	RL						20%	GLY LL
Agrisure 3000GT	3000GT	Cry1Ab mCry3A		R	RL			x	RL			x	R	20%	GLY LL	
Agrisure RW or GT/RW	-	mCry3A										x	R	20%	GLY (if GT)	
Herculex I	HXI	Cry1F	x		RL	R	x	x	RL			R		20%	GLY LL	
Herculex RW	HXRW	Cry34/35Ab1										RL	R	20%	GLY LL	
Herculex XTRA	HXX	Cry1F Cry34/35Ab1	x		RL	R	x	x	RL			R	RL	R	20%	GLY LL
Intrasect TR1sect	CYHR	Cry1Ab Cry1F mCry3A	x	R	RL	R	x	x	RL			R	x	R	20%	GLY LL
Intrasect Xtra	YXR	Cry1Ab Cry1F Cry34/35Ab1	x	R	RL	R	x	x	RL			R	RL	R	20%	GLY LL
Intrasect Xtreme	CYXR	Cry1Ab Cry1F Cry34/35Ab1 mCry3A	x	R	RL	R	x	x	RL			R	x	R	5%	GLY LL
TR1sect	CHR	Cry1F mCry3A	x		RL	R	x	x	RL			R	x	R	20%	GLY LL
VT Triple PRO	VT3P	Cry1A.105 Cry2Ab2 Cry3Bb1		R	RL	x	x	x	RL			RL	R	20%	GLY	
YieldGard Corn Borer	YGCB	Cry1Ab		R	RL			x	RL					20%	GLY	
YieldGard Rootworm	YGRW	Cry3Bb1										RL	R	20%	GLY	
YieldGard VT Triple	VT3	Cry1Ab Cry3Bb1		R	RL			x	RL			RL	R	20%	GLY	

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TABLE 2 Principal trait packages available in the U.S. (alternate names in parentheses)	Bag tag code	Proteins in trait package ***** Font type denotes target: caterpillar or rootworm	Insects controlled											Refuge, northern states (higher in the south)	Herbicide tolerance (? = check the bag tag)	
			One or more Bts in package still effective (x) Resistance to Bts in package: widespread (R) or limited (RL)													
			B C W	C E W	E C B	F A W	S B	S C B	S W C B	T A W	W B C	N C R	W C R			
AcreMax/ AcreMax Above	AM	Cry1Ab Cry1F	x	R	RL	R	x	x	RL			R		5% blend	GLY LL	
AcreMax Leptra	AML	Cry1Ab Cry1F Vip3A	x	x	RL	x	x	x	x	x	x	x		5% blend	GLY LL	
AcreMax Xtra	AMX	Cry1Ab Cry1F <i>Cry34/35Ab1</i>	x	R	RL	R	x	x	RL			R	RL	R	10% blend	GLY LL
AcreMax Xtreme	AMXT	Cry1Ab Cry1F <i>Cry34/35Ab1 mCry3A</i>	x	R	RL	R	x	x	RL			R	x	R	5% blend	GLY LL
Agrisure Above (Agrisure3120EZ) AA Refuge Renew (Agrisure3120)	AA	Cry1Ab Cry1F	x	R	RL	R	x	x	RL			R		5% blend Renew: 5%	GLY LL?	
Agrisure Total (Agrisure3122EZ) AT Refuge Renew (Agrisure3122)	AT	Cry1Ab Cry1F <i>Cry34/35Ab1 mCry3A</i>	x	R	RL	R	x	x	RL			R	x	R	5% blend Renew: 5%	GLY LL?
Agrisure Viptera 3110	3110	Cry1Ab Vip3A	x	x	RL	x	x	x	x	x	x			20%	GLY LL	
Agrisure Viptera 3111	3111	Cry1Ab Vip3A <i>mCry3A</i>	x	x	RL	x	x	x	x	x	x	x	R	20%	GLY LL	
Duracade (Agrisure5122EZ) D Refuge Renew (Agrisure5122)	D	Cry1Ab Cry1F <i>eCry3.1Ab mCry3A</i>	x	R	RL	R	x	x	RL			R	x	R	5% blend Renew: 5%	GLY LL?
Duracade Viptera (Agrisure5222EZ) DV Refuge Renew (Agrisure 5222)	DV	Cry1Ab Cry1F Vip3A <i>eCry3.1Ab mCry3A</i>	x	x	RL	x	x	x	x	x	x	x	R	5% blend Renew: 5%	GLY LL?	
Duracade Viptera Z3 (Agrisure5332EZ) DVZ Refuge Renew (Agrisure5332)	DVZ	Cry1Ab Cry1A.105 Cry2Ab2 Vip3A <i>eCry3.1Ab mCry3A</i>	x	x	RL	x	x	x	x	x	x	x	R	5% blend Renew: 5%	GLY LL?	
Intrasect	YHR	Cry1Ab Cry1F	x	R	RL	R	x	x	RL			R		5%	GLY LL	
Leptra	VYHR	Cry1Ab Cry1F Vip3A	x	x	RL	x	x	x	x	x	x			5%	GLY LL	
PowerCore	PW	Cry1A.105 Cry2Ab2 Cry1F	x	R	RL	x	x	x	RL			R		5%	GLY LL	
PowerCore Refuge Adv.	PWRA	Cry1A.105 Cry2Ab2 Cry1F	x	R	RL	x	x	x	RL			R		5% blend	GLY LL	
PowerCore Enlist Refuge Adv.	PWE	Cry1A.105 Cry2Ab2 Cry1F	x	R	RL	x	x	x	RL			R		5% blend	GLY LL Enlist	
QROME	Q	Cry1Ab Cry1F <i>Cry34/35Ab1 mCry3A</i>	x	R	RL	R	x	x	RL			R	x	R	5% blend	GLY LL
SmartStax or Genuity SS	SS SX	Cry1A.105 Cry2Ab2 Cry1F <i>Cry3Bb1 Cry34/35Ab1</i>	x	R	RL	x	x	x	RL			R	RL	R	5%	GLY LL
SmartStax Enlist SS Enlist Refuge Advanced	SSE	Same as SmartStax	x	R	RL	x	x	x	RL			R	RL	R	5% Advanced: 5% blend	GLY LL Enlist
SmartStax Refuge Adv. SmartStax RIB Complete	SXRA	Same as SmartStax	x	R	RL	x	x	x	RL			R	RL	R	5% blend	GLY LL
SmartStax PRO	SSPro	Cry1A.105 Cry2Ab2 Cry1F <i>Cry3Bb1 Cry34/35Ab1 dvSnf7</i>	x	R	RL	x	x	x	RL			R	x	x	5%	GLY LL
SmartStax PRO Enlist SSPro Enlist Refuge Adv.	SSPro	Same as SmartStax Pro	x	R	RL	x	x	x	RL			R	x	x	5% Advanced: 5% blend	GLY LL Enlist
SmartStax PRO Refuge Advanced RIB Complete or w/RNAi Tech	SSPro	Same as SmartStax Pro	x	R	RL	x	x	x	RL			R	x	x	5% blend	GLY LL
Trecepta RIB Complete	TRERIB	Cry1A.105 Cry2Ab2 Vip3A	x	x	RL	x	x	x	x	x	x			5% blend	GLY	
Viptera (Agrisure3220EZ) Vip Refuge Renew (Agrisure3220)	V	Cry1Ab Cry1F Vip3A	x	x	RL	x	x	x	x	x	x			5% blend Renew: 5%	GLY LL?	
Viptera Z3 (Agrisure3330EZ) VZ Refuge Renew (Agrisure3330)	VZ	Cry1Ab Cry1A.105 Cry2Ab2 Vip3A	x	x	RL	x	x	x	x	x	x			5% blend Renew: 5%	GLY LL?	
Vorceed Enlist	V	Cry1A.105 Cry2Ab2 Cry1F <i>Cry3Bb1 Cry34/35Ab1 dvSnf7</i>	x	R	RL	x	x	x	RL			R	x	x	5% blend	GLY LL Enlist
VT Double PRO	VT2P	Cry1A.105 Cry2Ab2		R	RL	x	x	x	RL					5%	GLY	
VT2 PRO RIB Complete	VT2PRIB	Cry1A.105 Cry2Ab2		R	RL	x	x	x	RL					5% blend	GLY	
VT3 PRO RIB Complete	VT3PRIB	Cry1A.105 Cry2Ab2 <i>Cry3Bb1</i>		R	RL	x	x	x	RL			RL	R	10% blend	GLY	
VT4 PRO w/RNAi Technology	VT4PRO	Cry1A.105 Cry2Ab2 Vip3A <i>Cry3Bb1 dvSnf7</i>	x	x	RL	x	x	x	x	x	x	x	x	5% blend	GLY	