The Handy Bt Trait Table

Version March 2024

for U.S. Corn Production

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The most up-to-date version of this table plus related extension materials are found at
https://www.texasinsects.org/bt-corn-trait-table.html
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VOID

~ A helpful list of trait packages to make it easier to understand seed guides, sales materials, and bag tags ~

Updated design for 2024

In the past, all Bt trait packages have been in the trait table. But over the years, some industry colleagues commented that leaving older products in the table was confusing if growers assumed they could still be purchased. However, information on older packages is needed to interpret planting or research records from previous years. Also, companies still refer to original traits (like Herculex I or YieldGard) on field signs, web sites, and seed guides, because single traits are components of newer multi-trait hybrids.

To finally address this concern, the 2024 table is split. I looked at 2024 seed guides from the major seed companies plus many smaller regional providers. If I found a trait package offered in at least one hybrid, from any company, it stayed on the current trait table (page 2). Trait packages which were not found as standalone hybrids were moved into a new 'phased out' table (below) for historical reference. Hopefully, this split addresses any confusion in availability. This is a work in progress; if you see an error in the 'phased out' table, send me some evidence and I'll move that package back into the current table.

New Bt names: Names of pesticidal proteins that come from bacteria were recently updated. Most Bts in the trait table are unchanged, but **Cry34/35Ab1** is now **Gpp34Ab1/Tpp35Ab1**. I kept the old name in the Bt Trait Table for now, since many seed guides and extension materials haven't caught up to the change. But related materials on the Texas A&M website are up to date.

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
Enlist	2,4-D & fops / Enlist trait

Refuge

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

HISTORICAL REFERENCE Trait packages phased out as standalone hybrids *some may be components of current trait package	**Bag tag code**	**Proteins in package *********** Font type denotes target:** caterpillar or *rootworm*	**Marketed to control:** BCW	CEW	ECB	FAW	SB	SCB	SWCB	TAW	WBC	CRW	**Species w/ resistance to all Bts in package**	**Refuge, northern states** (higher in south)	**Herbicide tolerance**
AcreMax RW	AMRW	*Cry34/35Ab1*										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
Herculex I	HXI	Cry1F	x		x	x	x	x	x				ECB FAW SWCB WBC	20%	GLY LL
Herculex RW	HXRW	*Cry34/35Ab1*										x	NCR WCR	20%	GLY LL
Intrasect TRIsect	CYHR	Cry1Ab Cry1F *mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	20%	GLY LL
Intrasect Xtra	YXR	Cry1Ab Cry1F *Cry34/35Ab1*	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	20%	GLY LL
Intrasect Xtreme	CYXR	Cry1Ab Cry1F *Cry34/35Ab1 mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5%	GLY LL
TRIsect	CHR	Cry1F *mCry3A*	x		x	x	x	x	x			x	ECB FAW SWCB WBC WCR	20%	GLY LL
VT Triple PRO	VT3P	Cry1A.105 Cry2Ab2 *Cry3Bb1*		x	x	x	x	x	x			x	CEW NCR WCR	20%	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

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Currently available trait packages, A-Z (alternate name)	Bag tag code	Proteins in package ********** Font type denotes target: caterpillar or *rootworm*	Marketed to control: BCW	CEW	ECB	FAW	SB	SCB	SWCB	TAW	WBC	CRW	Species w/ resistance to 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 *Cry34/35Ab1*	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 Xtra	AMX	Cry1Ab Cry1F *Cry34/35Ab1*	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	10% RIB	GLY LL
AcreMax Xtreme	AMXT	Cry1Ab Cry1F *Cry34/35Ab1 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 (Agrisure GT/CB/LL)	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 RW or GT/RW	?	*mCry3A*										x	WCR	20%	GLY (if GT)
Agrisure Total (Agrisure 3122EZ) AT Refuge Renew (Agrisure 3122)	AT	Cry1Ab Cry1F *Cry34/35Ab1 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
Duracade (Agrisure 5122EZ) D Refuge Renew (Agrisure 5122)	D	Cry1Ab Cry1F *eCry3.1Ab mCry3A*	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 (Agrisure 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 XTRA	HXX	Cry1F *Cry34/35Ab1*	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				CEW FAW WBC	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				CEW WBC	5%	GLY LL
Powercore Refuge Adv.	PWRA	Cry1A.105 Cry2Ab2 Cry1F	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				CEW WBC	5% RIB	GLY LL Enlist
QROME	Q	Cry1Ab Cry1F *Cry34/35Ab1 mCry3A*	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 Cry34/35Ab1*	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5%	GLY LL
SmartStax Enlist or SS Enlist Refuge Advanced	SSE	Same as SmartStax	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% Adv: 5% RIB	GLY LL Enlist
SmartStax Refuge Adv. or SmartStax RIB Complete	SXRA	Same as SmartStax	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% RIB	GLY LL
SmartStax PRO	SSPro	Cry1A.105 Cry2Ab2 Cry1F *Cry3Bb1 Cry34/35Ab1 dvSnf7*	x	x	x	x	x	x	x			x	CEW WBC	5%	GLY LL
SmartStax PRO Enlist or SSPro Enlist Refuge Advanced	SSPro	Same as SmartStax Pro	x	x	x	x	x	x	x			x	CEW WBC	5% Adv: 5% RIB	GLY LL Enlist
SmartStax PRO Refuge Adv. RIB Complete, or w/RNAi Tech	SSPro	Same as SmartStax Pro	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
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 Cry34/35Ab1 dvSnf7*	x	x	x	x	x	x	x			x	CEW NCR WBC	5% RIB	GLY LL Enlist
VT Double PRO	VT2P	Cry1A.105 Cry2Ab2		x	x	x	x	x	x				CEW	5%	GLY
VT2 PRO RIB Complete	VT2PRIB	Cry1A.105 Cry2Ab2		x	x	x	x	x	x				CEW	5% RIB	GLY
VT3 PRO RIB Complete	VT3PRIB	Cry1A.105 Cry2Ab2 *Cry3Bb1*		x	x	x	x	x	x			x	CEW NCR WCR	10% RIB	GLY
VT4 PRO w/RNAi Tech.	VT4PRO	Cry1A.105 Cry2Ab2 Vip3A *Cry3Bb1 dvSnf7*	x	x	x	x	x	x	x	x	x	x		5% RIB	GLY