

# The Handy Bt Trait Table

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## for U.S. Corn Production

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The most up-to-date version of this table plus related extension materials are free online at:  
<https://www.texasinsects.org/bt-corn-trait-table.html>  
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The Handy Bt Trait Table provides a helpful list of trait packages to make it easier to understand seed guides, sales materials, and bag tags.

The big change for 2023: The table increased from one to two pages. Companies continue to recombine existing insect modes of action, rename trait stacks (as Syngenta did for 2023), and add Enlist technology (providing tolerance to 2,4-D and fops herbicides) to existing hybrid packages. Each new combination and new name increased the length of the table. The font size and spacing on the one-page version decreased to a point where it was too small. To remedy this, I flow the 2023 table over two pages. Where possible, the font size increased, and a new column was added for bag tag letter codes. For those who need it, the table of 'transformation events', on page 1 of previous tables, has moved online.

I am often asked why older trait packages, with limited or no commercial availability, remain on the table. This is for historical reference, so you can look back and interpret previous year's planting records, seed guides, and research results. Also, companies often refer to older trait stack names in current seed guides (e.g. 'AwesomeSeed's new XYZ Pro is a combination of trait packages A, B, and C'). Thus, the Handy Bt Trait Table is a one-stop shop for both past and present Bt hybrid information.

### ABBREVIATIONS in the TRAIT TABLE

#### Insect Pest Targets

BCW	black cutworm
CEW	corn earworm
CRW	corn rootworm
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
2,4D	2,4-D
fops	group 1 'fops'

Trait packages, listed A-Z <small>= former name if applicable</small>	Bag- tag Code	Toxins in package *****  Font type denotes target: caterpillar or rootworm	Marketed to control:												Resistance cases for all Bts in package	Non-Bt refuge cornbelt	Herbicide tolerance
			B	C	E	F	S	S	T	W	C						
			C	E	C	A	S	C	A	B	R	W	C				
AcreMax	AM	Cry1Ab - Cry1F	x	x	x	x	x	x	x						CEW FAW WBC	5% in bag	GLY LL
AcreMax CRW	AMRW	Cry34Ab1 - Cry35Ab1											x		NCR WCR	10% in bag	GLY LL
AcreMax1	AM1	Cry1F - Cry34Ab1 - Cry35Ab1	x		x	x	x	x	x				x		ECB FAW NCR SWCB WBC WCR	10% in bag 20% ECB	GLY LL
AcreMax Leptra	AML	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x					5% in bag	GLY LL
AcreMax TRIsect	AMT	Cry1Ab - Cry1F - mCry3A	x	x	x	x	x	x	x				x		CEW FAW WBC WCR	10% in bag	GLY LL
AcreMax Xtra	AMX	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1	x	x	x	x	x	x	x				x		CEW FAW NCR WBC WCR	10% in bag	GLY LL
AcreMax Xtreme	AMXT	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1 - mCry3A	x	x	x	x	x	x	x				x		CEW FAW WBC WCR	5% in bag	GLY LL
Agrisure 3010	3010	Cry1Ab		x	x			x	x						CEW	20%	GLY LL
Agrisure 3000 GT & 3011A		Cry1Ab - mCry3A		x	x			x	x				x		CEW WCR	20%	GLY LL
Agrisure Above <small>= Agrisure 3120EZ</small>	AA	Cry1Ab - Cry1F	x	x	x	x	x	x	x						CEW FAW WBC	5% in bag	GLY LL - check bag
Agrisure Total <small>= Agrisure 3122EZ</small>	AT	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1 - mCry3A	x	x	x	x	x	x	x				x		CEW FAW WBC WCR	5% in bag	GLY LL - check bag
Agrisure Viptera 3110	VR	Cry1Ab - Vip3A	x	x	x	x	x	x	x	x	x					20%	GLY LL
Agrisure Viptera 3111	A4	Cry1Ab - Vip3A - mCry3A	x	x	x	x	x	x	x	x	x	x			WCR	20%	GLY LL

Trait packages, listed A-Z = former name if applicable	Bag- tag Code	Toxins in package *****  Font type denotes target: caterpillar or <i>rootworm</i>	Marketed to control:												Resistance cases for all Bts in package	Non-Bt refuge cornbelt	Herbicide tolerance
			B	C	E	F	S	S	S	T	W	C	R				
			W	W	B	W	B	C	C	B	W	B	W				
Duracade = AgrisureDuracade 5122EZ	D	Cry1Ab - Cry1F - <i>eCry3.1Ab</i> - <i>mCry3A</i>	x	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% in bag	GLY LL - check bag	
Duracade Viptera = AgrisureDuracade 5222EZ	DV	Cry1Ab - Cry1F - Vip3A - <i>eCry3.1Ab</i> - <i>mCry3A</i>	x	x	x	x	x	x	x	x	x	x	x	WCR	5% in bag	GLY LL - check bag	
Duracade Viptera Z3 = AgrisureDuracade 5332EZ	DVZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A - <i>eCry3.1Ab</i> - <i>mCry3A</i>	x	x	x	x	x	x	x	x	x	x	x	WCR	5% in bag	GLY LL - check bag	
Herculex I	HXI	Cry1F	x		x	x	x	x	x	x				ECB FAW SWCB WBC	20%	GLY LL	
Herculex RW	HXRW	<i>Cry34Ab1</i> - <i>Cry35Ab1</i>											x	NCR WCR	20%	GLY LL	
Herculex XTRA	HXX	Cry1F - <i>Cry34Ab1</i> - <i>Cry35Ab1</i>	x		x	x	x	x	x	x			x	ECB FAW NCR SWCB WBC WCR	20%	GLY LL	
Intrasect	YHR	Cry1Ab - Cry1F	x	x	x	x	x	x	x	x				CEW FAW WBC	5%	GLY LL	
Intrasect TRIsect	CYHR	Cry1Ab - Cry1F - <i>mCry3A</i>	x	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	20%	GLY LL	
Intrasect Xtra	YXR	Cry1Ab - Cry1F - <i>Cry34Ab1</i> - <i>Cry35Ab1</i>	x	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	20%	GLY LL	
Intrasect Xtreme	CYXR	Cry1Ab - Cry1F - <i>Cry34Ab1</i> - <i>Cry35Ab1</i> - <i>mCry3A</i>	x	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5%	GLY LL	
Leptra	VYHR	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x	x			5%	GLY LL	
Powercore	PW	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x	x				CEW WBC	5%	GLY LL	
Powercore Refuge Advanced	PWRA	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x	x				CEW WBC	5% in bag	GLY LL	
Powercore Enlist Refuge Advanced	PWE	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x	x				CEW WBC	5% in bag	GLY LL 2,4-D fops	
QROME	Q	Cry1Ab - Cry1F - <i>Cry34Ab1</i> - <i>Cry35Ab1</i> - <i>mCry3A</i>	x	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% in bag	GLY LL	
SmartStax	SS, SX	Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i>	x	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5%	GLY LL	
SmartStax Refuge Advanced	SXRA	Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i>	x	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% in bag	GLY LL	
SmartStax Enlist	SSE	Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i>	x	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% in bag	GLY LL 2,4-D fops	
SmartStax RIB Complete	SS SSRIB	Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i>	x	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% in bag	GLY LL	
SmartStax PRO Refuge Advanced	SSPro	Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i> - <i>dvSnf7</i>	x	x	x	x	x	x	x	x			x	CEW WBC	5% in bag	GLY LL	
SmartStax PRO Enlist Refuge Advanced		Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i> - <i>dvSnf7</i>	x	x	x	x	x	x	x	x			x	CEW WBC	5% in bag	GLY LL 2,4-D fops	
SmartStax PRO with RNAi Technology	SSPRORIB	Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i> - <i>dvSnf7</i>	x	x	x	x	x	x	x	x			x	CEW WBC	5% in bag	GLY LL	
Trecepta	TRE,TRC	Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x	x			5%	GLY	
Trecepta RIB Complete	TRERIB TRCRIB	Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x	x			5% in bag	GLY	
TRIsect	CHR	Cry1F - <i>mCry3A</i>	x		x	x	x	x	x	x			x	ECB FAW SWCB WBC WCR	20%	GLY LL	
Viptera = AgrisureViptera 3220EZ	V	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x	x			5% in bag	GLY LL - check bag	
Viptera Z3 = AgrisureViptera 3330EZ	VZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x	x			5% in bag	GLY LL - check bag	
Vorceed Enlist	V	Cry1A.105 - Cry2Ab2 - Cry1F - <i>Cry3Bb1</i> - <i>Cry34Ab1</i> - <i>Cry35Ab1</i> - <i>dvSnf7</i>	x	x	x	x	x	x	x	x			x	CEW NCR WBC	5% in bag	GLY LL 2,4-D fops	
VT Double PRO	VT2P VT2PRO	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x	x				CEW	5%	GLY	
VT2P RIB Complete	VT2PRIB	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x	x				CEW	5% in bag	GLY	
VT TriplePRO	VT3P	Cry1A.105 - Cry2Ab2 - <i>Cry3Bb1</i>		x	x	x	x	x	x	x			x	CEW NCR WCR	20%	GLY	
VT3P RIB Complete	VT3PRIB	Cry1A.105 - Cry2Ab2 - <i>Cry3Bb1</i>		x	x	x	x	x	x	x			x	CEW NCR WCR	10% in bag	GLY	
VT4Pro w/RNAi Tech. <i>*Expected 2024</i>	VT4PRO	Cry1A.105 - Cry2Ab2 - Vip3A - <i>Cry3Bb1</i> - <i>dvSnf7</i>	x	x	x	x	x	x	x	x	x	x	x		5% in bag	GLY	
Yieldgard Corn Borer	YGCB	Cry1Ab		x	x			x	x					CEW	20%	GLY	
Yieldgard Rootworm	YGRW	<i>Cry3Bb1</i>											x	NCR WCR	20%	GLY	
Yieldgard VT Triple	VT3	Cry1Ab - <i>Cry3Bb1</i>		x	x			x	x				x	CEW NCR WCR	20%	GLY	