The Handy Bt Trait Table

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 renamed some of their trait stacks, introduced the dvSnf7 trait (RNAi technology) for rootworm control, or added Enlist 2,4-D/fops herbicide tolerance to existing hybrid packages. Each new combination and name increased the length of the table. Thus, the 2023 version flows over two pages. As a result of the extra space, font size increased in a few columns and a separate column was added for bag tag letter codes.

For those who need it, the table of 'transformation events' (on page 1 of previous versions) has moved online. Also new online: a *checklist of events x stacks*, plus a *list of EPA registration numbers* for the trait packages on the Handy Bt Trait Table. Visit the web link in the header.

I am often asked why older trait packages with limited or no commercial availability remain on the table. This is for historical reference, to interpret previous year's planting records, seed guides, and research results.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
LL?	check the bag tag for LL status
2,4D	2,4-D
fops	group 1 'fops'

Refuge

Unless specified as RIB (Refuge In Bag), all other percentages assume separate, structured refuge areas planted in strips, blocks, borders, or whole fields

Version: March 2023 Trait packages A-Z = former name	Bag tag code	Toxins in package *********** Font type denotes target: caterpillar or *rootworm*	BCW	CEW	ECB	FAW	SB	SCB	SWCB	TAW	WBC	CRW	Resistance cases for all Bts in package	Refuge, northern states (higher in south)	Herbicide tolerance (? = check the bag tag)
AcreMax	AM	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	5% RIB	GLY LL
AcreMax1	AM1	Cry1F - *Cry34Ab1 - Cry35Ab1*	x		x	x	x	x	x			x	ECB FAW NCR SWCB WBC WCR	10% RIB 20% ECB	GLY LL
AcreMax Leptra	AML	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			5% RIB	GLY LL
AcreMax RW	AMRW	*Cry34Ab1 - Cry35Ab1*										x	NCR WCR	10% RIB	GLY LL
AcreMax TRIsect	AMT	Cry1Ab - Cry1F - *mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	10% RIB	GLY LL
AcreMax Xtra	AMX	Cry1Ab - Cry1F - *Cry34Ab1 - Cry35Ab1*	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	10% RIB	GLY LL
AcreMax Xtreme	AMXT	Cry1Ab - Cry1F - *Cry34Ab1 - Cry35Ab1 - mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% RIB	GLY LL
Agrisure 3000GT	3000GT	Cry1Ab - *mCry3A*		x	x			x	x			x	CEW WCR	20%	GLY LL
Agrisure 3010	3010	Cry1Ab		x	x			x	x				CEW	20%	GLY LL
Agrisure Above =Agrisure 3120EZ AA Refuge Renew =Agrisure 3120	AA	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	EZ: 5% RIB Renew: 5%	GLY LL?
Agrisure Total =Agrisure 3122EZ AT Refuge Renew =Agrisure 3122	AT	Cry1Ab - Cry1F - *Cry34Ab1 - Cry35Ab1 - mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Agrisure Viptera 3110	3110	Cry1Ab - Vip3A	x	x	x	x	x	x	x	x	x			20%	GLY LL
Agrisure Viptera 3111	3111	Cry1Ab - Vip3A - *mCry3A*	x	x	x	x	x	x	x	x	x	x	WCR	20%	GLY LL

Marketed to control column codes: BCW, CEW, ECB, FAW, SAW, SCB, SWCB, TAW, WBC, CRW

Trait packages A-Z = former name	Bag tag code	Toxins in package (Font type denotes target: caterpillar or *rootworm*)	BCW	CEW	ECB	FAW	SAW	SCB	SWCB	TAW	WBC	CRW	Resistance cases for all Bts in package	Refuge, northern states (higher in south)	Herbicide tolerance (? = check the bag tag)
Duracade =Agrisure 5122EZ / D Refuge Renew =Agrisure 5122	D	Cry1Ab - Cry1F - *eCry3.1Ab* - *mCry3A*	x	x	x	x	x	x	x		x	x	CEW FAW WBC WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Duracade Viptera =Agrisure 5222EZ / DV Refuge Renew =Agrisure 5222	DV	Cry1Ab - Cry1F - Vip3A - *eCry3.1Ab* - *mCry3A*	x	x	x	x	x	x	x	x	x	x	WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Duracade Viptera Z3 =Agrsr 5332EZ / DVZ Refuge Renew =Agrisure 5332	DVZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A - *eCry3.1Ab* - *mCry3A*	x	x	x	x	x	x	x	x	x	x	WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Herculex I	HXI	Cry1F	x		x	x	x	x	x		x		ECB FAW SWCB WBC	20%	GLY LL
Herculex RW	HXRW	*Cry34Ab1* - *Cry35Ab1*										x	NCR WCR	20%	GLY LL
Herculex XTRA	HXX	Cry1F - *Cry34Ab1* - *Cry35Ab1*	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 - *mCry3A*	x	x	x	x	x	x	x		x	x	CEW FAW WBC WCR	20%	GLY LL
Intrasect Xtra	YXR	Cry1Ab - Cry1F - *Cry34Ab1* - *Cry35Ab1*	x	x	x	x	x	x	x		x	x	CEW FAW NCR WBC WCR	20%	GLY LL
Intrasect Xtreme	CYXR	Cry1Ab - Cry1F - *Cry34Ab1* - *Cry35Ab1* - *mCry3A*	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			5%	GLY LL
Powercore	PW	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x		x		CEW WBC	5%	GLY LL
Powercore Refuge Adv.	PWRA	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x		x		CEW WBC	5% RIB	GLY LL
Powercore Enlist Refuge Adv.	PWE	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x		x		CEW WBC	5% RIB	GLY LL 2,4-D fops
QROME	Q	Cry1Ab - Cry1F - *Cry34Ab1* - *Cry35Ab1* - *mCry3A*	x	x	x	x	x	x	x		x	x	CEW FAW WBC WCR	5% RIB	GLY LL
SmartStax & Genuity SmartStax	SS / SX	Cry1A.105 - Cry2Ab2 - Cry1F - *Cry3Bb1* - *Cry34Ab1* - *Cry35Ab1*	x	x	x	x	x	x	x		x	x	CEW NCR WBC WCR	5%	GLY LL
SmartStax Enlist	SSE	Same as SmartStax	x	x	x	x	x	x	x		x	x	CEW NCR WBC WCR	5%	GLY LL 2,4-D fops
SmartStax Enlist Refuge Adv.		Same as SmartStax	x	x	x	x	x	x	x		x	x	CEW NCR WBC WCR	5% RIB	GLY LL 2,4-D fops
SmartStax Refuge Adv. or SmartsStax RIB Complete	SXRA	Same as SmartStax	x	x	x	x	x	x	x		x	x	CEW NCR WBC WCR	5% RIB	GLY LL
SmartStax PRO		Cry1A.105 - Cry2Ab2 - Cry1F - *Cry3Bb1* - *Cry34Ab1* - *Cry35Ab1* - *dvSnf7*	x	x	x	x	x	x	x		x	x	CEW WBC	5%	GLY LL
SmartStax PRO Enlist		Same as SmartStax Pro	x	x	x	x	x	x	x		x	x	CEW WBC	5%	GLY LL 2,4-D fops
SmartStax PRO Enlist Refuge Advanced		Same as SmartStax Pro	x	x	x	x	x	x	x		x	x	CEW WBC	5% RIB	GLY LL 2,4-D fops
SmartStax PRO Refuge Adv. RIB Complete, or w/RNAi Tech	SSPro	Same as SmartStax Pro	x	x	x	x	x	x	x		x	x	CEW WBC	5% RIB	GLY LL
Trecepta RIB Complete	TRERIB	Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x			5% RIB	GLY
TRIsect	CHR	Cry1F - *mCry3A*	x		x	x	x	x	x		x	x	ECB FAW SWCB WBC WCR	20%	GLY LL
Viptera =Agrisure 3220EZ / Vip Refuge Renew =Agrisure 3220	V	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			EZ: 5% RIB Renew: 5%	GLY LL?
Viptera Z3 =Agrisure 3330EZ / VZ Refuge Renew =Agrisure 3330	VZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x			EZ: 5% RIB Renew: 5%	GLY LL?
Vorceed Enlist	V	Cry1A.105 - Cry2Ab2 - Cry1F - *Cry3Bb1* - *Cry34Ab1* - *Cry35Ab1* - *dvSnf7*	x	x	x	x	x	x	x		x	x	CEW NCR WBC	5% RIB	GLY LL 2,4-D fops
VT Double PRO	VT2P	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x		x		CEW	5%	GLY
VT2 PRO RIB Complete	VT2PRIB	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x		x		CEW	5% RIB	GLY
VT Triple PRO	VT3P	Cry1A.105 - Cry2Ab2 - *Cry3Bb1*		x	x	x	x	x	x		x	x	CEW NCR WCR	20%	GLY
VT3 PRO RIB Complete	VT3PRIB	Cry1A.105 - Cry2Ab2 - *Cry3Bb1*		x	x	x	x	x	x		x	x	CEW NCR WCR	10% RIB	GLY
VT4 PRO w/RNAi Tech. *Expected 2024*	VT4PRO	Cry1A.105 - Cry2Ab2 - Vip3A - *Cry3Bb1* - *dvSnf7*	x	x	x	x	x	x	x	x	x	x		5% RIB	GLY
YieldGard Corn Borer	YGCB	Cry1Ab		x	x			x	x				CEW	20%	GLY
YieldGard Rootworm	YGRW	*Cry3Bb1*										x	NCR WCR	20%	GLY
YieldGard VT Triple	VT3	Cry1Ab - *Cry3Bb1*		x	x			x	x			x	CEW NCR WCR	20%	GLY