

How to use the Handy Bt Trait Table

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Disclaimer: examples in this slide set are given to demonstrate use of the Bt table, not to endorse any specific company, Bt trait, or hybrid

the Handy Bt Trait Table

- originally a local document, now used nationwide
- it's 'handy' because few sources compare all Bt trait packages in one document

The Handy Bt Trait Table

for U.S. Corn Production

The latest version of this document is always posted at <https://www.texasinsects.org/bt-corn-trait-table.html>
 For questions & corrections: Chris DiFonzo, Michigan State Univ., difonzo@msu.edu
 Contributor: Pat Porter, Texas A&M University (southern version of the table)

Updated
November
2018

Most corn hybrids planted in the U.S. have transgenic traits for insect management. The Handy Bt Trait Table provides a helpful list of trait names (below) and details of trait packages (over) to make it easier to understand company seed guides, sales materials, and bag tags.

New for 2019

- ✓ Recent mergers resulted in name changes for several seed companies. While your local seed rep may have a new business card, the names of trait packages remain the same, listed alphabetically on page 2.
- ✓ *Bt Resistance* is arguably the most important issue facing growers, extension entomologists, and seed company agronomists. Problems continue to increase in regions where field failures were already found, and new cases of resistance are reported every season. To date, resistance is confirmed to all Bt toxins targeting western corn rootworm, particularly in the central corn belt. In the southern states, corn earworm and fall armyworm resistance is expanding, while Cry1F no longer controls western bean cutworm in the Great Lakes region. These species were once secondary to European corn borer in importance, but now they are of primary concern for many growers. It is critical to be up-to-date on resistance development in your local area so that you know the limitations of the Bt traits you plant.

Field corn 'events' (transformations of one or more genes) and their Trade Names

Trade name for trait	Event	Protein(s) expressed	Primary Insect Targets + Herbicide tolerance
Agrisure CB/LL	Bt11	Cry1Ab + PAT	corn borer + glufosinate
Agrisure Duracade	5307	eCry3.1Ab	rootworm
Agrisure GT	GA21	EPSPS	glufosinate
Agrisure RW	MIR604	mCry3A	rootworm
Agrisure Viptera	MIR162	Vip3A	broad caterpillar control, except for corn borer
Enlist	DAS40278	aad-1	2,4-D herbicide detoxification
Herculex I (HXI) or CB	TC1507	Cry1Fa2 + PAT	corn borer + glufosinate
Herculex CRW	DAS-59122-7	Cry34Ab1/Cry35Ab1 + PAT	rootworm + glufosinate
(None – part of Qrome)	DP-4114	Cry1F + Cry34Ab1/Cry35Ab1 + PAT	corn borer + rootworm + glufosinate
Roundup Ready 2	NK603	EPSPS	glufosinate
Yieldgard Corn Borer	MON810	Cry1Ab	corn borer
Yieldgard Rootworm	MON863	Cry3Bb1	rootworm
Yieldgard VT Pro	MON89034	Cry1A.105 + Cry2Ab2	corn borer & several caterpillar species
Yieldgard VT Rootworm	MON88017	Cry3Bb1 + EPSPS	rootworm + glufosinate

Abbreviations used in the Trait Table

Herbicide traits

GT *glufosinate tolerant*

LL Liberty Link - *glufosinate-tolerant*

RR2 Roundup Ready 2, *glufosinate-tolerant*

Insect targets

BCW black cutworm	SB stalk borer
CEW corn earworm	SCB sugarcane borer
CRW corn rootworm	SWCB southwestern corn borer
ECB European corn borer	TAW true armyworm
FAW fall armyworm	WBC western bean cutworm

Page 1 - Table of Events

= gene(s) inserted to create GMO corn hybrids

Trade name for trait	Event	Protein(s) expressed	Primary Insect Targets + <i>Herbicide tolerance</i>
Agrisure CB/LL	Bt11	Cry1Ab + <i>PAT</i>	corn borer + <i>glufosinate</i>
Agrisure Duracade	5307	eCry3.1Ab	rootworm
Agrisure GT	GA21	<i>EPSPS</i>	<i>glyphosate</i>
Agrisure RW	MIR604	mCry3A	rootworm
Agrisure Viptera	MIR162	Vip3A	broad caterpillar control, except for corn borer
Enlist	DAS40278	<i>aad-1</i>	<i>2,4-D herbicide detoxification</i>
Herculex I (HXI) or CB	TC1507	Cry1Fa2 + <i>PAT</i>	corn borer + <i>glufosinate</i>
Herculex CRW	DAS-59122-7	Cry34Ab1/Cry35Ab1 + <i>PAT</i>	rootworm + <i>glufosinate</i>
(None – part of Qrome)	DP-4114	Cry1F + Cry34Ab1/Cry35Ab1 + <i>PAT</i>	corn borer + rootworm + <i>glufosinate</i>
Roundup Ready 2	NK603	<i>EPSPS</i>	<i>glyphosate</i>
Yieldgard Corn Borer	MON810	Cry1Ab	corn borer
Yieldgard Rootworm	MON863	Cry3Bb1	rootworm
Yieldgard VT Pro	MON89034	Cry1A.105 + Cry2Ab2	corn borer & several caterpillar species
Yieldgard VT Rootworm	MON88017	Cry3Bb1 + <i>EPSPS</i>	rootworm + <i>glyphosate</i>

common name of the event

type of Bt in the GMO plant

insects controlled by the toxin

Page 1 - Abbreviations used in the Trait Table

Insect targets

BCW	black cutworm	SB	stalk borer
CEW	corn earworm	SCB	sugarcane borer
CRW	corn rootworm	SWCB	southwestern corn borer
ECB	European corn borer	TAW	true armyworm
FAW	fall armyworm	WBC	western bean cutworm

**some insect may only occur in the north or south*

Herbicide traits

GT *glyphosate tolerant*

LL Liberty Link - *glufosinate-tolerant*

RR2 Roundup Ready 2, *glyphosate-tolerant*

Page 2 - the Trait Table

Grouped by trait package
- commercial names for combinations of events

- trait packages are listed alphabetically
- remaining columns provide info on the Bts in the trait package

The Handy Bt Trait Table for U.S. Corn Production, updated November 2018

Trait packages in alphabetical order (acronym)	Bt protein(s) in the trait package	Marketed for control of:												Insects resistant to the combination of Bt proteins in the trait package	Herbicide trait		Non-Bt Refuge % (cornbelt)
		B	C	E	F	S	S	W	T	W	C	R	C		GT	LL	
		W	W	B	W	B	C	B	A	B	W	C	W		RR2	LL	
AcreMax (AM)	Cry1Ab Cry1F	x		x	x	x	x	x						FAW WBC	x	x	5% in bag
AcreMax CRW (AMRW)	Cry34/35Ab1												x	CRW	x	x	10% in bag
AcreMax1 (AM1)	Cry1F Cry34/35Ab1	x		x	x	x	x	x					x	FAW SWCB WBC CRW	x	x	10% in bag 20% ECB
AcreMax Leptra (AML)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x					x	x	5% in bag
AcreMax TRIssect (AMT)	Cry1Ab Cry1F mCry3A	x		x	x	x	x	x					x	FAW WBC CRW	x	x	10% in bag
AcreMax Xtra (AMX)	Cry1Ab Cry1F Cry34/35Ab1	x		x	x	x	x	x					x	FAW WBC CRW	x	x	10% in bag
AcreMax Xtreme (AMXT)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x		x	x	x	x	x					x	FAW WBC CRW	x	x	5% in bag
Agrisure 3010 and 3010A	Cry1Ab			x				x	x						x	x	20%
Agrisure 3000GT and 3011A	Cry1Ab mCry3A				x			x	x				x	CRW	x	x	20%
Agrisure Viptera 3110	Cry1Ab Vip3A	x	x	x	x	x	x	x	x	x					x	x	20%
Agrisure Viptera 3111	Cry1Ab Vip3A mCry3A	x	x	x	x	x	x	x	x	x	x			CRW	x	x	20%
Agrisure 3120 E-Z Refuge	Cry1Ab Cry1F	x		x	x	x	x	x						FAW WBC	x		5% in bag
Agrisure 3122 EZ Refuge	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x		x	x	x	x	x					x	FAW WBC CRW	x	See bag tag for code	5% in bag
Agrisure Viptera 3220 E-Z Refuge	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x					x		5% in bag
Agrisure Viptera 3330 E-Z Refuge	Cry1Ab Vip3A Cry1A.105 + Cry2Ab2	x	x	x	x	x	x	x	x	x					x	E20 NO	5% in bag
Agrisure Duracade 5122 E-Z Refuge	Cry1Ab Cry1F mCry3A eCry3.1Ab	x		x	x	x	x	x					x	FAW WBC CRW	x	E21 YES	5% in bag
Agrisure Duracade 5222 E-Z Refuge	Cry1Ab Cry1F Vip3A mCry3A eCry3.1Ab	x	x	x	x	x	x	x	x	x	x			CRW	x		5% in bag
Herculex I (HXI)	Cry1F	x		x	x	x	x	x						FAW SWCB WBC	x	x	20%
Herculex RW (HXRW)	Cry34/35Ab1												x	CRW	x	x	20%
Herculex XTRA (HXX)	Cry1F Cry34/35Ab1	x		x	x	x	x	x					x	FAW SWCB WBC CRW	x	x	20%
Intrasect (YHR)	Cry1Ab Cry1F	x		x	x	x	x	x						FAW WBC	x	x	5%
Intrasect TRIssect (CYHR)	Cry1Ab Cry1F mCry3A	x		x	x	x	x	x					x	FAW WBC CRW	x	x	20%
Intrasect Xtra (YXR)	Cry1Ab Cry1F Cry34/35Ab1	x		x	x	x	x	x					x	FAW WBC CRW	x	x	20%
Intrasect Xtreme (CYXR)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x		x	x	x	x	x					x	FAW WBC CRW	x	x	5%
Leptra (VYHR)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x					x	x	5%
Powercore ^a	Cry1A.105 Cry2Ab2	x	x	x	x	x	x	x						CEW WBC	x	x	^a 5%
Powercore Refuge Advanced ^b	Cry1F														x	x	^b 5% in bag
QRONE (Q)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x		x	x	x	x	x					x	FAW WBC CRW	x	x	5% in bag
SmartStax ^a	Cry1A.105 Cry2Ab2	x	x	x	x	x	x	x					x	CEW WBC CRW	x	x	^a 5%
SmartStax Refuge Advanced ^b	Cry1F Cry3Bb1														x	x	^b 5% in bag
SmartStax RIB Complete ^a	Cry34/35Ab1																
Trecepta ^a	Cry1A.105 Cry2Ab2	x	x	x	x	x	x	x	x	x					x		^a 5%
Trecepta RIB Complete ^b	Vip3A																^b 5% in bag
TRIssect (CHR)	Cry1F mCry3A	x		x	x	x	x	x					x	FAW SWCB WBC CRW	x	x	20%
VT Double PRO ^a	Cry1A.105 Cry2Ab2			x	x	x	x	x						CEW	x		^a 5%
VT Double PRO RIB Complete ^b																	^b 5% in bag
VT Triple PRO ^a	Cry1A.105 Cry2Ab2			x	x	x	x	x					x	CEW CRW	x		^a 20%
VT Triple PRO RIB Complete ^a	Cry3Bb1																^a 10% in bag
Yieldgard Corn Borer (YGCB)	Cry1Ab				x			x							x		20%
Yieldgard Rootworm (YGRW)	Cry3Bb1												x	CRW	x		20%
Yieldgard VT Triple	Cry1Ab Cry3Bb1			x				x	x				x	CRW	x		20%

Trait packages are a bit like insecticide names

<u>chemical</u> <u>formula</u>	<u>active</u> <u>ingredient</u>	<u>Trade</u> <u>name</u>	<u>specific</u> <u>formulations</u>
$C_{23}H_{22}ClF_3O_2$	bifenthrin	Brigade	Brigade 2EC Brigade WSB
$C_9H_{11}Cl_3NO_3PS$	chlorpyrifos	Lorsban	Lorsban 15G Lorsban Adv.
combination product: bifenthrin + chlorpyrifos		Hero	Hero Hero EW

<u>Bt</u> <u>event</u>	<u>Bt</u> <u>protein</u>	<u>Trait</u> <u>package</u>	<u>specific</u> <u>hybrids</u> <u>(many)</u>
TC1505	Cry1F	Herculex 1	P1498EHR
DAS-59122-7	Cry34/35Ab1	Herculex RW	P0448 AMRW
combination products: Cry1F + Cry34/35Ab1		AcreMax1 Herculex Xtra	P0905EXR P0533EXR

**Trait packages in
alphabetical order
(acronym)**

AcreMax (AM)

AcreMax CRW (AMRW)

AcreMax1 (AM1)

AcreMax Leptra (AML)

AcreMax TRIssect
(AMT)

AcreMax Xtra
(AMX)

AcreMax Xtreme
(AMXT)

Agrisure 3010 and 3010A

Agrisure 3000GT and 3011A

Column 1:

Official names of the
trait packages and
their **(acronyms)**

- used in seed guides,
company materials,
bag tags, field signs

Bt protein(s) in the trait package
Cry1Ab Cry1F
Cry34/35Ab1
Cry1F Cry34/35Ab1
Cry1Ab Cry1F Vip3A
Cry1Ab Cry1F mCry3A
Cry1Ab Cry1F Cry34/35Ab1
Cry1Ab Cry1F mCry3A Cry34/35Ab1
Cry1Ab
Cry1Ab mCry3A

Column 2

Bt proteins expressed in each trait package

- can compare among hybrids, determine which have the same Bt protein
- this is important for **resistance management**

Marketed for control of:

	C	E	F	S	S	W	T	W	C
B									
C									
W									
X		X	X	X	X	X			
									X
X		X	X	X	X	X			X
X	X	X	X	X	X	X	X	X	
X		X	X	X	X	X			X
X		X	X	X	X	X			X
		X			X	X			
		X			X	X			X

Column 3

insect targets controlled by the Bts, as claimed by the companies



Insects resistant to the combination of Bt proteins in the trait package

FAW WBC

CRW

FAW SWCB WBC
CRW

FAW WBC CRW

FAW WBC CRW

FAW WBC CRW

CRW

Column 4

Information on Bt resistance

- lists insects which are resistant to all of the Bts in the trait package, documented in lab assays or field studies
- resistance citations posted online with the Bt trait table



- resistance may be local, regional, or widespread
- check w/ local extension or seed dealer



western
corn
rootworm

examples:



western
bean
cutworm

Resistant to:

- Cry3Bb1 (YieldGard rootworm)
- mCry3A (Agrisure RW)
- Cry34/35Ab1 (Herculex RW)

Where?

- states in the central Plains
- isolated fields elsewhere

Resistant to:

- Cry1F
(Herculex 1)

Where?

- everywhere

**Herbicide
trait**

Column 5

Herbicide tolerance

- Important if LL is not part of package

GT	LL
RR2	

X	X
---	---

X	X
---	---

examples of single herbicide packages



Agrisure 3120 E-Z Refuge	Cry1Ab Cry1F	x		x	x	x	x	x			FAW WBC	x	See bag tag for code
Agrisure 3122 EZ Refuge	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x		x	x	x	x	x		x	FAW WBC CRW	x	
Agrisure Viptera 3220 E-Z Refuge	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x			x	
Agrisure Viptera 3330 E-Z Refuge	Cry1Ab Vip3A Cry1A.105 + Cry2Ab2	x	x	x	x	x	x	x	x			x	
Agrisure Duracade 5122 E-Z Refuge	Cry1Ab Cry1F mCry3A eCry3.1Ab	x		x	x	x	x	x		x	FAW WBC CRW	x	
Agrisure Duracade 5222 E-Z Refuge	Cry1Ab Cry1F Vip3A mCry3A eCry3.1Ab	x	x	x	x	x	x	x	x	x	CRW	x	

EZO
NO
EZ1
YES

Trecepta ^a	Cry1A.105 Cry2Ab2	x	x	x	x	x	x	x	x			x	
Trecepta RIB Complete ^b	Vip3A												



Column 6

Refuge requirement

- most but not all hybrids are now RIB, Refuge In the Bag
- Note this refuge is for the **corn belt** % refuge is higher in southern cotton-growing areas

Non-Bt
Refuge %
(cornbelt)

5% in bag

10% in bag

10% in bag
20% ECB

5% in bag

10% in bag

10% in bag

5% in bag

20%

20%

PLANT YOUR REFUGE.





Practical uses of the Trait Table

Seed selection: comparing hybrids in long lists

2015-2016

PIONEER® BRAND PRODUCTS FOR FOOD CORN PROCESSING



This is the North America **Yellow Food Corn (YFC)** and **White Food Corn (WH)** list of Pioneer® brand products. DuPont Pioneer began developing superior food-grade corn hybrids over fifty years ago. ALL Pioneer food-grade products are characterized for traits that food processors demand, such as kernel texture, color, size, and ear rot diseases (Fusarium, Gibberella, Diplodia). Please check with your local authorized Pioneer sales professional for availability of specific products from this list in your local area.

FOOD-GRADE YELLOW (YFC) AND HARD TEXTURED PRODUCTS

Pioneer® Hybrid/Brand™	Technology Segment	CRM	Pioneer® Hybrid/Brand™	Technology Segment	CRM	Pioneer® Hybrid/Brand™	Technology Segment	CRM	Pioneer® Hybrid/Brand™	Technology Segment	CRM
38M58	HX1,LL,RR2	94	33W80	RR2	111	P1443AM™*	AM,LL,RR2	114	P1751AM™*	AMT,LL,RR2	117
P0297AM1™	AM1,LL,RR2	102	33W88AM1™	AM1,LL,RR2		P1443YHR*	YGCB,HX1,LL,RR2		P1751AM™*	AM,LL,RR2	
P0297AMXT™	AMXT,LL,RR2		P1105*		P1456HR	HX1,LL,RR2	114	32B34	HX1,LL,RR2	118	
P0297AMX™	AMX,LL,RR2		P1105AM™	AM,LL,RR2	P1498		114	P1883AM™	AM,LL,RR2	118	
P0302CHR	RW,HX1,LL,RR2	103	P1105AMX™	AMX,LL,RR2	P1498AM1™	AM1,LL,RR2		P1883R	RR2		
P0407AMXT™	AMXT,LL,RR2	104	P1105R	RR2	P1498AM™	AM,LL,RR2	114	P1883YHR	YGCB,HX1,LL,RR2	119	
P0448		104	P1105YHR	YGCB,HX1,LL,RR2	P1498CHR	RW,HX1,LL,RR2		31G65	RR2		
P0448AM1™	AM1,LL,RR2		P1168AMX™	AMX,LL,RR2	111	P1498HR	HX1,LL,RR2	31G70	HXX,LL,RR2		
P0448AMRW™	AMRW,LL,RR2		P1184		111	P1498R	RR2	31G71	HX1,LL,RR2		
P0448AMX™	AMX,LL,RR2		P1184AM1™	AM1,LL,RR2		P1498YHR	YGCB,HX1,LL,RR2	31N26	RR2	119	
P0448HR	HX1,LL,RR2		P1184AMRW™	AMRW,LL,RR2	32T16		31N27				
P0448R	RR2	P1184AM™	AM,LL,RR2	33D42	RW,HX1,LL,RR2	P1916YHR*	YGCB,HX1,LL,RR2	119			
35F37	RR2	P1184R	RR2	33D47	RR2	P1944HR	HX1,LL,RR2	119			
35F38		P1184YHR	YGCB,HX1,LL,RR2	33D49	HX1,LL,RR2	P2160YHR*	YGCB,HX1,LL,RR2	121			

YGCB Yieldgard corn borer
 HX1 Herculex 1
 LL RR2 Liberty Link & Roundup Ready

HX1 Herculex 1
 LL RR2 Liberty Link & Roundup Ready

Understanding an invoice: what seed was ordered and/ or delivered

AMXT hybrids = AcreMax Xtreme

- pyramids for Leps, CRW
- 5% RIB
- LL and RR2

R hybrid

- non-Bt refuge for CHR hybrids
- it is only Roundup Ready

CHR hybrids = TRIsect

- single Bts for Leps, CRW
- 20% structured refuge
- LL and RR2

AMT hybrids = AcreMax TRIsect

- pyramid for Leps, single Bt for CRW
- 10% RIB
- LL and RR2

Product	Segment	Sub-Product Description
P1311AMXT	AMXT/LL/RR2	NW84 MR 40 H IST V RA
P1311AMXT	AMXT/LL/RR2	NW61 PDR 50 H IST V R
P1311AMXT	AMXT/LL/RR2	NW01 PDR 80 H IST V R
P1602R	RR2	NW01 PDR 80 H IST V R
P1690CHR	RW/HX1/LL/RR2	NW62 PDF 50 H IST V R
P1690CHR	RW/HX1/LL/RR2	NW01 PDR 80 H IST V R
P1751AMT	AMT/LL/RR2	NW81 PDR 40 H IST V R
P1751AMT	AMT/LL/RR2	NW61 PDR 50 H IST V R
P1751AMT	AMT/LL/RR2	NW01 PDR 80 H IST V R
Corn Total		
Gross Invoice Value		

DKC46-61RIB
BRAND
(GENSS)

RELATIVE MATURITY: OVERALL -96

GROWING DEGREE UNITS MID-POLLINATION: 1240

BLACK LAYER: 2350

LOT NO. 762PTK7JX

ORIGIN GERM DATE TESTED

VARIETY A1020470: 94.00 % MI 95% 01/12

VARIETY A1023398: 5.00 % IL 95% 11/11

INERT MATTER: 0.40 %

WEED SEED: 0.00 %

OTHER CROP SEED: 0.60 %

NOXIOUS WEEDS/LB: NONE SUGGESTED PLATE:

KIND: FIELD CORN JD B7

TRTMT: WAIH1 CIH C7

The seed in this container consists of the two identified field corn varieties. It is a Mixture under the state laws of AL, AK, AZ, CT, DE, FL, GA, ID, IL, KS, LA, KY, MA, MD, MS, NC, NE, NJ, NV, NY, OK, OR, TN, UT, WV and WI, and a Blend under the state laws of IN, HI, MI, MN, ND, OH, PA and WA. This is a product of MONSANTO's research program offering unique genetic characteristics for specific grower needs and protected by U.S. patent(s) : PENDING.



Understanding bag-tags

SmartStax tag

- this hybrid is a pyramid of Bts for both LepS and CRW
- It controls most LepS, but NOT western bean cutworm
- 'RIB Complete' means the 5% refuge is in the bag



A250

Understanding signs at field days, in demonstration plots or along the roadside

Agrisure 3220 trait package

- a pyramid of Bts for leps
Cry1Ab + Cry1F + Vip3A
- 5% refuge in the bag

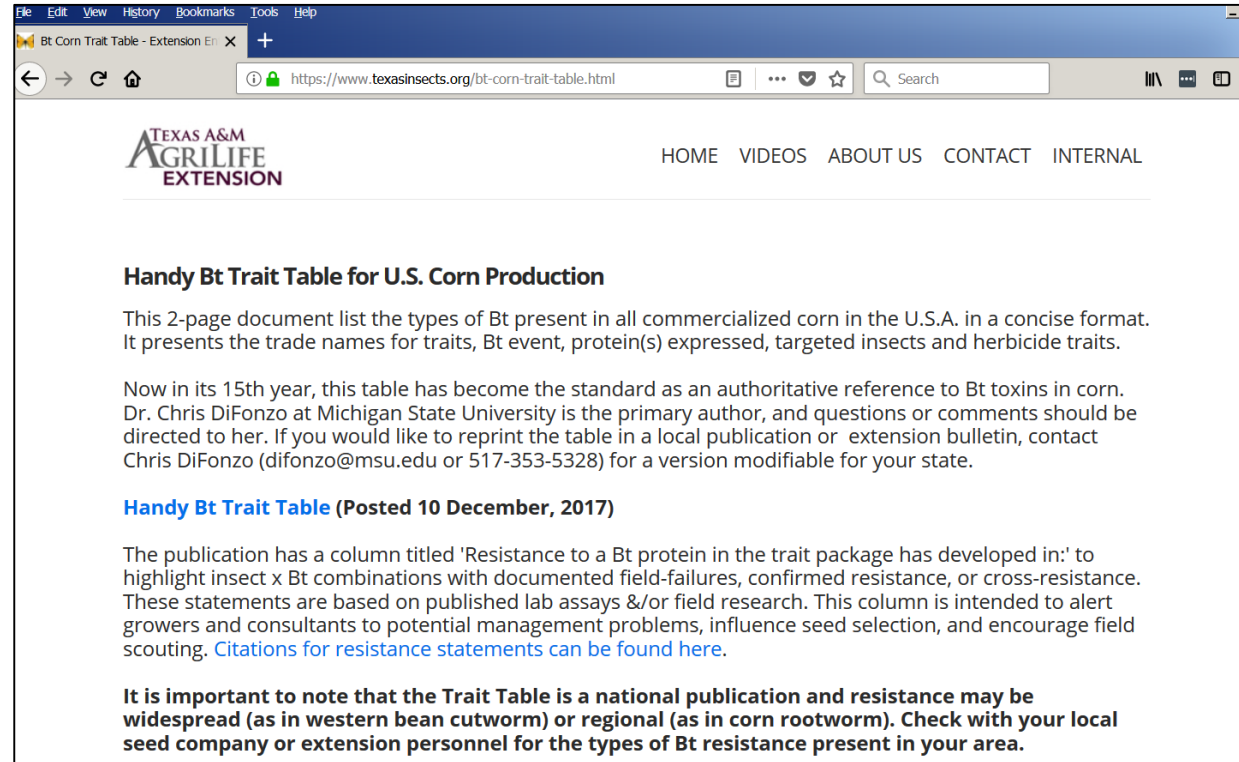
As a **Viptera** event, this hybrid should control western bean cutworm



To view/ download the trait table:

www.texasinsects.org/bt-corn-trait-table.html

The version
on this site
is always the
latest....



The screenshot shows a web browser window with the URL <https://www.texasinsects.org/bt-corn-trait-table.html>. The page features the Texas A&M Agrilife Extension logo and a navigation menu with links for HOME, VIDEOS, ABOUT US, CONTACT, and INTERNAL. The main content area is titled "Handy Bt Trait Table for U.S. Corn Production" and contains the following text:

This 2-page document list the types of Bt present in all commercialized corn in the U.S.A. in a concise format. It presents the trade names for traits, Bt event, protein(s) expressed, targeted insects and herbicide traits.

Now in its 15th year, this table has become the standard as an authoritative reference to Bt toxins in corn. Dr. Chris DiFonzo at Michigan State University is the primary author, and questions or comments should be directed to her. If you would like to reprint the table in a local publication or extension bulletin, contact Chris DiFonzo (difonzo@msu.edu or 517-353-5328) for a version modifiable for your state.

Handy Bt Trait Table (Posted 10 December, 2017)

The publication has a column titled 'Resistance to a Bt protein in the trait package has developed in:' to highlight insect x Bt combinations with documented field-failures, confirmed resistance, or cross-resistance. These statements are based on published lab assays &/or field research. This column is intended to alert growers and consultants to potential management problems, influence seed selection, and encourage field scouting. [Citations for resistance statements can be found here.](#)

It is important to note that the Trait Table is a national publication and resistance may be widespread (as in western bean cutworm) or regional (as in corn rootworm). Check with your local seed company or extension personnel for the types of Bt resistance present in your area.