



2023

SEED GUIDE



CORN

Hybrids that help maximize the productivity on every acre, from your toughest ground to your most productive soil. All backed by Answer Plot® testing and data. CROPLAN® is also one of the only seed brands to offer zinc in the bag, to promote early season growth and root development. So when you want to maximize the potential of your corn acres, start with seed that puts you in control. CROPLAN.

KEY TAKEAWAYS

- 1 Optimize yield potential by understanding hybrid response to population (RTP).
- 2 Use hybrid response-to-nitrogen (RTN) scores to maximize your nitrogen management plan.
- 3 Understand hybrid ROI potential with fungicide applications by knowing the response-to-fungicide (RTF) score.
- 4 Use quality data from CROPLAN® to make informed decisions.
- 5 CROPLAN® hybrids come standard with Fortivent® Plus seed treatment, to protect and drive early season vigor.

OPTIMIZE YOUR SEED ROI

You need more sophisticated data to unlock the potential of your seed investment. CROPLAN® seed is answering the call. New Answer Plot® research provides response-to data for all CROPLAN corn hybrids. So you're armed with Response-to-Nitrogen and Response-to-Fungicide intelligence for each hybrid, and can fine tune management plans to increase yield potential in the most economically efficient manner.

Response-to-Nitrogen data helps you identify the nitrogen strategy which will maximize ROI for each hybrid. Three levels of nitrogen testing creates a response curve for each hybrid.

- **Low** (.2#N/bu of expected yield)
- **Moderate** (.7#N/bu of expected yield)
- **High** (1.1#N/bu of expected yield)

Response to Fungicide data allows growers to make two key decisions in the most profitable manner:

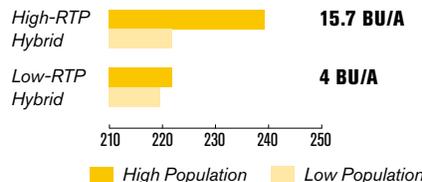
1. Which hybrids should receive a fungicide application to create maximum ROI potential.
2. Application timing that can help unlock the greatest yield response for each hybrid.

Combining these two testing strategies allows us to make sense of the almost infinite interactions between nitrogen levels, fungicide applications and hybrid response. And that means more confident, profitable decision making all year round. When it comes to seed, demand a brand that provides the intelligence you need to maximize ROI. Demand CROPLAN.

TARGET POPULATIONS²

Planting each hybrid at the right population is key to optimizing its performance potential. A high RTP score identifies a hybrid that shows a potential yield gain with increased populations. A low RTP score indicates a hybrid that does not deliver high yield potential with increased populations.

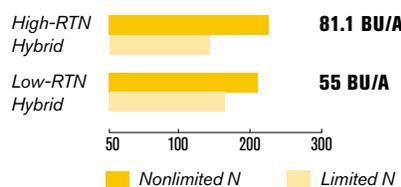
► RTP Yield Response Variance — 11.7 bu/A



LET NITROGEN NOURISH²

Be sure to consider the RTN scores of the hybrids you choose. Select hybrids with high RTN scores if you are planning to apply additional or late-season nitrogen, and hybrids with moderate or low scores in limited nitrogen environments. Perform appropriate tissue testing to determine optimal application timing for nitrogen, which may help minimize the financial and environmental costs of applying too much.

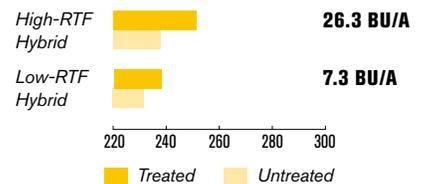
► RTN Yield Response Variance — 26.1 bu/A



LEVERAGE FUNGICIDES FOR PLANT HEALTH²

Fungicides are another tool to help you optimize the yield potential of your corn crop. RTF scores help you understand where fungicides may increase yield potential and protect ROI potential.

► RTF Yield Response Variance — 19 bu/A



TURN DATA INTO INSIGHTS

Trusted WinField United advisors help you connect various data sources, analyzing and interpreting different data sets to make personalized recommendations for your farm to achieve more yield and profit potential.

More Than 6 Million Data Points³

20-Plus Years of Answer Plot® Expertise

Nationwide Answer Plot® Locations

Exceptional Data Accuracy (low LSDs)

1. Response ranges show the importance of how hybrids respond to each management practice to help ensure the highest yield potential. 2019 nationwide Answer Plot® data. Because of factors outside of WinField United's control, such as weather, product application and any other factors, results to be obtained, including but not limited to yields, financial performance or profits, cannot be predicted or guaranteed by WinField United.

2. 2020 Answer Plot® trial data.

3. 1998–2020 Answer Plot® trial data.

CORN



CROPLAN® TRAIT LETTERING FOR CORN HYBRIDS

Descriptive hybrid numbering and trait lettering systems are used for CROPLAN® corn hybrids.

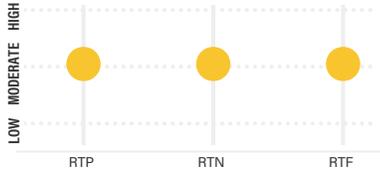
KEY	HYBRID	TRAIT	LOGO
SS	SmartStax®	YieldGard VT Rootworm, Herculex® RW, YieldGard VT PRO® Corn Borer and Herculex® protection, Roundup Ready® 2 Technology and LibertyLink®	
SS/RIB	SmartStax® RIB Complete® Corn Blend	5% RIB, YieldGard VT Rootworm, Herculex® RW, YieldGard VT PRO® Corn Borer and Herculex® protection, Roundup Ready® 2 Technology and LibertyLink®	
VT2P	VT Double PRO®	YieldGard VT PRO® Corn Borer protection, Roundup Ready® 2 Technology	
VT2P/RIB	VT Double PRO® RIB Complete® Corn Blend	5% RIB, YieldGard VT PRO® Corn Borer protection, Roundup Ready® 2 Technology	
RR	Roundup Ready® Corn 2	Roundup Ready® Corn 2	
TRE/RIB	Trecepta® RIB Complete® Corn Blend	5% RIB, Trecepta® Technology Corn Ear Worm Protection, YieldGard VT PRO® Corn Borer protection, Roundup Ready® 2 Technology	
TRE	Trecepta®	Trecepta® Technology Corn Ear Worm Protection, YieldGard VT PRO® Corn Borer protection, Roundup Ready® 2 Technology	
DGVT2P	DroughtGard® VT Double PRO® Corn Blend	DroughtGard® YieldGard VT PRO® Corn Borer protection, Roundup Ready® 2 Technology	
DGVT2P/RIB	DroughtGard® VT Double PRO® RIB Complete® Corn Blend	5% RIB, DroughtGard® YieldGard VT PRO® Corn Borer protection, Roundup Ready® 2 Technology	
AS3000GT	Agrisure® 3000GT	Agrisure® Corn Borer and Rootworm protection, Glyphosate Tolerant and LibertyLink®	
AS3111	Agrisure Viptera® 3111	Agrisure® Corn Borer, Rootworm and Broad Lepidopteran protection, Glyphosate Tolerant and LibertyLink®	
GT	Agrisure® GT	Agrisure® Glyphosate Tolerant	
D	Duracade™	Duracade™ Corn Borer and Rootworm protection, Glyphosate Tolerant, LibertyLink® and Herculex® I Insect Protection	

CROPLAN CP2180VT2P/RIB

Relative Maturity: 81



Response Scores



- Position in average to high yield potential acres
- Strong vigor, stalks and roots
- Maximize yield with moderate to high populations
- Flowers early for RM, keep in zone

Characteristics

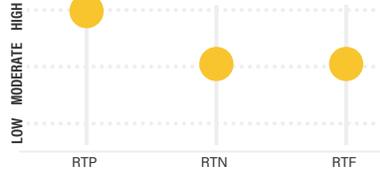
	Not Recommended	Excellent
Seedling Vigor	2	2
Drought Tolerance	3	
Root Strength	2	
Staygreen	3	
Stalk Quality	2	
Dry Down	2	
Test Weight	3	

CROPLAN CP2288VT2P/RIB

Relative Maturity: 82



Response Scores



- Excellent yield stability across all environments; strong stress tolerance
- Excellent root strength with strong stalks and Goss's wilt tolerance
- Moderate response to enhanced nitrogen management
- Keep in relative maturity zone

Characteristics

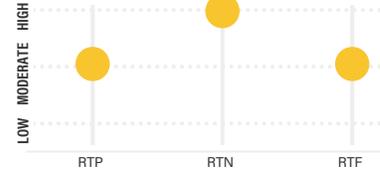
	Not Recommended	Excellent
Seedling Vigor	2	2
Drought Tolerance	2	
Root Strength	1	
Staygreen	2	
Stalk Quality	2	
Dry Down	2	
Test Weight	1	

CROPLAN CP2315VT2P/RIB

Relative Maturity: 83



Response Scores



- Excellent drought tolerance to move across variable and tough acres
- Solid agronomics with strong defensive characteristics
- Manage with populations and fungicide application
- Flowers early for RM, keep in zone

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	2
Drought Tolerance	2	
Root Strength	2	
Staygreen	3	
Stalk Quality	3	
Dry Down	2	
Test Weight	3	

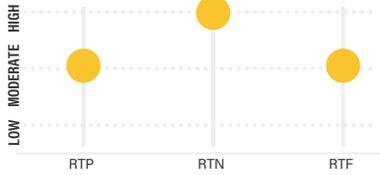
NEW

CROPLAN CP2585VT2P/RIB

Relative Maturity: 85



Response Scores



- Ideally placed on productive soils
- Strong seedling vigor for planting early
- High response to nitrogen hybrid that responds well to aggressive nitrogen management
- Use caution in drought-prone, low productive soils

Characteristics

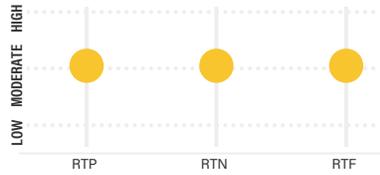
	Not Recommended	Excellent
Seedling Vigor	2	2
Drought Tolerance	3	
Root Strength	3	
Staygreen	3	
Stalk Quality	2	
Dry Down	2	
Test Weight	3	

CROPLAN CP2520RR

Relative Maturity: 86



Response Scores



- Strong stress tolerance on heavy and moderate soil types
- Excellent roots and drought tolerance
- Nice ear flex for lower populations
- Optimum emergence when planted in warm soils

Characteristics

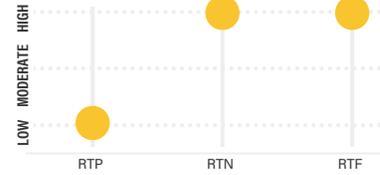
	Not Recommended	Excellent
Seedling Vigor	3	
Drought Tolerance	1	
Root Strength	1	
Staygreen	3	
Stalk Quality	3	
Dry Down	2	
Test Weight	3	

CROPLAN CP2790VT2P/RIB

Relative Maturity: 87



Response Scores



- High-yielding product with strong ear flex and drought tolerance
- Excellent seedling vigor for early planting
- Strong ear flex with a moderate response-to-nitrogen; can fit a broad range of growing conditions
- Manage for late-season stalks and Goss's wilt

Characteristics

	Not Recommended	Excellent
Seedling Vigor	1	1
Drought Tolerance	1	1
Root Strength	2	
Staygreen	3	
Stalk Quality	3	
Dry Down	2	
Test Weight	2	

KEY Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

Product descriptions and ratings are generated from Answer Plot® trials and/or from the genetics supplier and may change as additional data is gathered.



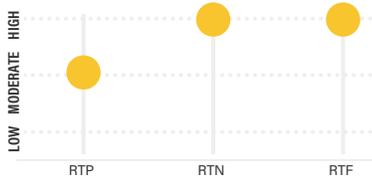
CROPLAN® corn silage hybrids that consistently perform for high-quality and high-tonnage in Answer Plot® trials.

CROPLAN CP2965VT2P/RIB

[RR]
Relative Maturity: 89



Response Scores



- Yield leader in 85-90 RM in 2018 Answer Plot® trials
- Excellent early vigor for early planting
- Moderate response-to-population and high response-to-nitrogen help drive additional yield on average to productive soils
- Acceptable Goss's wilt tolerance

Characteristics

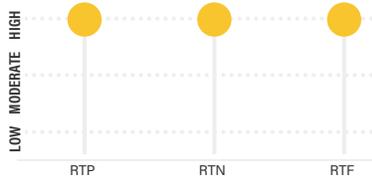
	Not Recommended	Excellent
Seedling Vigor	3	1
Drought Tolerance	3	2
Root Strength	3	2
Staygreen	3	3
Stalk Quality	3	1
Dry Down	3	2
Test Weight	3	2

CROPLAN CP2845SS/RIB

[VT2P/RIB]*
Relative Maturity: 89



Response Scores



- High-yield-potential product for most soil types and environments
- Earlier flowering date and fast drydown
- High response-to-nitrogen and population optimizes yield potential
- Manage placement for Goss's wilt

Characteristics

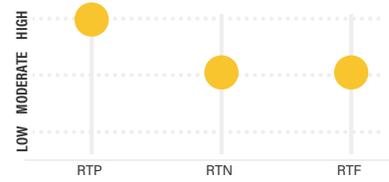
	Not Recommended	Excellent
Seedling Vigor	3	1
Drought Tolerance	3	1
Root Strength	3	1
Staygreen	3	3
Stalk Quality	3	2
Dry Down	3	1
Test Weight	3	3

CROPLAN CP3166VT2P/RIB

Relative Maturity: 91



Response Scores



- Well adapted for planting across yield environments and soil types
- Strong early vigor and very good stress tolerance
- Good ear flex at low populations and maintains ear size at high populations
- Acceptable Goss's wilt tolerance

Characteristics

	Not Recommended	Excellent
Seedling Vigor	3	2
Drought Tolerance	3	2
Root Strength	3	3
Staygreen	3	3
Stalk Quality	3	3
Dry Down	3	2
Test Weight	3	3

KEY
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CROPLAN® corn silage hybrids that consistently perform for high-quality and high-tonnage in Answer Plot® trials.



CORN

Response to Nitrogen [RTN]	1
Response to Fungicide [RTF]	1
Response to Relative Maturity	1
Response to Maturity**	1
Response to Mid-pollination**	1
Plant Height	2
Ear Height	2
Cob Color	3
Ear Flex	4
Kernel Rows	4
Seedling Vigor	5
Stalk Quality	6
Root Strength	6
Staygreen	6
Drought Tolerance	6
Test Weight	6
Grain Leaf Spot	6
NCLB	6
SCLB	6
Common Rust	6
Goss's Wilt	6
Anthracnose Stalk Rot	6
Physoderma Node Breakage	6
Diplodia Ear Rot	6

BRAND

RM: 80-89

CP184RR	80	M	L	H	2000	1040	E	M-T	M	PINK	FL	16-18	2	3	2	2	4	3	1	NA	3	NA	3	5	NA	NA	NA	
CP2180VT2P/RIB*	81	M	M	M	2025	1070	M-E	M	M	RED	SD	18-20	2	2	2	3	2	3	3	NA	2	NA	NA	3	3	NA	NA	
CP2288VT2P/RIB*	82	H	M	M	2065	1090	M	M	M	RED	SF	16-18	2	2	1	2	2	2	1	NA	2	NA	NA	2	3	NA	NA	
CP2315VT2P/RIB*	83	M	H	M	2075	1080	E	M-T	M	RED	SF	18-20	2	3	2	3	2	2	3	3	3	NA	2	3	4	NA	NA	
NEW CP2585VT2P/RIB*	85	M	H	M	2125	1120	M	M	M	RED	SF	16-18	2	2	3	3	2	3	3	3	3	NA	NA	3	3	NA	NA	
CP2520RR	86	M	M	M	2125	1120	M	M-T	M	RED	SF	16-20	3	3	1	3	2	1	3	3	3	NA	3	4	NA	NA	NA	
NEW CP2692D	86	M	M	M	2160	1140	M	M-T	M	RED	SF	16-18	2	1	1	3	NA	3	NA	1	NA	1	1	NA	NA	NA	NA	
CP2790VT2P/RIB*	87	L	H	H	2175	1130	E	M	M	RED	SF	16-18	1	3	2	3	2	1	2	3	2	2	NA	4	3	NA	2	
CP2851VT2P/RIB*	88	M	M	M	2200	1160	M	M	M	RED	SD	16-18	3	2	2	3	2	3	2	3	3	3	3	3	3	NA	NA	
CP2845SS/RIB*	89	H	H	H	2210	1150	E	M-T	M	RED	SF	16-18	1	2	1	3	1	1	3	NA	3	NA	3	4	4	NA	NA	
CP2965VT2P/RIB*	89	M	H	H	2235	1180	M-L	M	M	RED	SF	14-16	1	1	2	3	2	2	2	3	3	3	1	NA	3	2	NA	NA

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- 1 RTP/RTM/RTF Ratings**
 L = Low Response
 M = Moderate Response
 H = High Response
 TBD = To be tested in 2021

- 2 Plant Height**
 T = Tall
 M = Medium
 S = Short
- 3 Ear Height**
 H = High
 M = Medium
 L = Low

- 4 Ear Flex**
 FL = Flex
 SF = Semi-flex
 FX = Fixed
- 5 Flower Date**
 L = Late
 M = Medium
 E = Early

- 6 Staygreen**
 Late-season health coming from strong leaf-disease resistance, enhancing hybrid standability.

These ratings reflect trends observed in research trials that change with variations in rainfall, temperature, crop production patterns and other factors. Ratings on new hybrids are based on limited data and may change as more data is collected.

**GDUs published for each product are an estimate and the actual GDUs in a given year/location can vary based upon environmental factors.

*Follow RM guidelines and refuge configurations to preserve the benefits and insect protection of these technology crops.



CORN

CROPLAN

	Response to Nitrogen (RTN)	Response to Fungicide (RTF)	GDU to Maturity**	GDU to Mid-pollination**	Flower Date	Plant Height	Ear Height	Cob Color	Ear Flex	Kernel Rows	Seeding Vigor	Stalk Quality	Root Strength	Staygreen	Drought Tolerance	Test Weight	Gray Leaf Spot	NCLB	Common Rust	SCRB	Athracnose Stalk Rot	Goss's Wilt	Physoderma Node Breakage	Diplodia Ear Rot
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BRAND

RM: 91-99

CP3168VT2P/RIB*	91	H	M	M	2285	1180	E	M	M	RED	SF	16-18	2	3	3	2	2	3	3	3	NA	NA	3	2	NA		
CP3314VT2P/RIB*	93	M	L	M	2330	1210	M	M	M	RED	FL	16-18	2	2	2	2	2	2	3	3	NA	3	4	NA	NA		
CP3337VT2P/RIB*	93	M	M	M	2310	1190	E	M	M	RED	FL	16-18	2	3	1	3	2	1	2	4	2	4	2	5	3	NA	
CP3399SS/RIB*	94	M	H	M	2350	1220	M	M	M	RED	SF	16-18	2	2	2	2	2	2	3	3	NA	3	4	3	NA	NA	
CP3490VT2P/RIB*	94	M	L	H	2360	1230	M-L	M-T	M-H	RED	SF	18-20	1	3	3	3	2	2	3	3	3	3	3	3	NA	NA	
CP3575VT2P/RIB*	95	H	H	M	2360	1240	M-L	M	M	RED	SF	16-18	2	2	2	2	2	3	1	3	2	NA	NA	4	1	NA	NA
CP3699RR	96	M	M	M	2400	1240	M	M-T	M-H	RED	SF	16-18	1	1	1	3	3	2	2	3	3	NA	3	3	3	NA	NA
CP3735SS/RIB*	97	M	H	H	2425	1250	M	M	M	RED	SD	16-18	1	2	2	2	2	3	1	3	3	NA	NA	3	3	3	NA
CP3899VT2P/RIB*	98	H	H	H	2450	1280	L	M-T	M-H	PINK	SF	16-20	1	2	2	2	2	3	2	2	4	4	NA	3	3	3	NA
CP3980VT2P/RIB*	99	M	M	H	2475	1270	M	M-T	M-H	RED	SF	14-16	2	3	1	3	2	3	3	2	NA	NA	NA	3	3	4	NA

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CORN



Product Name _____

Attributes _____

Placement _____



SOYBEAN

We search the world over for high performing soybean genetics, then bring them to you with industry leading trait platforms. Because genetic diversity and trait flexibility mean innovative soybean products that fit the way you want to farm. This year, plant soybeans that have high yield potential and are built to perform in your local area. Plant CROPLAN.

KEY TAKEAWAYS

- 1 Use appropriate trait technology to achieve effective weed control.
- 2 Introduce stability to your friends with CROPLAN® WinPak® soybean varieties.
- 3 Ensure optimal plant health at the start of the season with Warden® CX seed treatment.
- 4 Use the R7® Tool to help choose the right soybean varieties for your specific fields.
- 5 Select varieties for disease tolerance and manage them throughout the season.

	Glyphosate	Glufosinate	2,4-D Choline	Dicamba
XTENDFLEX®	X	X		X
ROUNDUP READY 2 YIELD®	X			
ROUNDUP READY 2 XTEND®	X			X
ENLIST E3®	X	X	X	

REDUCE RISK WITH WINPAK® SOYBEAN VARIETIES

WinPak® soybean varieties from CROPLAN® seed are a unique combination of two varieties that provide an exceptional level of stability throughout the field. Designed to address field variability, WinPak® varieties have excellent yield potential on productive acres along with the ability to handle the stress of performing on more challenging acres.



EXAMPLE OF HOW A WINPAK® VARIETY CAN BE FORMULATED

	VARIETY A EXAMPLE	VARIETY B EXAMPLE
PLACEMENT	Average to below-average yield environments.	Best-suited to productive acres.
DISEASE PACKAGE	Strong soybean white mold and iron deficiency chlorosis (IDC) tolerance.	Excellent phytophthora root rot and frog-eye field tolerance.
AGRONOMICS	<ul style="list-style-type: none"> ▪ Narrow canopy type ▪ Tall height ▪ Excellent standability 	<ul style="list-style-type: none"> ▪ Bushy canopy type ▪ Medium height ▪ Average standability
STRESS TOLERANCE	Excellent stress tolerance.	Strong stress tolerance.
GENETIC BACKGROUND	Germplasm pool A	Germplasm pool B

► WinPak® varieties are designed to mitigate risk across the whole field by offering more stability on variable acres, delivering high yield potential on productive acres and maintaining consistency on more challenging acres. They also provide an enhanced disease and agronomic package for the whole farm.

MANAGE WEEDS WITH TRAIT TECHNOLOGY

CROPLAN® soybean seed offers the newest genetics with multiple herbicide trait options developed to effectively manage your weed-resistance issues.



SOYBEAN HERBICIDE TOLERANCE AND WEED CONTROL

Weed control in soybeans starts with seed selection. With several herbicide-tolerant traits now available and more on the way with full commercial approval, the number of tools in the toolbox is increasing. But as you face hard-to-control weeds, creating a plan for season-long weed management is critical. The chart outlines CROPLAN® soybean herbicide-tolerant varieties available today. These traits offer some great postemergence options.

SOYBEAN

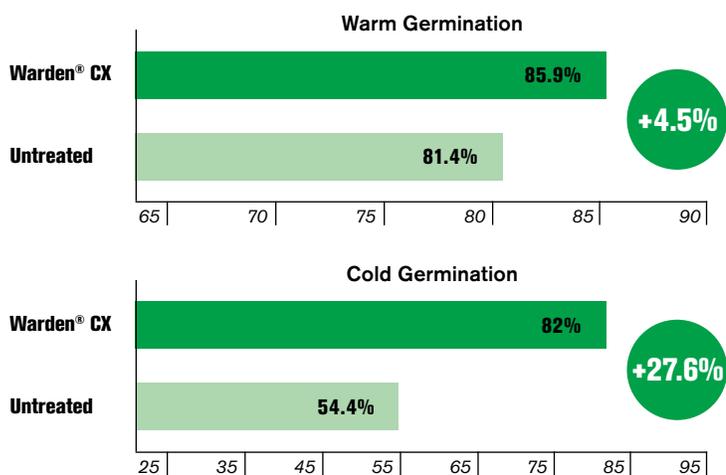
2 of 2



PROTECT YIELD POTENTIAL WITH WARDEN® CX SEED TREATMENT

Guard high-value soybean seed from early-season disease and insect threats with Warden® CX seed treatment. In 2018, testing by an independent seed lab and the University of Minnesota Plant Disease Clinic indicated a positive response to soybean seed treated with Warden® CX seed treatment compared to an untreated control group. Compared to untreated seed, Warden® CX treated seed improved the warm germination test by +4.5% and the cold germination test by +27.6%.

AVERAGE GERMINATION IMPROVEMENT: WARDEN® CX VS. UNTREATED



OPTIMAL CONDITIONS FOR DISEASE INFECTION

FUNGUS	DISEASE	TEMPERATURE (F) RANGE/OPTIMUM	MOISTURE
<i>Pythium</i>	Damping-off	50°–68°/ <59°	Saturated
<i>Rhizoctonia</i>	Damping-off	60°–86°/80°	30%–60% water
<i>Phytophthora</i>	Damping-off	59°–86°/77°–80°	Saturated; weekly periodic rain
<i>Fusarium</i>	SDS and root rot	50°–86°/59°	Wet to saturated

MANAGE IN-SEASON

Select your disease package based on field conditions.

- Knowing where yield potential is falling behind alerts you to disease and other potential threats, allowing you to make in-season adjustments.
- Satellite imagery highlights field variability and indicates where appropriate crop inputs might help optimize yield potential.
- Use R7® Tool satellite imagery to monitor plant health.



CROPLAN® TRAIT LETTERING FOR SOYBEAN VARIETIES

Descriptive variety numbering and trait lettering systems are used for CROPLAN® soybean varieties.

KEY	VARIETY	TRAIT HERBICIDE TOLERANCE	LOGO
XF	XtendFlex®	Roundup®, dicamba and glufosinate tolerant	
RR	Roundup Ready 2 Yield®	Roundup® tolerant	
X	Roundup Ready 2 Xtend®	Roundup® and dicamba tolerant	
E	Enlist E3®	Glyphosate, glufosinate and 2,4-D choline tolerant	
S	STS®	Sulfonylurea tolerant	N/A

CROPLAN CP00312X

Group: 0.03



Characteristics

	Not Recommended	Excellent
PRR Tolerance	█	█ 1
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	█	█ 2
Iron Chlorosis	█	█ 2

Height	M	Canopy Type	Int
Emergence	2	Standability	1
BSR Tolerance	NA		

- Improved yield potential at a 0.03 RM
- Versatile placement for variable soils
- Excellent PRR tolerance and strong IDC tolerance
- Use caution on SCN-prone areas

CROPLAN CP00777X

Group: 0.07



Characteristics

	Not Recommended	Excellent
PRR Tolerance	█	█ 1
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	█	█ 3
Iron Chlorosis	█	█ 2

Height	M	Canopy Type	Int/Nar
Emergence	1	Standability	1
BSR Tolerance	5		

- Strong yield potential in a 0.07 RM
- Excellent PRR tolerance for wet soils
- Strong IDC
- Use caution in BSR-prone areas

CROPLAN CP00729E

Group: 0.07



Characteristics

	Not Recommended	Excellent
PRR Tolerance	█	█ 3
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	█	█ 3
Iron Chlorosis	█	█ 2

Height	M	Canopy Type	Int
Emergence	1	Standability	3
BSR Tolerance	NG		

- Early Enlist E3® soybean for Group 00 market
- Position north of Highway 2
- Strong SWM tolerance; acceptable IDC and PRR tolerance
- Best-suited for narrow rows

CROPLAN CP00842XF

Group: 0.08



Characteristics

	Not Recommended	Excellent
PRR Tolerance	█	█ 2
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	N/A	
Iron Chlorosis	█	█ 2

Height	M	Canopy Type	Int
Emergence	2	Standability	2
BSR Tolerance	2		

- Strong yield potential variety
- A good fit for the northern North Dakota and Minnesota geographies
- Strong IDC and PRR tolerance
- Use caution in SWM-prone areas

CROPLAN CP00926X

Group: 0.09



Characteristics

	Not Recommended	Excellent
PRR Tolerance	█	█ 3
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	█	█ 3
Iron Chlorosis	█	█ 3

Height	M	Canopy Type	Int
Emergence	1	Standability	3
BSR Tolerance	2		

- Strong yield potential on productive soils
- Broadly adaptive bean, moves west well
- Acceptable IDC and strong BSR tolerance
- Not recommended in SCN-prone areas

CROPLAN CP0123E

Group: 0.1



Characteristics

	Not Recommended	Excellent
PRR Tolerance	█	█ 1
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	█	█ 3
Iron Chlorosis	█	█ 2

Height	MT	Canopy Type	Int/Bush
Emergence	1	Standability	2
BSR Tolerance	NA		

- Strong yield potential with excellent PRR package for wet soils
- Versatile placement across productive to stress soils
- Excellent PRR tolerance and strong IDC tolerance
- Use caution in SWM-prone areas

NEW

KEY

- Scale**
- 1 = Excellent
 - 2 = Strong
 - 3 = Acceptable
 - 4 = Manage
 - 5 = Not Recommended

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CROPLAN CP0242XF

Group: 0.2



Characteristics

	Not Recommended	Excellent
PRR Tolerance	4	
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	2	
Iron Chlorosis	2	

Height	MT	Canopy Type	Int/Bush
Emergence	1	Standability	4
BSR Tolerance	1		

- Strong IDC bean for IDC-prone areas
- Best placed on IDC-stressed soils
- Excellent tolerance to BSR
- Use caution on SCN-prone areas

NEW

CROPLAN CP0243XF

Group: 0.2



Characteristics

	Not Recommended	Excellent
PRR Tolerance	3	
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	2	
Iron Chlorosis	2	

Height	MT	Canopy Type	Int/Bush
Emergence	1	Standability	1
BSR Tolerance	5		

- High yield potential with improved standability over CP0242XF
- Strong IDC tolerance for areas moderately prone to IDC
- Excellent standability and strong SWM tolerance
- Use caution in SWM-prone areas

CROPLAN CP0337X

Group: 0.3



Characteristics

	Not Recommended	Excellent
PRR Tolerance	2	
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	3	
Iron Chlorosis	1	

Height	M	Canopy Type	Int/Nar
Emergence	1	Standability	3
BSR Tolerance	4		

- Also available in WinPak® variety CP0200X
- Intermediate plant type with strong lateral expression for high-yield environments
- Excellent IDC tolerance, similar to CP0426X
- Acceptable PRR field tolerance with Rps1c gene

CROPLAN CP0426X

Group: 0.4



Characteristics

	Not Recommended	Excellent
PRR Tolerance	1	
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	3	
Iron Chlorosis	2	

Height	M	Canopy Type	Int
Emergence	1	Standability	1
BSR Tolerance	4		

- Also available in WinPak® variety CP0400X
- Strong performance across all yield environments
- Excellent PRR field tolerance with strong IDC tolerance
- Manage placement on acres with BSR history

CROPLAN CP0529E

Group: 0.5



Characteristics

	Not Recommended	Excellent
PRR Tolerance	1	
SDS Tolerance	N/A	
Frogeye Leaf spot	N/A	
SWM Tolerance	4	
Iron Chlorosis	3	

Height	M	Canopy Type	Int/Bush
Emergence	1	Standability	2
BSR Tolerance	1		

- Also available in WinPak® variety CP0520E
- Rps3a gene for resistance to PRR
- Strong PRR package and acceptable IDC tolerance
- Use caution in SWM-prone areas

CROPLAN CP0542XF

Group: 0.5



Characteristics

	Not Recommended	Excellent
PRR Tolerance	2	
SDS Tolerance	3	
Frogeye Leaf spot	N/A	
SWM Tolerance	3	
Iron Chlorosis	4	

Height	MT	Canopy Type	-
Emergence	2	Standability	2
BSR Tolerance	4		

- Outstanding yield potential on productive soils
- Solid heat and drought stress tolerance allows western movement
- Strong PRR tolerance
- Avoid IDC-prone areas

KEY

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CROPLAN CP0721E

Group: 0.7



Characteristics

		Not Recommended	Excellent
PRR Tolerance			
SDS Tolerance	N/A		
Frogeye Leaf spot	N/A		
SWM Tolerance			
Iron Chlorosis			
Height	MT	Canopy Type	Int
Emergence	1	Standability	2
BSR Tolerance	NG		

- Strong yield potential on productive ground with excellent stress tolerance
- Strong IDC tolerance
- Excellent PRR package
- Not recommended for BSR areas

CROPLAN CP0751XF

Group: 0.7



Characteristics

		Not Recommended	Excellent
PRR Tolerance			
SDS Tolerance	N/A		
Frogeye Leaf spot	N/A		
SWM Tolerance			
Iron Chlorosis			
Height	MT	Canopy Type	Int
Emergence	1	Standability	3
BSR Tolerance	1		

- Also available in WinPak® variety CP0740XF
- Ideally placed in areas prone to PRR
- Strong PRR package with strong IDC

KEY

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SOYBEAN

CROPLAN

WinPak® Variety Components

Determinative/Indeterminate
Relative Maturity

SCN Resistant Source
PRR Gene

Chloride Tolerance
Sulfur Tolerance
SDS Tolerance

SWM Tolerance
BSN Tolerance
Iron Chlorosis

Southern Stem Canker
Root-Knot Membrane
Frogeye Leaf Spot

Emergence
Stress Tolerance
Standability

Canopy Type
Plant Height
Flower Color

Pubescence Type
Pod Color
Hilum Color

ROUNDUP READY 2 XTEND®/XTENDFLEX®/ROUNDUP READY 2 YIELD® – RM: 0.0-1.0

CP00312X	0.03	IND	NG	Rps1c	1	NA	Includer	2	NA	2	1	NA	NA	NA	2	1	NA	Int	M	P	LTW	BR	IY
CP00777X*	0.07	IND	PI88.788	Rps1c	1	NA	Includer	3	5	2	NA	NA	NA	NA	1	1	2	Int/Nar	M	P	LTW	BR	BL
CP00842XF	0.08	IND	PI88.788	Rps1c	2	NA	Includer	NA	2	2	NA	NA	NA	NA	2	2	NA	Int	M	P	LTW	TN	BL
CP00926X	0.09	IND	NG	Rps1k	3	NA	Includer	3	2	3	NA	NA	NA	NA	1	3	3	Int	M	P	TW	BR	BL
CP0242XF	0.2	IND	NG	Rps1c	4	NA	NA	2	1	2	NA	NA	NA	NA	1	4	NA	Int/Bush	MT	P	TW	BR	BL
NEW CP0243XF	0.2	IND	NG	Rps1k	3	NA	Includer	2	5	2	NA	NA	NA	NA	1	1	NA	Int/Bush	MT	P	TW	BR	BL
CP0337X	0.3	IND	PI88.788	Rps1c	2	NA	Includer	3	4	1	NA	NA	NA	NA	1	3	1	Int/Nar	M	P	TW	BR	BR
CP0400X	0.4	IND	PI88.788	Rps3a/NG	2	NA	Includer	3	NA	2	NA	NA	NA	NA	2	1	NA	Int	M	P	LTW	BR/TN	BL/BR
CP0411X*	0.4	IND	PI88.788	NG	2	NA	Includer	3	NA	2	NA	NA	NA	NA	2	1	NA	Int	MS	P	LTW	TN	BL
CP0426X	0.4	IND	PI88.788	Rps3a	1	NA	Includer	3	4	2	NA	NA	NA	NA	1	1	1	Int	M	P	LTW	BR	BR
CP0542XF	0.5	IND	PI88.788	Rps1c	2	3	Includer	3	4	4	1	NA	NA	NA	2	2	NA	Int/Bush	MT	P	LTW	TN	IY
CP0678X*	0.6	IND	PI88.788	NG	1	NA	Includer	3	4	2	NA	NA	NA	NA	1	3	1	Int	MT	P	LTW	BR	BL
CP0740XF	0.7	IND	PI88.788	Rps1c.3a/H3a	2	NA	Includer	3	1	2	NA	NA	NA	NA	1	3	NA	Int	MT	P	TW/LTW	BR	BL
CP0741XF*	0.7	IND	PI88.788	HRps3a	2	NA	Includer	3	1	2	NA	NA	NA	NA	1	3	2	Int	M	P	LTW	BR	BL
CP0751XF*	0.7	IND	PI88.788	Rps1c.3a	2	NA	Includer	3	1	2	NA	NA	NA	NA	1	3	NA	Int	MT	P	TW	BR	BL
CP0940XF	0.9	IND	PI88.788	HRps3a/NG	3	NA	Includer	3	4	2	NA	NA	NA	NA	1	2	NA	Int/Bush	MT	P	LTW	BR/TN	BR
CP0942XF*	0.9	IND	PI88.788	NG	4	NA	Includer	2	5	1	NA	NA	NA	NA	1	2	NA	Int/Bush	MT	P	LTW	BR	BR
CP0957RR	0.9	IND	PEKING	Rps1k.3a	3	NA	Includer	1	3	3	NA	NA	NA	NA	1	1	1	Int/Nar	M	P	GR	BR	BF
CP1042XF*	1.0	IND	PI88.788	HRps3a	2	NA	Includer	2	3	2	NA	NA	NA	NA	1	2	2	Int/Bush	MT	P	LTW	TN	BR

KEY

- 1 SCN Resistant Source**
Peking = These varieties contain SCN resistance genes from the Peking soybean breeding lines
PI88.788 = These varieties contain SCN resistance genes from the PI88.788 soybean breeding lines
- 2 PRR Gene**
Rps = Resistance to Phytophthora sojae
Hrps = Heterozygous segregating Rps occurrence
- 3 Southern Stem Canker and Root-Knot Membrane**
1 = Resistant
2 = Moderately Resistant
3 = Moderately Resistant-Moderately Susceptible
4 = Moderately Susceptible
5 = Susceptible
- 4 Canopy Type**
Nar = Narrow
Int = Intermediate
Bush = Bushy
- 5 Plant Height**
T = Tall
M = Medium
S = Short
- 6 Flower Color**
P = Purple
W = White
- 7 Pubescence Type**
GR = Gray
TW = Tan
LTW = Light Tan
- 8 Pod Color**
TN = Tan
BR = Brown
- 9 Hilum Color**
YE = Yellow/Clear
GR = Gray
BL = Black
IB = Imperfect Black
BR = Brown
BF = Buff
SL = Slate
TN = Tan
IY = Imperfect Yellow

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WinPak® Variety Components

Determinate/Indeterminate
Relative Maturity

SCN Resistant Source
PRR Gene

Chloride Tolerance
SDS Tolerance
PRR Tolerance

SWM Tolerance
BSR Tolerance

Southern Stem Canker
Iron Chlorosis

Root Knot Nematode
Frogeye Leaf Spot

Emergence
Steadability

Stress Tolerance
Canopy Type

Plant Height
Flower Height

Pubescence Type
Pod Color

Pod Color
Hilum Color

ENLIST E3® – RM: 0.0-1.5

CP00729E	0.07	IND	P188,788	Rps1a	3	NA	Includer	3	NG	2	NA	NA	NA	NA	1	3	3	Int	M	P	GR	BR	BF
NEW CP0123E*	0.1	IND	NG	Rps1a,3a	1	NA	Includer	3	NA	2	1	NA	5	1	2	2	2	Int/Bush	MT	P	GR	BR	BF
CP0322E*	CP0322E*/CP0329E*	0.3	IND	P188,788	Rps1c/NG	3	NA	Includer	3	1	3	NA	NA	1	2	3	3	Int	M	PW	GR	TN	BF
CP0322E*		0.3	IND	P188,788	Rps1c	2	NA	Includer	2	1	3	NA	5	1	1	3	3	Int	M	P	GR	TN	BF
CP0329E*		0.3	IND	P188,788	NG	3	NA	Includer	4	1	2	1	NA	1	2	2	2	Int	M	W	GR	TN	BF
CP0522E*	CP0522*/CP0529E	0.5	IND	P188,788/NG	Rps3a	1	NA	Includer	4	1	2	NA	NA	1	2	2	2	Int/Bush	M	P	GR	BR/TN	BF
CP0522E*		0.5	IND	P188,788	Rps3a	1	NA	Includer	3	1	2	NA	5	1	2	2	2	Int	M	P	GR	BR	BF
CP0529E		0.5	IND	P188,788	Rps3a	1	NA	Includer	4	1	3	NA	NA	1	2	1	1	Int/Bush	M	P	GR	TN	BF
CP0721E*		0.7	IND	P188,788	Rps1c/3a	1	NA	Includer	2	NG	2	1	NA	NA	1	2	1	Int	MT	P	GR	BR	IB
CP0822E*	CP0721E*/CP0822E*	0.8	IND	P188,788	Rps1c,3a/NG	2	NA	Inc/Exc	2	NG	2	NA	NA	1	2	1	1	Int	M	P	GR	BR/TN	BF/IB
CP0822E*		0.8	IND	P188,788	NG	2	NA	Excluder	2	NG	2	NA	5	1	1	2	2	Int	M	P	GR	TN	BF
NEW CP1022E*		1.0	IND	PEKING	Rps3a	2	2	Includer	3	1	2	1	NA	1	2	1	1	Int	M	P	GR	TN	BF
NEW CP1120E	CP1023E*/CP1121E	1.1	IND	PEKING/ P188,788	Rps3a/NG	2	2	Includer	3	1/NG	2	1	NA	NA	1	3	1	Int	MT	P	GR	BR/TN	BF/IB
CP1121E		1.1	IND	P188,788	NG	2	2	Includer	3	NG	2	1	NA	NA	1	3	1	Int	MT	P	GR	BR	IB
NEW CP1123E		1.1	IND	PEKING	Rps3a	2	2	Includer	3	1	2	1	NA	5	1	2	1	Int	M	P	GR	TN	BF
CP1422E*		1.4	IND	P188,788	NG	2	2	Includer	3	1	3	NA	5	1	2	2	2	Int	MT	P	LTW	TN	BL
CP1430E	CP1422E*/CP1522E	1.4	IND	P188,788	Rps3a/NG	2	2	Includer	3	1	3	NA	NA	5	1	2	2	Int	MT	P	GR/LTW	TN	BF/BL
CP1522E		1.5	IND	P188,788	Rps3a	1	2	Includer	3	1	3	NA	NA	5	1	2	2	Int	M	P	GR	TN	BF

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Product Name _____

Attributes _____

Placement _____



ALFALFA

We're here to help you select the best genetics for your field. And by pairing new traits with the latest technologies, you'll stand the best chance to produce high-quality feed and optimize tonnage.

1 of 2

KEY TAKEAWAYS

- 1 Choose varieties with the traits and pest resistance package to fit your fields.
- 2 Use coated seed to help you improve stand establishment and seed efficiency with the traits and pest resistance package to fit your fields
- 3 Manage in-season by Reading the Stand and harvesting/storing properly.

VARIETY SELECTION

FALL DORMANCY (FD) AND WINTERHARDINESS (WH)

- A higher FD number equals higher yield potential. A lower WH number equals more cold tolerance and stand persistence.
- Independent of breeding efforts, lower FD (more dormant) provides a significant increase in fiber digestibility potential.

PEST RESISTANCE

► Anthracnose Disease

- A severe stem and crown disease that causes defoliation. Multiple races, including a new race 5, can be present in late season.
- It occurs most often under warm, moist conditions.
- It causes yield loss of up to 25%.
- Susceptible plants have large, sunken oval-to diamond-shaped lesions.
- Lesions can enlarge to girdle or kill plant. Girdled stems can exhibit a shepherd's hook.

► Aphanomyces Root Rot Disease

- Infects roots causing seedling stunting, reduced nodulation and poor root development.
- Commonly found in soils that are saturated, poorly drained, compacted or have limited water dispersal.
- Visual symptoms can include gray, water-soaked roots, yellowed cotyledons, and stunted growth that can result in limited yield production or stand failure.

CROPLAN AA ALFALFA:

► Advanced disease resistance packages

- New varieties are available that offer disease resistance to multiple races of both Aphanomyces root rot and Anthracnose
- The combination of healthy roots and healthy stems lead to higher alfalfa yield potential.
- Below ground, alfalfa roots gather water and nutrients.
- Above ground, stems and leaves produce and transport plant energy to make valuable forage.
- Diseases can limit these plant processes.
- An enhanced multi-pathogen disease package helps protect alfalfa stems and crowns that transport valuable plant energy.

► Potato Leafhopper (PLH)

- Small, light-green insect that feeds on alfalfa plants, causing leaf tips to display a V-shaped yellowing.
- Varieties with glandular hairs provide natural nonpreference feeding for PLH.
- Commonly found in the Plains, Midwest and East; most severe in new seedings and summer regrowth that causes yield reduction.

► Nematodes

- Microscopic roundworms (several identified species) that live in the soil, surface irrigation water, alfalfa roots and crown tissue.
- Can reduce yield and stand life and cause secondary infections from other diseases. Control them by planting a high-resistance alfalfa variety.
- Commonly found throughout most of the West and Plains.

► High-Salinity Soils

- Greenhouse tests provide baseline indicators of a varieties ability to germinate in high salinity conditions. Salt breeding nurseries

provide greater insights to variety selection based on its ability to mitigate high-salinity stress conditions with more predictable performance for on-farm potential.

- Soils vary. Saline: high soluble salts. Sodic: high sodium ion content. Alkaline: soil pH that is higher than optimum (pH>8.0).
- Commonly found in the western half of the U.S.

► Aphids

- Can be a problem in dry periods; controlled by other predators in cool and/or wet periods.
- The blue aphid is the most damaging in the Southern Plains to the Southwest.

IN-SEASON MANAGEMENT

NEW SEEDING AND STAND ESTABLISHMENT

- Plant into a firm seedbed to control seed depth; seed-to-soil contact is crucial.
- Planting rates do not need to be adjusted for coated seed since bulk density is higher.
- The planting rate for alfalfa varies from region to region, but generally 18 to 20 lbs. per acre is recommended with a goal of about 25 plants per square foot at the end of the seeding year.

ESTABLISHED STANDS: READING THE STAND

- Each spring, determine potential winter damage or winterkill.
- Follow the Reading the Stand program to evaluate the alfalfa stand density and crown health of each field to determine current and future yield potential.

WEED CONTROL

- Control weeds early for a high-producing pure alfalfa stand. Roundup Ready® Alfalfa provides farmers with more flexible management strategies.

INSECT AND DISEASE CONTROL

- Control insects such as aphids (spotted, blue, pea, cowpea), alfalfa weevils and leafhoppers.
- Manage foliar leaf diseases and anthracnose.
- Choose alfalfa varieties with built-in resistance and use a spray application to control as necessary.

ALFALFA

2 of 2



NUTRIENT MANAGEMENT

- Alfalfa requires a neutral soil pH (6.8 to 7.2) for high production. Take soil and plant tissue tests to monitor macronutrients and micronutrients.
- A healthy alfalfa plant will have a luxury supply of potassium, boron, sulfur and phosphorus.

HARVEST MANAGEMENT

- Manage leaf loss in-season with fungicide application and during harvest from over-handling during raking, merging, chopping or baling. New Leaf Percentage Test available to estimate leaf content in your alfalfa. See your CROPLAN® alfalfa dealer for more information.
- Wheel traffic can increase soil compaction and crown damage, leading to reduced crop regrowth and yield loss.

COATED SEED

IMPROVE SEEDLING EFFICIENCY WITH COATED SEED

- Provides an ideal microenvironment with better imbibition (water uptake) and germination.
- Facilitates and enhances the addition of seed treatments/inoculants, which are applied by weight, not per seed; therefore, higher rates are applied on coated seed.
- Keeps treatments/inoculants close to or bound to the seed for more complete coverage.
- Increases vigor under disease pressure.
- Purdue reported an average 30% increase in seedling success for coated seed.¹

SEED COATING

- GroZone® plus Advanced Coating® Zn 34%**
- Rhizobium bacteria to fix nitrogen.
- Micronutrient package to provide zinc and manganese.
- Ascend® PGR to promote early seedling growth.
- Apron XL® fungicide to help protect seedlings from root diseases such as phytophthora during establishment.
- Stamina® fungicide to provide additional protection to multiple races of aphanomyces root rot disease.
- Provides an average 30% increase in resistance to aphanomyces root rot as compared to standard treated commercial 9% coat.²

TRAITS

HARVXTRA® ALFALFA³

HarvXtra® Alfalfa with Roundup Ready® Technology is one of the most advanced alfalfa traits currently available, providing extra flexibility when it comes to cutting without sacrificing forage quality or yield potential.

- Gives you a more flexible cutting window to help manage your operation, putting you in control of your cutting schedule.
- Delivers a higher RFQ³ and NDFd³ than conventional varieties cut on the same day.
- Achieve up to 20% higher yield at harvest⁴ by lengthening your cutting window up to 10 days.

ROUNDUP READY® ALFALFA

- Offers application flexibility for greater weed-control options.
- Helps deliver a higher percentage of pure alfalfa for more high-quality hay and haylage.
- Delivers exceptional weed control and crop safety.

CONVENTIONAL ALFALFA

- Conventional alfalfa breeding techniques have provided strong advancements in yield production, stand persistence, and insect and disease resistance.
- For more than three decades, alfalfa breeders have used conventional alfalfa breeding techniques to select for improved fiber digestibility (e.g., LegenDairy and RR Presteez lines).
 - These varieties show an incremental improvement in fiber digestibility when compared to nonselected varieties.

ALFALFA FOR ORGANIC FORAGE PRODUCTION

- Alfalfa products that were developed through conventional breeding and were not the result of genetic engineering.*
- Approved varieties meet industry standards for LLP (low-level presence of bio-tech traits) and are noted on our variety detail pages.



APEX™ GREEN SEED COATING

- OMRI Listed® for organic use.
- Includes natural micronutrients and nitrogen-fixing rhizobia in an organic hydration coating that maximizes water absorption.

FLEXIBILITY OF HARVXTRA® ALFALFA HAS NEVER BEEN MORE IMPORTANT

With unpredictable weather patterns, you need the ability to alter your cutting plans quickly. HarvXtra® Alfalfa lets you maximize your growing season by providing the flexibility to space out cuttings so that each harvest optimizes ROI and yield potential.

- Harvest first cutting ~28" (to avoid lodging), usually around May 25-30 in the Midwest.
- Delay summer cutting(s).
- Timely final harvest improves stand persistence; last cutting around Sept. 1 in northern regions and Sept. 5 in southern regions allow at least 500 growing degree days (GDD) before experiencing a killing frost of ≤25°F.
- Avoid mid-late October cuttings.

1. Alfalfa and Red Clover Stand Establishment Forage Management Day at Feldun-Purdue Agricultural Center, August 9, 2018. Seeding Date: May 2, 2018. Data collected on June 29, 2018.

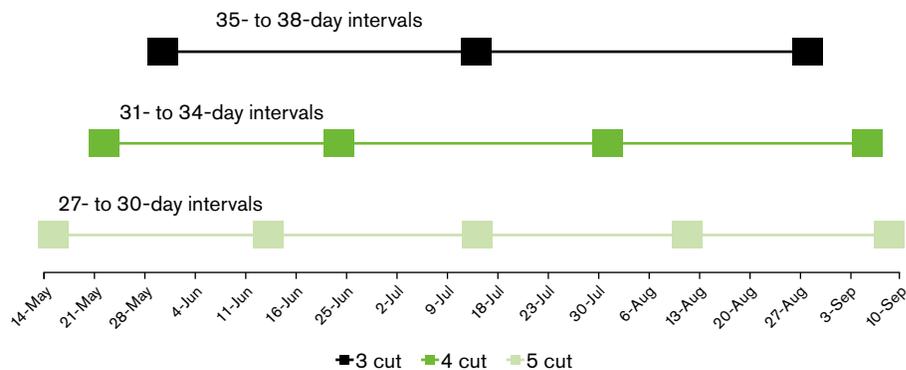
2. Data from FGI trials in West Salem, Wis., 2018.

3. Data from FGI trials comparing HarvXtra® Alfalfa with Roundup Ready® Technology 2017 FD4 commercial varieties to FD4 commercial checks. Trials were seeded in 2013 and harvested 2014-2016 at five locations across the U.S. Yield increase is directly correlated to the ability to delay harvest.

4. Data from an FGI trial in West Salem, Wis., comparing three cuttings at 35-day intervals to four cuttings at 28-day intervals. Trials were seeded in 2013 and harvested in 2014-2016. Yield increase is directly correlated to the ability to delay harvest.

*WinField® United does not guarantee forage harvested from stands established with this seed will be GMO-free. Check with your local organic certifying organization before planting.

HARVXTRA® CUTTING SCHEDULE



CROPLAN HVX Tundra II

Regions: East|North|West
Dormancy: 3.3
Winterhardiness: 1.2



Characteristics

	Not Recommended	Excellent
Yield Index		2
Persistence Index		1
Feed Quality*		1
Disease Resistance		2
Insect Resistance	4	
Nematode Resistance	3	

*Feed quality ratings for HarvXtra® Alfalfa are represented on a separate scale than Roundup Ready® and conventional alfalfa varieties and are signified with an "H". Because there is a significant improvement in Forage quality, HarvXtra Alfalfa products can only be compared to other HarvXtra Alfalfa products.

- H1 feed quality rating; highest forage quality potential in our lineup; on average, 24% higher NDFD than Roundup Ready® check varieties
- Ideal for Northern growing regions or high elevation; good disease and pest package for east to west adaptation
- Versatile harvest options: ideal for a 2- to 3-cut baled hay management system or great for a 1- or 2-cut hay harvest followed by grazing

CROPLAN HVX Driver

Regions: Central|East|North|West
Dormancy: 4
Winterhardiness: 2



Characteristics

	Not Recommended	Excellent
Yield Index		2
Persistence Index		1
Feed Quality*		1
Disease Resistance	4	
Insect Resistance		3
Nematode Resistance	5	

*Feed quality ratings for HarvXtra® Alfalfa are represented on a separate scale than Roundup Ready® and conventional alfalfa varieties and are signified with an "H". Because there is a significant improvement in Forage quality, HarvXtra Alfalfa products can only be compared to other HarvXtra Alfalfa products.

- H2 feed quality rating; maximize harvest flexibility; excellent yield or forage quality potential with the HarvXtra® Alfalfa trait
- Good disease package provides exceptional ability to perform well across multiple geographies
- Great option for 3- to 5-cut flexible hay/haylage harvest system with quick regrowth after cutting

CROPLAN HVX MegaTron

Regions: Central|East|North|West
Dormancy: 4.2
Winterhardiness: 1.7



Characteristics

	Not Recommended	Excellent
Yield Index		1
Persistence Index		1
Feed Quality*		1
Disease Resistance		2
Insect Resistance	4	
Nematode Resistance	3	

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- H2 feed quality rating; exceptional soil disease resistance to help improve root and plant health
- Highest resistance (HR+) rating to multi-race Aphanomyces root rot disease (races 1, 2 and EMR); resistant (R) to multi-race anthracnose (including new race 5)
- Excellent quality and yield potential with a 3- to 5-cut flexible harvest system based on geography

NEW

CROPLAN HVX MegaTron AA

Regions: Central|East|North|West
Dormancy: 4.4
Winterhardiness: 1.4



Characteristics

	Not Recommended	Excellent
Yield Index		1
Persistence Index		1
Feed Quality*		1
Disease Resistance		1
Insect Resistance	3	
Nematode Resistance	3	

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- H2 feed quality rating; exceptional root and plant health with the AA disease resistance package to support highest yield and quality potential
- Highest resistance (HR+) rating to multi-race Aphanomyces root rot disease (races 1, 2 and EMR); HR+ to multi-race anthracnose disease (including race 5)
- Exceptional yield and quality potential; ideal with a 3- to 5-cut flexible harvest system based on geography

CROPLAN HVX 620RR Brand

Regions: South|West
Dormancy: 6
Winterhardiness: -



Characteristics

	Not Recommended	Excellent
Yield Index		2
Persistence Index		2
Feed Quality*		1
Disease Resistance	4	
Insect Resistance		2
Nematode Resistance		3

*Feed quality ratings for HarvXtra® Alfalfa are represented on a separate scale than Roundup Ready® and conventional alfalfa varieties and are signified with an "H". Because there is a significant improvement in Forage quality, HarvXtra Alfalfa products can only be compared to other HarvXtra Alfalfa products.

- H3 feed quality rating; HarvXtra® Alfalfa harvest flexibility now available in a semidormant variety to maximize yield and quality potential
- Excels in the transition regions of the High Plains, South and Southwest; high resistance to pea and spotted alfalfa aphid
- Very early spring growth, fast regrowth and late fall growth; plan for 6-cut harvest system

CROPLAN HVX 840RR Brand

Regions: South|West
Dormancy: 7.9
Winterhardiness: -



Characteristics

	Not Recommended	Excellent
Yield Index		2
Persistence Index		1
Feed Quality*		1
Disease Resistance	4	
Insect Resistance		2
Nematode Resistance	3	

*Feed quality ratings for HarvXtra® Alfalfa are represented on a separate scale than Roundup Ready® and conventional alfalfa varieties and are signified with an "H". Because there is a significant improvement in Forage quality, HarvXtra Alfalfa products can only be compared to other HarvXtra Alfalfa products.

- Exceptional nondormant variety provides improved yield and forage quality potential with the HarvXtra® Alfalfa trait
- Strong disease package provides protection against pea and spotted alfalfa aphids and stem nematodes
- Flexible harvest management for 5+ cuttings for superior yield or improved forage quality potential

KEY Scale
1 = Excellent
2 = Strong
3 = Acceptable
4 = Manage
5 = Not Recommended

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CROPLAN Graze N Hay 3.10RR

Regions: North|West
Dormancy: 2.9
Winterhardness: 1.8



Characteristics

	Not Recommended			Excellent		
Yield Index			3			
Persistence Index						1
Feed Quality			3			
Disease Resistance			3			
Insect Resistance		4				
Nematode Resistance	5					

- Best-suited for Northern regions; exceptional winterhardness and stand persistence
- Withstands hoof or wheel traffic; weed control with the Roundup Ready® trait improves stand establishment on dryland acres or in limited water conditions
- Excellent variety where 1 or 2 cuttings of hay will be harvested mechanically followed by grazing

CROPLAN RR Presteez

Regions: Central|East|North|West
Dormancy: 3.2
Winterhardness: 1.2



Characteristics

	Not Recommended			Excellent		
Yield Index				2		
Persistence Index						1
Feed Quality						1
Disease Resistance			3			
Insect Resistance				2		
Nematode Resistance		4				

- High forage quality potential ideal for baled hay or haylage harvest
- Excellent salt-tolerance ratings in germination tests and exceptional performance in stand persistence trials
- Ideal for Upper Midwest and West as a 3- to 4-cut baled hay and/or haylage harvest system

CROPLAN RR Vamoose

Regions: Central|East|North
Dormancy: 3.9
Winterhardness: 1.8



Characteristics

	Not Recommended			Excellent		
Yield Index			3			
Persistence Index						1
Feed Quality			3			
Disease Resistance			3			
Insect Resistance				3		
Nematode Resistance		4				

- Performs well in the Upper Midwest and East where high resistance to potato leafhopper (PLH) may be necessary
- PLH resistance provides improved yield potential, high-quality feed and stand persistence
- Outstanding agronomics; PLH resistance offers reduced-spray or no-spray options; best-suited in a 3- to 4-cut system

NEW

CROPLAN RR AphaTron AA

Regions: Central|East|North|West
Dormancy: 4.4
Winterhardness: 1.4



Characteristics

	Not Recommended			Excellent		
Yield Index						1
Persistence Index						1
Feed Quality				2		
Disease Resistance						1
Insect Resistance			3			
Nematode Resistance	N/A					

- The newest addition in the AA disease resistance package; exceptional root and plant health to support top notch yield potential
- Highest resistance (HR+) rating to multi-race Aphanomyces root rot disease (races 1, 2 and EMR); HR+ to multi-race anthracnose disease (including race 5)
- Provides exceptional yield and forage quality potential under a 4- to 5-cut haylage or aggressive hay management system

CROPLAN RR AphaTron 2XT

Regions: Central|East|North|West
Dormancy: 4
Winterhardness: 1.5



Characteristics

	Not Recommended			Excellent		
Yield Index						1
Persistence Index						1
Feed Quality				2		
Disease Resistance			3			
Insect Resistance			3			
Nematode Resistance			3			

- Great soil disease resistance to help improve root and plant health
- High resistance (HR) to Aphanomyces root rot disease races 1 and 2; resistant (R) to EMR
- Provides high yield potential and good forage quality potential under a 4- to 5-cut haylage or aggressive hay management system

CROPLAN RR Stratica

Regions: Central|East|North|West
Dormancy: 4.3
Winterhardness: 2



Characteristics

	Not Recommended			Excellent		
Yield Index						2
Persistence Index						2
Feed Quality			3			
Disease Resistance			3			
Insect Resistance						2
Nematode Resistance			3			

- Exceptional ability to perform well across multiple geographies and growing conditions
- Features a good disease-resistance package for soils east to west
- High-forage yield potential, fast regrowth and good winterhardness; ideally suited for a 4- to 5-cut haylage or aggressive hay management system

KEY Scale
1 = Excellent
2 = Strong
3 = Acceptable
4 = Manage
5 = Not Recommended

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CROPLAN RR Saltiva

Regions: Central|North|West
 Dormancy: 4.8
 Winterhardiness: 2.5



Characteristics

	Not Recommended			Excellent		
Yield Index						1
Persistence Index					2	
Feed Quality			3			
Disease Resistance			3			
Insect Resistance						1
Nematode Resistance						1

- Exceptional performance in tough soils with high saline conditions
- Exceptional pest-resistance package; high resistance to stem nematode and multi-species aphid resistance
- Excels in a 5-cut intensive hay or haylage harvest systems

CROPLAN RR NemaStar

Regions: West
 Dormancy: 4.9
 Winterhardiness: 2.8



Characteristics

	Not Recommended			Excellent		
Yield Index					2	
Persistence Index					2	
Feed Quality						1
Disease Resistance			3			
Insect Resistance			3			
Nematode Resistance						1

- Management and growth pattern is similar to Nimbus with the added benefit of the Roundup Ready® trait
- Developed and tested for high performance in field trials heavily infested with nematodes; high resistance to stem nematode
- Excellent salt-tolerance ratings in germination tests
- Rapid regrowth and very good forage quality potential; ideal for haylage or baled hay intensive harvest systems

CROPLAN RR Tonnica

Regions: Central|East|North|South|West
 Dormancy: 5
 Winterhardiness: 2



Characteristics

	Not Recommended			Excellent		
Yield Index						1
Persistence Index					2	
Feed Quality			3			
Disease Resistance			3			
Insect Resistance		4				
Nematode Resistance			3			

- Maximize yield potential all season long
- Well-rounded pest resistance package for wide-range adaptability from east to west
- Very early spring growth, fast regrowth and late fall growth; aggressive 5-cut schedule

CROPLAN RR 6 Shot Plus

Regions: South|West
 Dormancy: 6
 Winterhardiness: -



Characteristics

	Not Recommended			Excellent		
Yield Index						1
Persistence Index					2	
Feed Quality			3			
Disease Resistance			4			
Insect Resistance					2	
Nematode Resistance						1

- Next generation of semidormant genetics that push yield potential to the next level; ideal in the High Plains, the South and the Southwest
- High resistance to spotted alfalfa and pea aphid as well as to stem nematode
- Very early spring growth, fast regrowth and late fall growth; plan for 6-cut harvest system

CROPLAN RR Desert Rose

Regions: South|West
 Dormancy: 8.5
 Winterhardiness: -



Characteristics

	Not Recommended			Excellent		
Yield Index						1
Persistence Index					2	
Feed Quality			3			
Disease Resistance			4			
Insect Resistance						1
Nematode Resistance			3			

- Exceptional nondormant variety with very high yield potential; dark-green plant with excellent leaf retention
- High resistance to spotted alfalfa, pea and blue alfalfa aphids; ideal for the Southwest region
- Great when harvested as dry baled hay, haylage or greenchop; fast recovery after cutting; excellent stand persistence for numerous cuttings per year

CROPLAN Maxi Graze®

Regions: North|West
 Dormancy: 2
 Winterhardiness: 2

Characteristics

	Not Recommended			Excellent		
Yield Index			3			
Persistence Index						1
Feed Quality			3			
Disease Resistance			4			
Insect Resistance	5					
Nematode Resistance	5					

- Recessed crown provides excellent durability for grazing or high-traffic fields; exceptional winterhardiness and stand persistence
- Great yield and quality potential for northern regions or high elevations; ideal for 1- or 2-cut mechanical harvest followed by grazing
- Excellent option for mixed grass and alfalfa pastures

KEY Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

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CROPLAN MP 1000 Brand

Regions: Central|East|North|West
 Dormancy: 3
 Winterhardness: 3

Characteristics

	Not Recommended	Excellent
Yield Index	3	
Persistence Index	3	
Feed Quality	3	
Disease Resistance	4	
Insect Resistance	5	
Nematode Resistance	5	

- Premium multifoliolate blend with wide geographic adaptation
- Good forage yield and quality potential
- Works well in a 3- to 4-cut hay or haylage management system
- Available with Apex™ Green Seed Coating; OMRI Listed® for organic use

CROPLAN LegenDairy AA

Regions: Central|East|North|West
 Dormancy: 3.4
 Winterhardness: 1.1

Characteristics

	Not Recommended	Excellent
Yield Index		1
Persistence Index		1
Feed Quality		1
Disease Resistance		1
Insect Resistance		2
Nematode Resistance	5	

- The next generation of LegenDairy; the added AA disease resistance has advanced yield potential to new levels
- Highest resistance (HR+) rating to multi-race Aphanomyces root rot disease (races 1, 2, and EMR); HR+ to multi-race anthracnose disease (including race 5)
- Excellent choice for producers in northern growing regions east to west; ideal for 3- to 4-cut baled hay or haylage harvest system
- Available with Apex™ Green Seed Coating; OMRI Listed® for organic use

CROPLAN TrailBlazer XHH

Regions: Central|East|North
 Dormancy: 4
 Winterhardness: 3

Characteristics

	Not Recommended	Excellent
Yield Index	3	
Persistence Index	3	
Feed Quality	3	
Disease Resistance	3	
Insect Resistance		2
Nematode Resistance	5	

- Excellent resistance to potato leafhopper (PLH); improved yield potential; high-quality feed and stand persistence
- PLH resistance offers reduced-spray or no-spray options
- Great option for the Upper Midwest and East; best suited in a 3- to 4-cut hay/ haylage harvest system
- Available with Apex™ Green Seed Coating; OMRI Listed® for organic use

CROPLAN Rebound AA

Regions: Central|East|North|West
 Dormancy: 4.4
 Winterhardness: 1.7

Characteristics

	Not Recommended	Excellent
Yield Index		1
Persistence Index		1
Feed Quality		2
Disease Resistance		1
Insect Resistance		3
Nematode Resistance	5	

- Packs a punch with AA disease resistance providing exceptional yield potential
- Highest resistance (HR+) rating to multi-race Aphanomyces root rot disease (races 1, 2 and EMR); HR+ to multi-race anthracnose disease (including race 5)
- Best-suited for 4- to 5-cut haylage or aggressive hay management systems in the Upper Midwest and East; great for baled hay in the West where pockets of Aphanomyces root rot disease is a problem
- Available with Apex™ Green Seed Coating; OMRI Listed® for organic use

NEW

CROPLAN Gunner AA

Regions: Central|East|North|South|West
 Dormancy: 4.8
 Winterhardness: 1.2

Characteristics

	Not Recommended	Excellent
Yield Index		1
Persistence Index		1
Feed Quality		2
Disease Resistance		1
Insect Resistance		3
Nematode Resistance		1

- Outstanding AA disease resistance combined with maximum yield potential
- High resistance (HR+) to multi-race Aphanomyces root rot disease (races 1, 2, and EMR); HR+ to multi-race anthracnose disease (including race 5)
- Very early spring growth, fast regrowth and late fall growth; ideal for aggressive 5- to optional 6-cut hay or haylage harvest schedule

CROPLAN Gunner

Regions: Central|East|North|South|West
 Dormancy: 4.9
 Winterhardness: 1.2

Characteristics

	Not Recommended	Excellent
Yield Index		2
Persistence Index		1
Feed Quality		2
Disease Resistance		3
Insect Resistance		4
Nematode Resistance		1

- Optimize yield potential with very early spring growth, fast regrowth and late fall growth
- Good disease resistance package allows this variety to move well in the East as haylage to the West as dry hay
- Plan for aggressive 5- to optional 6-cut hay or haylage harvest schedule
- Available with Apex™ Green Seed Coating; OMRI Listed® for organic use

KEY Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

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CROPLAN Nimbus

Regions: Central|North|West
 Dormancy: 5
 Winterhardness: 2.2

Characteristics

	Not Recommended			Excellent	
Yield Index				1	
Persistence Index			2		
Feed Quality			2		
Disease Resistance			3		
Insect Resistance			3		
Nematode Resistance				1	

- Developed for the western areas of the U.S. where problematic soils, including high-salinity soils, can reduce alfalfa production
- Great performance in field trials heavily infested with nematodes; high resistance to both stem and northern root-knot nematodes
- Exceptional yield potential with optimum production under 5- to optional 6-cut haylage or baled hay harvest systems
- Available with Apex™ Green Seed Coating; OMRI Listed* for organic use

CROPLAN Artesian Sun 6.3

Regions: South|West
 Dormancy: 6
 Winterhardness: 3.1

Characteristics

	Not Recommended			Excellent	
Yield Index				1	
Persistence Index			2		
Feed Quality			3		
Disease Resistance			3		
Insect Resistance			3		
Nematode Resistance				1	

- Excellent conventional variety that is dark green, very high multifoliolate expression and good leaf retention
- Outstanding pest-resistance package; versatile product can move from western to southern U.S. semidormant regions
- Strong stand persistence for intensive harvest management; fast recovery and regrowth after cutting provides excellent yield potential in a 6+ cut system
- Available with Apex™ Green Seed Coating; OMRI Listed* for organic use

CROPLAN Sun Titan

Regions: South|West
 Dormancy: 8.4
 Winterhardness: -

Characteristics

	Not Recommended			Excellent	
Yield Index				1	
Persistence Index				1	
Feed Quality			2		
Disease Resistance	5				
Insect Resistance				1	
Nematode Resistance				1	

- Exceptional yield potential with strong stand persistence and very fast recovery after cutting
- Excellent pest resistance ratings with high resistance to pea, blue alfalfa and spotted alfalfa aphids
- Best suited for maximum yield production in the traditional western and southwestern nondormant zones

CROPLAN Sun Quest®

Regions: South|West
 Dormancy: 9
 Winterhardness: -

Characteristics

	Not Recommended			Excellent	
Yield Index			2		
Persistence Index			2		
Feed Quality			3		
Disease Resistance	5				
Insect Resistance				1	
Nematode Resistance				1	

- A high-yield-potential, nondormant conventional variety with an excellent pest-resistance package
- High resistance to pea, spotted and blue alfalfa aphids and to stem nematodes; excellent salt-tolerance ratings in germination and forage tests
- Specifically developed for Southern California, Arizona and New Mexico with exceptional stand persistence for numerous harvests per year

KEY Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

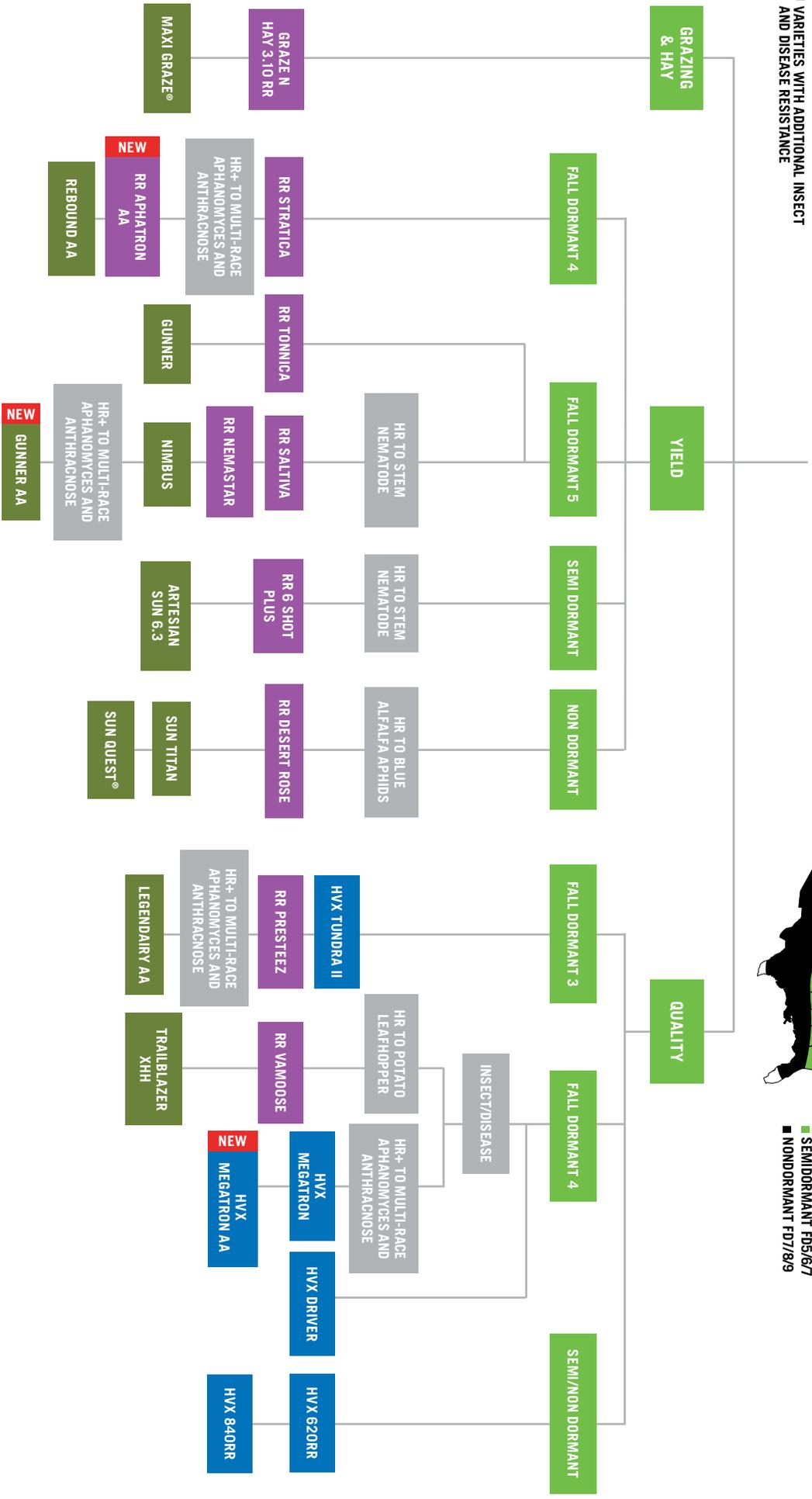
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ALFALFA VARIETY PLACEMENT¹

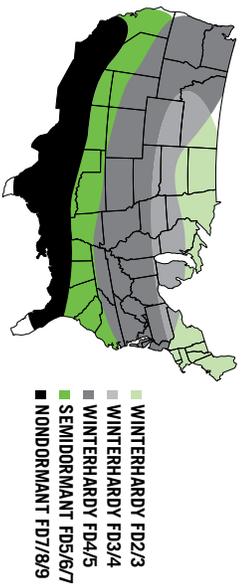
The map can be used to determine which alfalfa varieties are recommended for your area's climate challenges. Also, use the chart below to place the recommended variety to help manage common diseases and pests in your area, and to match quality to your desired cutting frequency.

- HARVYTRA[®] ALFALFA VARIETIES
- ROUNDUP READY[®] VARIETIES
- CONVENTIONAL VARIETIES
- VARIETIES WITH ADDITIONAL INSECT AND DISEASE RESISTANCE



PRODUCT DORMANCY MAP²

Fall dormancy and winterhardness are important considerations in alfalfa seed selection. This map shows CROPLAN[®] seed varieties that match fall dormancy and winterhardness zones in various regions of the United States.



1. This chart is provided as an illustration only. Planting decisions are complex and any implementation of the placement described above is your decision. Because of factors outside of our control, such as weather and product application, results to be obtained, including but not limited to yields, cannot be predicted or guaranteed by WinField United.

2. Fall dormancy (FD) and winterhardness (WH): Higher FD number = higher yield potential; lower WH number = more cold tolerant and stand persistent.



HARVYTRA®/ROUNDUP READY® ALFALFA		Train																													
		Winterhardiness	Fall Dormancy	Yield Index	Feed Quality Index	Resistance Index	Grazing Tolerance	Baled Hay (D/Ylow)	Haylage (Dee/grow)	Ply (on/for a Root Rot)	Potato Leafroller	Aphanomyces Race 1	Aphanomyces Race 2	Aphanomyces Enhanced Multi-Race (EMR)	Bacterial Wilt	Anthracnose Multi-Race	Anthracnose Race 1	Verticillium Wilt	Spotted Alfalfa Aphid	Blue Alfalfa Aphid	Pea Aphid	Stem Nematode	Northern Root-Knot Nematode	Disease Resistance	Insect Resistance	Nematode Resistance					
HVX Tundra II	HarvXtra	3.3	1.2	2	1	H1	3	1	2	HR	-	HR	R	R	HR	HR	HR	HR	HR	R	-	R	-	R	-	G	2	4	3		
HVX Driver	HarvXtra	4.0	2.0	2	1	H2	4	2	1	HR	-	HR	-	-	HR	HR	HR	HR	HR	R	R	-	R	-	G	4	3	5			
HVX MegaTton	HarvXtra	4.2	1.7	1	1	H2	4	2	1	HR	-	HR+	HR+	HR+	HR	HR+	R	HR	HR	R	R	-	R	-	G	2	4	3			
NEW HVX MegaTton AA	HarvXtra	4.4	1.4	1	1	H2	4	2	1	HR	-	HR+	HR+	HR+	HR	HR+	HR+	HR	HR+	HR	R	R	-	R	-	-	1	3	3		
NEW HVX 620RR Brand	HarvXtra	6.0	-	2	2	H3	5	1	1	HR	-	R	-	-	MIR	R	-	HR	-	HR	HR	R	-	R	-	-	4	2	3		
HVX 840RR Brand	HarvXtra	7.9	-	2	1	H3	5	1	1	R	-	-	-	-	R	R	-	R	-	HR	HR	R	-	R	-	-	4	2	3		
Graze N Hay 3.10RR	Roundup Ready	2.9	1.8	3	1	3	1	1	1	4	HR	-	HR	-	HR	HR	-	HR	HR	R	-	-	-	-	-	G	3	4	5		
RR Presteez	Roundup Ready	3.2	1.2	2	1	1	1	3	1	2	HR	-	HR	-	HR	HR	-	HR	HR	R	MR	-	MR	-	G	3	2	4			
RR Yamoose	Roundup Ready	3.9	1.8	3	1	3	2	1	4	HR	HR	HR	-	-	HR	HR	-	HR	HR	R	MR	-	MR	-	G	3	3	4			
NEW RR AphatT on AA	Roundup Ready	4.4	1.4	1	1	2	4	2	1	HR	-	HR+	HR+	HR+	HR	HR+	HR+	HR	HR+	HR	R	R	-	-	-	-	1	3	-		
RR AphatT on 2XT	Roundup Ready	4.0	1.5	1	1	2	4	2	1	HR	-	HR	HR	R	HR	HR	-	HR	HR	R	MR	-	MR	-	G	3	3	3			
RR Stratica	Roundup Ready	4.3	2.0	2	2	3	4	2	1	HR	-	HR	-	-	HR	HR	-	HR	HR	R	-	R	-	R	-	G	3	2	3		
RR Saitiva	Roundup Ready	4.8	2.5	1	2	3	4	1	1	HR	-	HR	-	-	HR	HR	-	HR	HR	R	MR	HR	-	R	-	G	3	1	1		
RR NemaStar	Roundup Ready	4.9	2.8	2	2	1	3	2	1	HR	-	HR	-	-	HR	HR	-	HR	HR	R	R	-	R	-	HR	R	G	3	1		
RR Tomiica	Roundup Ready	5.0	2.0	1	2	3	4	2	1	HR	-	HR	-	-	HR	HR	-	HR	HR	R	-	R	-	R	-	G	3	4	3		
RR 6 Shot Plus	Roundup Ready	6.0	-	1	2	3	4	1	1	HR	-	HR	-	-	R	HR	-	HR	HR	HR	HR	HR	HR	HR	HR	G	4	2	1		
RR Desert Rose	Roundup Ready	8.5	-	1	2	3	5	1	1	HR	-	-	-	-	MIR	HR	-	HR	-	HR	HR	HR	HR	HR	HR	R	-	G	4	1	3

KEY

- Scale**
- 1 = Excellent
 - 2 = Strong
 - 3 = Acceptable
 - 4 = Manage
 - 5 = Not Recommended

1 Feed Quality Index
 Feed quality ratings for HarvXtra® Alfalfa are represented on a separate scale than Roundup Ready® and conventional alfalfa varieties and are signified with an "H-". Because there is a significant improvement in forage quality, HarvXtra® Alfalfa products can only be compared to other HarvXtra® Alfalfa products.

2 Salt Tolerance
 6 = Variety tolerance for germination under high saline conditions in a petri dish
 F = Variety tolerance for forage growth under high saline conditions as a potted plant in the greenhouse

Resistance Ratings
 S = Susceptible (0–5%)
 LR = Low Resistance (6–14%)
 MR = Moderate Resistance (15–30%)
 R = Resistance (31–51%)
 HR = High Resistance (>50%)
 HR+ = Highest Resistance available on the market (>50%)

Note: Field tests are currently being used to select and validate true salt-tolerant varieties. Many soils that are high in salinity also have other problematic conditions. Therefore, germination and forage salt-tolerant ratings may not predict field performance.
 Product descriptions and ratings are generated from Answer Pipe® trials and/or from the genetics supplier and may change as additional data is gathered.



ALFALFA

CROPLAN

Train
 Winterhardiness
 Fall Dormancy
 Feed Quality Index
 Persistence Index
 Grazing Tolerance
 Baled Hay (Drydown)
 Haylage (Regrain)
 Pith Content (a Root Rot)
 Potato Leafhopper
 Aphanomyces Race 1
 Aphanomyces Race 2
 Multi-Race (MR)
 Anthracnose Enhanced
 Bacterial Wilt
 Anthracnose Multi-Race
 Fusarium Wilt
 Verticillium Wilt
 Spotted Alfalfa Aphid
 Pea Aphid
 Blue Alfalfa Aphid
 Northern Root-Knot Nematode
 Stem Nematode
 Salt Germination Tolerance
 Disease Resistance
 Insect Resistance
 Nematode Resistance

Conventional Alfalfa	2.0	2.0	3	1	3	1	4	HR	R	-	-	HR	R	-	-	-	-	-	-	4	5	5					
Maxi Graze®	Conventional	3.0	3.0	3	3	3	2	3	HR	-	R	-	-	-	-	-	-	-	-	4	5	5					
MP 1000 BRAND	Conventional	3.4	1.1	1	1	1	3	1	1	1	1	HR	HR+	HR+	HR	HR+	HR+	HR	HR	R	G	1	2	5			
LEGENDARY AA	Conventional	4.0	3.0	3	3	3	4	1	3	HR	HR	HR	HR	HR	HR	HR	HR	R	-	-	-	3	2	5			
TRAILBLAZER XHH	Conventional	4.4	1.7	1	1	2	4	2	1	HR	-	HR+	HR+	HR+	HR	HR+	HR+	HR	HR	R	R	G	1	3	5		
REBOUND AA	Conventional	4.8	1.2	1	1	2	4	2	1	HR	-	HR+	HR+	HR+	HR	HR+	HR+	HR	HR	R	-	R	G	1	3	5	
NEW GUNNER AA	Conventional	4.9	1.2	2	1	2	4	2	1	HR	-	HR	-	-	HR	HR	HR	HR	HR	R	-	R	HR	G	3	4	1
NIMBUS	Conventional	5.0	2.2	1	2	2	4	1	1	HR	-	HR	-	-	HR	HR	HR	HR	HR	R	-	R	HR	G/F	3	3	1
ARTESIAN SUN 6:3	Conventional	6.0	3.1	1	2	3	4	1	1	HR	-	HR	-	-	R	HR	HR	HR	HR	-	HR	-	G	3	3	1	
SUN TITAN	Conventional	8.4	-	1	1	2	5	1	1	HR	-	-	-	-	MR	R	-	HR	MR	HR	HR	HR	HR	G	5	1	1
SUN QUEST®	Conventional	9.0	-	2	2	3	5	1	1	MR	-	-	-	-	MR	R	-	HR	HR	HR	HR	HR	HR	G	5	1	1

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Product Name _____

Attributes _____

Placement _____



CORN SILAGE

We work with you to select our Data Proven (high quality x high tonnage) silage products, diagnose pest problems and figure out the right levels of quality nutrients in your silage throughout the growing season.

KEY TAKEAWAYS

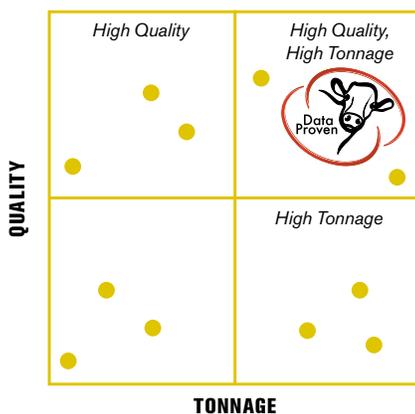
- 1 Select hybrids based on forage quality and tonnage needs.
- 2 Properly harvest and store your crop.

SELECT HYBRIDS FOR QUALITY AND TONNAGE

This scatter graph illustrates yield as tonnage per acre on the horizontal axis and milk per ton as quality on the vertical axis. The lines through the center represent the trial average.

Each year, replicated corn silage trials are planted at Answer Plot® locations nationwide. After harvest, data is compiled and summarized over multiple years and locations to provide a performance snapshot.

Considering both nutrient requirements and agronomic factors during hybrid selection is an important risk-management tool for corn silage products. CROPLAN® corn silage hybrids that consistently perform in this high-quality and high-tonnage quadrant are marked with the Data Proven logo.



Your nutritionist can determine the parameters for nutrient needs, and your WinField United representative can use Answer Plot® data in the R7® Tool to help position each hybrid for optimal performance based on multiple variables.

SEE HOW SEED MEASURES UP

The CHT function of the R7® Tool uses Answer Plot® program data to compare CROPLAN® seed products, as well as seed from other major companies, to see how they are projected to perform in fields like yours. CHT charts show how various hybrids are projected to perform at high and low plant populations when compared to the following categories:*

- Yield
- Milk per ton
- NDFD

*Other categories are available.

SILAGEFIRST® SEED LINE DELIVERS

The SilageFirst® seed line of products from CROPLAN® seed is specifically designed for high-producing dairy and beef cattle. There are three types of SilageFirst® hybrids.

LEAFY HYBRIDS

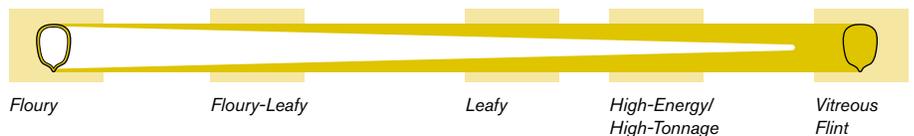
- Leafy stalks are thicker and more digestible, with larger ears to produce more energy.

FLOURY-LEAFY HYBRIDS

- At feedout, flourey-leafy products effectively bridge the gap between the previous year's corn silage pile and the current year's feed.
- Leafy and flourey-leafy hybrids may not contain a high level of total starch, but have a softer kernel texture that is easily broken during the chopping, storage and chewing process. This allows starch to be readily digested for more available energy.

HIGH-ENERGY/HIGH-TONNAGE HYBRIDS

- These hybrids have more flexibility in harvest and feedout as grain or high-energy/high-tonnage silage when used in combination with leafy and flourey-leafy hybrids.
- These are appropriate for feeding after the 120+ day post-ensiling period, when they reach optimum starch and fiber digestibility.



NEW

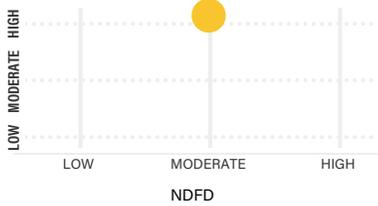
CROPLAN CP2692D

Relative Maturity: 86



Tonnage vs NDFD

Tonnage



- Duracade™ and Artesian® traits with CRW protection; handles variability and multiple soil types well
- Medium-tall plant with strong stalks; dual-purpose option
- Low response to population score, for good potential at lower plant densities

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	
Drought Tolerance	N/A	
Root Strength		1
Tonnage Potential		1
Milk/Acre		2
Starch	3	

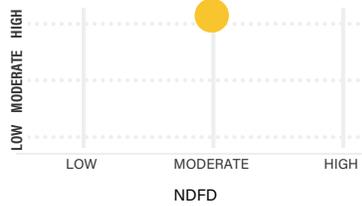
CROPLAN CP2790VT2P/RIB

Relative Maturity: 87



Tonnage vs NDFD

Tonnage



- High-tonnage potential with strong ear flex and drought tolerance
- Excellent seedling vigor for early planting
- Strong ear flex with a moderate response-to-nitrogen; can fit a broad range of growing conditions
- Manage for late-season stalks and Goss's wilt

Characteristics

	Not Recommended	Excellent
Seedling Vigor		1
Drought Tolerance		1
Root Strength		2
Tonnage Potential		2
Milk/Acre	3	
Starch		1

CROPLAN CP2845SS/RIB

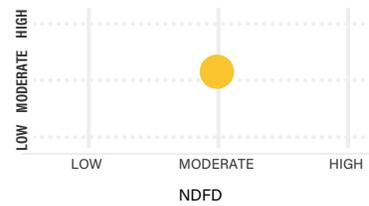
[VT2P/RIB]*

Relative Maturity: 89



Tonnage vs NDFD

Tonnage



- High yield potential across all soil types and environments
- Plant early, great emergence in cooler soils; excellent conservation-till hybrid
- High response to nitrogen and population optimizes yield potential
- Manage placement for Goss's wilt

Characteristics

	Not Recommended	Excellent
Seedling Vigor		1
Drought Tolerance		1
Root Strength		1
Tonnage Potential		1
Milk/Acre	3	
Starch		2

CROPLAN CP2965VT2P/RIB

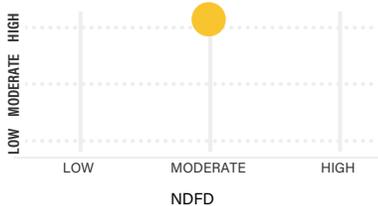
[RR]

Relative Maturity: 89



Tonnage vs NDFD

Tonnage



- High yield potential to complement CP2845
- Excellent early vigor for early planting
- Moderate RTP and high RTN boost yield potential on average-to-productive soils
- Acceptable Goss's wilt tolerance

Characteristics

	Not Recommended	Excellent
Seedling Vigor		1
Drought Tolerance		2
Root Strength		2
Tonnage Potential		2
Milk/Acre		2
Starch	3	

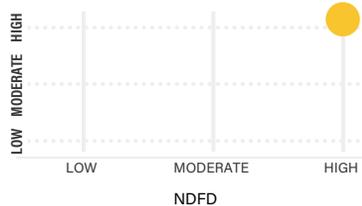
CROPLAN CP3200SRR

Relative Maturity: 93



Tonnage vs NDFD

Tonnage



- Flurry x leafy silage-only hybrid with very high tonnage potential
- Tall plant with large flex ears that contribute to above average starch
- Highly responsive to nitrogen and fungicide applications
- Best positioned at lower seeding rates to maximize tonnage and agronomics

Characteristics

	Not Recommended	Excellent
Seedling Vigor		2
Drought Tolerance		2
Root Strength		2
Tonnage Potential		1
Milk/Acre		1
Starch		2

CROPLAN CP3399SS/RIB

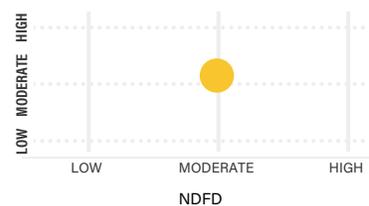
[VT2P/RIB]*

Relative Maturity: 94



Tonnage vs NDFD

Tonnage



- Good combination of high tonnage potential and early maturity
- Above-average heat and moisture-stress tolerance
- Exceptional continuous corn-on-corn hybrid
- Some ear flex, although great stress tolerance allows for higher planting populations

Characteristics

	Not Recommended	Excellent
Seedling Vigor		2
Drought Tolerance		2
Root Strength		2
Tonnage Potential	3	
Milk/Acre	3	
Starch	3	

KEY Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

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CROPLAN® corn silage hybrids that consistently perform for high-quality and high-tonnage in Answer Plot® trials.

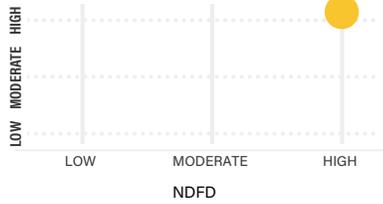
CROPLAN CP3490VT2P/RIB

Relative Maturity: 94



Tonnage vs NDFD

Tonnage



- Consistent tonnage with stability across wide range of environments
- Strong roots deliver strong drought tolerance and performance in poor soils
- Semi-flex ear and strong stalks
- Harvest timely because staygreen is below average

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	1
Drought Tolerance	2	2
Root Strength	3	
Tonnage Potential		1
Milk/Acre		1
Starch	2	

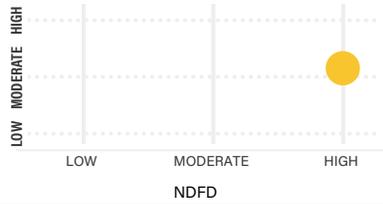
CROPLAN CP3575VT2P/RIB

Relative Maturity: 95



Tonnage vs NDFD

Tonnage



- Dual-purpose hybrid with above-average NDFD and starch content
- Excels in moderate- to high-yield environments and moves across all soil types
- Has good ear flex for low plant densities, but will respond to higher management
- Manage for Goss's wilt

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	2
Drought Tolerance	3	
Root Strength		2
Tonnage Potential	3	
Milk/Acre	3	
Starch	3	

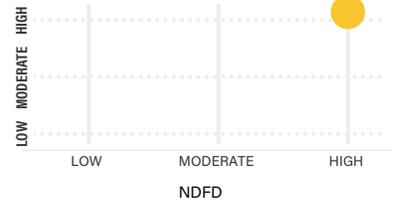
CROPLAN CP3735SS/RIB

[VT2P/RIB]*
Relative Maturity: 97



Tonnage vs NDFD

Tonnage



- Medium-height dual-purpose hybrid with excellent NDFD
- Excellent test weight and emergence with solid defensive traits
- Plant at moderate-to-high densities; fungicide application is recommended
- Keep in RM zone

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	1
Drought Tolerance	3	
Root Strength		2
Tonnage Potential		2
Milk/Acre		1
Starch	3	

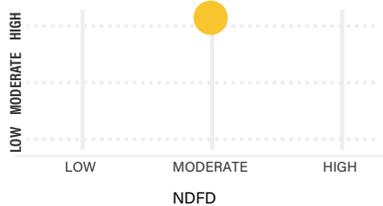
CROPLAN CP3899VT2P/RIB

Relative Maturity: 98



Tonnage vs NDFD

Tonnage



- Tall hybrid with consistently high tonnage potential and above-average digestibility
- Late-flowering with excellent heat and moisture stress tolerance
- Works well in both hot or cool growing seasons
- Excellent yield potential across all yield environments

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	1
Drought Tolerance	2	
Root Strength	2	
Tonnage Potential		1
Milk/Acre		1
Starch	2	

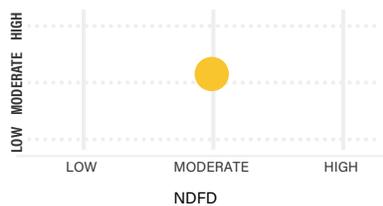
CROPLAN CP3980VT2P/RIB

Relative Maturity: 99



Tonnage vs NDFD

Tonnage



- Tall hybrid with strong grain yield potential drive high tonnage potential
- Excellent roots and good drought tolerance allow for high seeding rates and high tonnage
- Moderate response to nitrogen provides consistent performance across variable soils
- Harvest timely to avoid excess drydown

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	2
Drought Tolerance	3	
Root Strength		1
Tonnage Potential	3	
Milk/Acre	3	
Starch		1

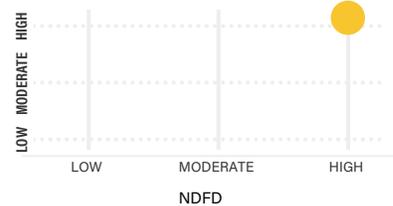
CROPLAN CP4079SS/RIB

[VT2P/RIB]*
Relative Maturity: 100



Tonnage vs NDFD

Tonnage



- Dual-purpose option for most soil types and yield environments
- Medium-tall hybrid with strong Goss's wilt rating and seedling vigor, excellent roots
- Position at medium populations and manage nitrogen for high yield potential

Characteristics

	Not Recommended	Excellent
Seedling Vigor	2	
Drought Tolerance	2	
Root Strength		1
Tonnage Potential		2
Milk/Acre		2
Starch	3	

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CROPLAN® corn silage hybrids that consistently perform for high-quality and high-tonnage in Answer Plot® trials.

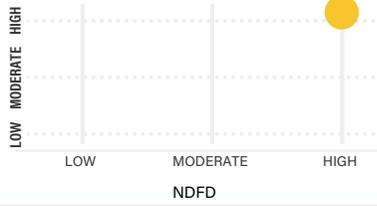
CROPLAN CP4099SS/RIB

Relative Maturity: 100



Tonnage vs NDFD

Tonnage



- Tall hybrid with consistently high tonnage potential and above-average digestibility
- Late-flowering hybrid with excellent roots and seedling vigor for early planting
- High response to intensive management; can also handle average acres
- Manage in areas with gray leaf spot and NCLB

Characteristics

	Not Recommended		Excellent	
Seedling Vigor				1
Drought Tolerance			2	
Root Strength				1
Tonnage Potential			2	
Milk/Acre			2	
Starch		3		

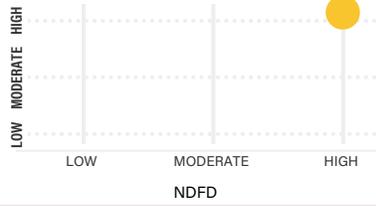
CROPLAN CP4100SVT2P/RIB

Relative Maturity: 101



Tonnage vs NDFD

Tonnage



- Highly digestible leafy-type silage hybrid with high yield potential
- Tall white cob hybrid does best in medium-high populations
- Excellent performance for high tonnage and high-quality potential
- Average seedling vigor

Characteristics

	Not Recommended		Excellent	
Seedling Vigor		3		
Drought Tolerance			2	
Root Strength			2	
Tonnage Potential				1
Milk/Acre				1
Starch	4			

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CORN SILAGE



BRAND	Relative Maturity	Plant Height ¹	Ear Height ²	Ear Flex ³	Flower Date ⁴	Kernel Rows	Population (RPP) ⁵	Nitrogen Response to RPP ⁵	Fungicide Response to RPP ⁵	Seeding Response to RPP ⁵	Root Strength	Stalk Quality	Grain Leaf Spot	NCLB	Drought Tolerance	Tonnage Potential	# Milk/Acre	% NDFD	% NDF	% Starch	% Crude Protein	Calibrate® Starch Rating	Calibrate® Fiber Rating	TDN	Calibrate® Starch Rating	Calibrate® Fiber Rating		
NEW CP184RR	M-T	M	FL	E	16-18	M	L	M	M	2	2	3	NA	3	5	3	2	3	3	3	4	3	4	3	4	3	4	NA
CP2692D	M-T	M	SF	M	16-18	M	M	M	M	2	1	1	NA	1	1	NA	1	2	3	3	2	3	2	3	2	3	NA	NA
CP2790VT/P2/RIB*	M-T	M	SF	E	16-18	L	M	H	H	1	2	3	3	2	4	1	2	3	3	3	1	3	3	1	3	3	NA	NA
CP284SS/RIB*	M-T	M	SF	E	16-18	H	H	H	H	1	1	2	NA	3	4	1	3	3	4	3	2	2	2	4	MS	MS	MS	
CP2965VT2P/RIB*	M	M	SF	M	14-16	M	H	H	H	1	2	1	3	3	3	2	2	3	3	3	3	3	3	3	3	3	MF	M
CP3200SR	T	M	FL	M	14-16	L	H	H	H	2	2	2	3	3	2	2	1	1	2	2	2	2	3	3	3	3	MF	MF
CP339SS/RIB*	M	M	SF	M	16-18	M	H	M	M	2	2	2	3	3	4	2	3	4	3	3	3	3	3	3	3	4	MS	MS
CP3490VT2P/RIB	M-T	M-H	SF	M-L	18-20	M	L	H	H	1	3	3	3	3	3	2	1	1	2	3	2	3	2	3	2	3	M	M
CP3575VT2P/RIB*	M	M	SF	M-L	16-18	H	H	L	L	2	2	2	2	3	4	3	3	3	1	3	3	3	3	3	3	3	M	M
CP3735SS/RIB*	M	M	SF	M	16-18	M	H	H	H	1	2	2	3	3	3	3	2	1	1	3	3	2	1	3	3	2	MF	MF
CP3899VT2P/RIB*	M-T	M-H	SF	L	16-20	H	H	H	H	1	2	2	4	4	3	2	1	1	3	3	2	1	3	3	3	3	MF	M
CP3980VT2P/RIB	M-T	M-H	SF	M	14-16	M	M	H	H	2	1	3	2	NA	3	3	3	3	3	3	2	1	3	3	3	3	M	MS
CP4079SS/RIB*	M-T	M	SF	M	14-16	M	M	H	H	2	1	3	3	3	2	2	2	2	2	2	2	2	3	3	3	2	M	MF
CP4099SS/RIB*	M-T	M	SF	L	16-20	H	H	H	H	1	1	2	4	4	3	2	2	2	2	2	2	2	3	3	3	3	S	MS
CP4100SVT2P/RIB*	T	M	SF	M	16-18	H	NA	M	M	3	2	2	3	3	2	2	1	1	2	3	4	3	4	3	2	MF	MF	
CP4188VT2P/RIB*	M	M	SF	M	16-18	M	M	M	M	1	1	2	3	2	2	2	1	2	3	2	2	2	3	2	2	2	MS	MS
CP4199SS/RIB*	M	M	SF	M	16-18	H	M	M	M	1	1	1	3	3	4	1	3	2	2	2	3	3	3	3	3	2	MF	MF
CP4444VT2P	T	M-H	SF	M-L	14-16	H	L	L	L	1	2	2	3	3	3	3	3	3	2	1	1	4	3	3	3	3	MF	M
CP4678SS/RIB*	M	M	SF	M	16-18	M	H	M	M	1	3	3	3	2	2	3	2	1	2	3	2	2	1	2	3	2	MF	F
NEW CP4757VT2P/RIB*	M	M-H	SD	M	18-20	M	M	M	M	3	2	3	3	2	NA	2	1	1	3	3	3	3	3	3	3	2	M	M

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- 1 Plant Height**
- XT = Extra Tall
 - T = Tall
 - M = Medium
 - S = Short

- 2 Ear Height**
- H = High
 - M = Medium
 - L = Low

- 3 Ear Flex**
- FL = Flex
 - SF = Semi-Flex
 - FX = Fixed

- 4 Flower Date**
- L = Late
 - M = Medium
 - E = Early

- 5 RPP/RNV/RTF Ratings**
- L = Low Response
 - M = Moderate Response
 - H = High Response
 - TBD = To be tested in 2022

- 6 Calibrate® Starch Rating**
- Relative number digestibility of grain starch
- S = Slow
 - M = Moderate
 - F = Fast
- Ratings based on 2018-2021 silage samples.

- 7 Calibrate® Fiber Rating**
- Relative number digestibility of fiber
- S = Slow
 - M = Moderate
 - F = Fast
- Ratings based on 2018-2021 silage samples.

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CORN SILAGE

BRAND	Relative Maturity	Plant Height ¹	Ear Height ²	Ear Flex ³	Flower Date ⁴	Kernel Rows	Population (RP) ⁵	Nitrogen Response to (RTN) ⁵	Fungicide Response to (RTF) ⁵	Seeding Response to Weigh ⁵	Root Strength	Stalk Quality	Grain Leaf Spot	NCLB	Drought Tolerance	Tonnage Potential	# Milk/Acre	% NDFD	% NDF	% Starch	% Crude Protein	Calibrate® Starch Rating ⁶	Calibrate® Fiber Rating ⁷	TDN		
CP4791AS3111	107	M-T	M	SF	M	M	16-18	M	M	M	3	2	2	3	2	2	3	1	1	3	3	3	1	1	MF	MF
NEW CP4890SS/RIB*	108	M-S	M	SD	M	M	14-16	H	M	H	2	2	2	3	3	NA	3	3	2	3	5	2	3	1	M	M
CP5073SS/RIB*	110	M	M-H	SF	M	M	16-18	M	H	H	1	2	3	3	2	3	2	1	2	2	2	1	2	MF	MF	
CP5115SS/RIB*	111	M-T	M-H	SF	M-L	M	18-20	H	H	M	1	1	2	3	2	4	2	3	3	2	2	3	3	MS	M	
CP6110VT2P/RIB*	110	M	M	SF	M	M	16-18	M	M	M	2	1	3	4	2	3	1	3	3	2	1	4	3	M	MF	
CP5244VT2P/RIB	112	M-T	M-H	SF	E	M	16-18	M	M	M	2	2	3	3	2	3	2	1	2	2	1	3	3	M	MF	
CP5370SS/RIB*	113	T	M-H	SF	M	M	18-20	H	H	M	1	1	1	3	2	4	2	2	3	2	2	3	3	M	M	
CP5560VT2P/RIB*	115	M-T	M-H	SF	M	M	14-16	M	M	M	2	2	2	3	3	3	2	1	1	3	4	4	3	2	MS	MS
CP5678VT2P/RIB*	116	M	M	SF	M	M	14-16	M	H	M	3	3	3	2	3	2	2	2	4	4	3	2	2	M	M	
CP5700SVT2P/RIB*	117	M-T	M	SF	M	M	16-18	M	H	M	2	2	2	NA	NA	NA	3	1	1	2	4	4	2	2	MF	MF
NEW CP5760TRE/RIB*	117	T	M-H	SF	NA	M	16-18	L	H	M	2	3	3	3	3	NA	3	1	1	3	2	4	5	3	M	M
CP5789VT2P/RIB*	117	T	M-H	SF	M	M	16-18	H	M	H	2	1	1	3	1	4	2	3	3	4	3	3	3	3	M	M
CP5900SVT2P/RIB*	119	T	M-H	SF	M	M	16-18	M	H	NA	2	3	3	NA	NA	NA	2	1	1	3	4	4	1	2	M	M

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 - M = Moderate
 - F = Fast
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These ratings reflect trends observed in research trials that change with variations in rainfall, temperature, crop production patterns and other factors. Ratings on new hybrids are based on limited data and may change as more data is collected.

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Product Name _____
Attributes _____

Placement _____

Product Name _____
Attributes _____

Placement _____

Product Name _____
Attributes _____

Placement _____

Product Name _____
Attributes _____

Placement _____



FORAGE SORGHUM

We use our expertise to provide you with a comprehensive, season-long plan that can help you get results with the right forage sorghum genetics. It's how we deliver the best nutrition and high total plant digestibility for optimal production and quality.

KEY TAKEAWAYS

- 1 Select the right forage type for your operation.
- 2 Choose a hybrid that has the traits you need.
- 3 Practice in-season management for optimal production.

SELECT THE RIGHT FORAGE TYPE

► Forage Sorghum (single-cut silage)

Tall plant that has a sweet stalk and small grain head with limited regrowth potential.

► Sorghum x Sudan (multi-cut or grazing)

Strong tillering and regrowth ability, which is ideal for multiple harvests with increased tonnage potential.

► Pearl Millet (multi-cut or grazing)

Brachytic plant stature with finer stalks and prolific tillering.

SELECT THE HYBRID WITH THE TRAIT YOU NEED

BROWN MIDRIB-6 TRAIT

- Excellent forage quality and agronomics.
- The nutritional value potential is comparable to corn silage.
- Trait available in the following forage types: forage sorghum, sorghum x sudan, pearl millet.

BRACHYTIC TRAIT

- Shorter stature and high leaf-to-stem ratio due to reduced internode length.
- Excellent standability and tillering.
- Trait available in the following forage types: forage sorghum, sorghum x sudan, pearl millet.

PHOTOPERIOD SENSITIVITY TRAIT

- Extended harvest window.
- Remains vegetative until day length falls below 12 hours and 20 minutes; it will then enter the reproductive stage.
- Trait available in the following forage types: forage sorghum, sorghum x sudan.

SUGARCANE APHID (SCA)

- Use a tolerant hybrid to slow down the rate of infestation.
- Use seed treatment for early control.
- Plant as early as soil temperature allows. An earlier-maturity variety may help avoid late-season infestations.
- Scout early and often; treat as soon as threshold is reached.
- Avoid use of pyrethroids and other insecticides that are harmful to beneficials (SCA natural enemies include lady beetles, hover fly and green lacewing). Insecticides may cause SCA numbers to increase rapidly.

IN-SEASON MANAGEMENT

TREATED SEED

► Seed Safener Treatment

Helps protect seed against preemergence herbicide applications, some herbicide carry-over or residual, and some grass herbicides.

► Systemic Insecticide Treatment

Effective on aboveground insects, such as early sugarcane aphid, for roughly 40 days.

► Base Seed Treatment

Pearl millet hybrids include a base seed treatment only.

WEED CONTROL

Herbicides for forage sorghums are limited to bromoxynil, atrazine, metolachlor or 2,4-D.¹

- Metolachlor, by itself or in combination with atrazine, is the recommended preemergence herbicide.
- There are no postemergence grass herbicides.
- Broadleaf postemergence herbicides include 2,4-D, bromoxynil and Huskie® herbicide.
- The best way to control weeds is to start with clean ground and get the crop up and shading the soil as quickly as possible.

FERTILITY

- Sorghums require 1 to 1.25 units of nitrogen per growing day. Apply at a 5:1 ratio of nitrogen to sulfur to help the plant convert nitrogen to protein.
- Stressed plants will not convert nitrate into usable protein, resulting in high concentrations of nitrates in the plant. High nitrates can be toxic if fed to cattle.

FEEDING/HARVEST MANAGEMENT

FORAGE SORGHUM

- Harvest at late-milk to soft-dough stage.
- Single-cut for silage when plant reaches 67% to 72% whole plant moisture.
- Forage sorghums can be harvested after frost in the North for silage.
- Manage harvest moisture to meet operational needs, consider swath and wilt method in order to chop at the proper whole plant moisture.

SORGHUM X SUDAN

- Optimal harvest timing is 40 days or 40 inches tall.
- Dry hay in the Plains, West, South and Southwest; haylage or baleage in the Midwest, East and Southeast.
- Start summer grazing when plants reach 18 to 24 inches. Remove animals when two nodes are left above the ground.
- Forage quality and yield can be maximized at flag leaf stage.

PEARL MILLET

- Optimal harvest timing is 40 days or 40 inches tall.
- No prussic acid and high digestibility make this a great choice for horse feed.
- Fine stalks allow the ability to make dry hay in areas with high summer humidity.
- Start summer grazing when plants reach 18 to 24 inches. Remove animals when there is six-inches of stubble height. Forage quality and yield can be maximized at flag leaf stage.

1. Read all labels before application.

NEW**CROPLAN BMR 3211**Regions: Central|East|North|Double-crop
Maturity: Early**Characteristics**

	Not Recommended	Excellent
Stress Tolerance	3	
Forage Quality		1
Disease Tolerance		2
Dry Hay	4	
Silage		1
Grazing	4	

- Early-maturing forage sorghum hybrid with excellent yield potential
- BMR-6 trait with excellent forage quality potential; great for lactating cows
- Strong disease resistance; moves well north and east; excellent option for double-cropping in the Central Plains regions
- Avoid overwatering and excessive populations; plants can reach 8 feet tall
- Recommended seeding rate: 60,000 to 70,000 seeds per acre at 1 to 1 1/2 inches deep, depending on soil moisture

CROPLAN IQ 3501Regions: Central|South|West
Maturity: Mid**Characteristics**

	Not Recommended	Excellent
Stress Tolerance		2
Forage Quality		2
Disease Tolerance		1
Dry Hay	5	
Silage		1
Grazing	5	

- New line of genetics; the IQ (improved quality) series is selected for higher forage quality potential than conventional hybrids
- Extremely flexible hybrid; excellent disease and drought tolerance allow for placement across most of the U.S.
- Excellent yield potential; similar to a late-season hybrid
- Excellent standability; plants can reach 7 to 8 feet tall; manage water and fertility for a mid-maturity hybrid
- Recommended seeding rate: 50,000 to 60,000 seeds per acre at 1 to 1 1/2 inches deep, depending on soil moisture

CROPLAN 3531 BMR LeafyRegions: Central|South|West
Maturity: Mid**Characteristics**

	Not Recommended	Excellent
Stress Tolerance		2
Forage Quality		1
Disease Tolerance		1
Dry Hay	5	
Silage		1
Grazing	5	

- Excellent forage quality of the BMR-6 gene paired with the brachytic dwarf trait for high leaf-to-stem ratio
- Extremely flexible hybrid; excellent disease and drought tolerance allow for placement across most of the U.S.
- Mid-maturity variety with excellent combination of yield potential and quality
- Combining the brachytic dwarf traits with excellent stalks, standability is excellent with a 6 to 7 foot plant height
- Recommended seeding rate: 60,000 to 100,000 seeds per acre at 1 to 1 1/2 inches deep, depending on soil moisture

NEW**CROPLAN 3681 AT**Regions: Central|South|West
Maturity: Mid/Late**Characteristics**

	Not Recommended	Excellent
Stress Tolerance		2
Forage Quality		3
Disease Tolerance		1
Dry Hay	5	
Silage		1
Grazing	5	

- Conventional hybrid with excellent tolerance to sugarcane aphid (SCA); SCA may be on plant in low numbers, plant handles stress well
- Extremely flexible hybrid; excellent disease and drought tolerance allow for placement across Central and Southern U.S.
- Very high leaf expression and great stalks deliver good yield potential
- Excellent standability; plants can reach 8 to 9 feet tall; manage water and fertility for a mid-maturity hybrid
- Recommended seeding rate: 60,000 to 70,000 seeds per acre at 1 to 1 1/2 inches deep, depending on soil moisture

NEW**CROPLAN 3731 BMR Leafy**Regions: Central|South|West
Maturity: Late**Characteristics**

	Not Recommended	Excellent
Stress Tolerance		2
Forage Quality		1
Disease Tolerance		1
Dry Hay	5	
Silage		1
Grazing	5	

- Excellent forage quality of the BMR-6 gene paired with the brachytic dwarf trait for high leaf-to-stem ratio
- Extremely flexible hybrid; excellent disease and drought tolerance allow for placement across most of the U.S.
- Late maturity variety with excellent combination of yield potential and quality requiring a full growing season
- Combining the brachytic dwarf traits with excellent stalks, standability is excellent with a 6 to 7 foot plant height
- Recommended seeding rate: 60,000 to 100,000 seeds per acre at 1 to 1 1/2 inches deep, depending on soil moisture

CROPLAN Greentreat® 1531Regions: Central|East|North|South|West
Maturity: Heads at ~50 days**Characteristics**

	Not Recommended	Excellent
Stress Tolerance		1
Forage Quality		1
Disease Tolerance		2
Dry Hay		1
Silage	3	
Grazing		1

- Excellent forage quality of the BMR-6 gene paired with the brachytic dwarf trait for lower cutting height and high leaf-to-stem ratio
- A best-in-class variety for drought tolerance and heat stress; strong disease package for humid areas and those at risk for anthracnose
- Dry stalk (~5% less) paired with fine stems allows for easier transition into dry hay use
- Requires proper harvest management or forage quality may be compromised (40 days or 40 inches); harvest prior to 50 days before head is initiated
- Recommended seeding rate: 20 to 25 pounds per acre at 1 inch (by drill is recommended)

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Hybrid Number System

First Number: 1 = Sorghum x Sudan; 2 = Sudan; 3 = Forage Sorghum; 4 = Pearl Millet
Second Number: 1 = very early; 2 = early; 3-4 = mid-early; 5 = mid; 6-7 = mid-late; 8 = late; 9 = PPS
Third Number: 0 = No special features; 1 = BMR; 2 = BMR and photoperiod; 3 = BMR and brachytic; 5 = Conventional dwarf, not a brachytic; 8 = Photoperiod
Fourth Number: Series number or new variety type

NEW**CROPLAN** **Dynamo II**Regions: Central|East|North|South|West
Maturity: Heads at ~75 days**Characteristics**

	Not Recommended			Excellent		
Stress Tolerance			3			
Forage Quality						1
Disease Tolerance			3			
Dry Hay						1
Silage			3			
Grazing						1

- Brachytic dwarf provides great forage quality when combined with the BMR-6 gene
- Delayed flowering/head emergence allows for very flexible cutting schedules
- Extended cutting window ideal for all forage systems, fast growing and quick recovery after cutting
- Harvest at 40 days or 40 inches, whichever comes first; for grazing, start when plants reach 18 to 24 inches, remove animals when two nodes are left aboveground
- Recommended seeding rate: 20 to 25 pounds per acre at a depth of 1 inch (by drill is recommended)

NEW**CROPLAN** **GUARDIAN AT**Regions: Central|East|North|South|West
Maturity: Heads at ~60 days**Characteristics**

	Not Recommended			Excellent		
Stress Tolerance			3			
Forage Quality						2
Disease Tolerance			3			
Dry Hay						1
Silage			3			
Grazing						1

- Great forage quality with the BMR-6 gene; moves well across growing regions
- The brachytic dwarf trait provides shortened internode length for lower harvest height and greater leaf-to-stem ratio
- Sugarcane aphid tolerance offers in-plant crop protection; can handle more cuttings with confidence
- Harvest at 40 days or 40 inches, whichever comes first; for grazing, start when plants reach 18 to 24 inches, remove animals when two nodes are left aboveground
- Recommended seeding rate: 20 to 25 pounds per acre at a depth of 1 inch (by drill is recommended)

NEW**CROPLAN** **DYNAMIC**Regions: Central|East|North|South|West
Maturity: photoperiod sensitive**Characteristics**

	Not Recommended			Excellent		
Stress Tolerance						2
Forage Quality						2
Disease Tolerance			3			
Dry Hay						2
Silage						2
Grazing						2

- Brachytic dwarf is combined with Photoperiod sensitivity and BMR 6 for great forage quality
- Photoperiod sensitive trait allows the plant to remain in the vegetative state with a minimum of 12 hours and 20 minutes of daily sunlight, then head formation starts
- Fits any forage system: graze, bale, baleage, haylage, standing or swathed stockpile winter feed
- Versatile product for grazing, baled hay or silage with excellent regrowth; easier to dry when cut at 40 days or 40 inches
- Recommended seeding rate: 20 to 25 pounds per acre at a depth of 1 inch (by drill is recommended)

NEW**CROPLAN** **Greentreat® 1923**Regions: Central|East|North|South|West
Maturity: photoperiod sensitive**Characteristics**

	Not Recommended			Excellent		
Stress Tolerance						2
Forage Quality			3			
Disease Tolerance			3			
Dry Hay						2
Silage						2
Grazing						2

- High yield potential product with the BMR trait for excellent warm-season accumulation of highly digestible fiber
- Photoperiod sensitive trait allows the plant to remain in the vegetative state with a minimum of 12 hours and 20 minutes of daily sunlight; then head formation starts
- Excellent disease tolerance; strong drought and heat tolerance; moves well east to west and north to south
- Versatile product for grazing, baled hay or silage with excellent regrowth; easier to dry when cut at 40 days or 40 inches
- Recommended seeding rate: 20 to 25 pounds per acre at a depth of 1 inch (by drill is recommended)

CROPLAN **Honey Sweet AT**Regions: Central|East|North|South|West
Maturity: heads at ~50 days**Characteristics**

	Not Recommended			Excellent		
Stress Tolerance						2
Forage Quality			4			
Disease Tolerance						2
Dry Hay						2
Silage						2
Grazing						1

- In-plant sugarcane aphid tolerance
- Conventional Sorghum x Sudan for an economic choice
- Experience multiple cuttings in SCA areas with confidence
- Great germination and vigor

CROPLAN **PM 4611 BMR**Regions: Central|East|North|South|West
Maturity: Heads at ~50 days**Characteristics**

	Not Recommended			Excellent		
Stress Tolerance						1
Forage Quality						1
Disease Tolerance						2
Dry Hay						1
Silage			3			
Grazing						1

- Leafy, compact structure; the BMR-6 gene provides superior forage digestibility
- Extremely uniform in maturing height with high yield potential and quick drydown; ideal for baled hay
- Resistant to sugarcane aphid; good disease tolerance and well-adapted for use in all growing areas
- Great for horses as dry hay or grazing with no prussic acid; harvest at 40 days or 40 inches
- Recommended seeding rate: 10 to 15 pounds per acre at a depth of 3/4 inch (by drill is recommended)

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NEW**CROPLAN PM 4612 BMR**Regions: Central|East|North|South|West
Maturity: Heads at ~50 days**Characteristics**

	Not Recommended		Excellent	
Stress Tolerance				1
Forage Quality				1
Disease Tolerance			2	
Dry Hay				1
Silage		3		
Grazing				1

- Will eventually replace 4611 BMR, with no major differences; leafy, compact structure; the BMR-6 gene provides exceptional forage digestibility potential
- Extremely uniform in maturing height with high yield potential and quick drydown; ideal for baled hay
- Resistant to sugarcane aphid; good disease tolerance and well-adapted for use in all growing areas
- Great for horses as dry hay or grazing with no prussic acid; harvest at 40 days or 40 inches
- Recommended seeding rate: 10 to 15 pounds per acre at a depth of 3/4 inch (by drill is recommended)

NEW**CROPLAN PM 4507 PM**Regions: Central|East|North|South|West
Maturity: Heads at ~50 days**Characteristics**

	Not Recommended		Excellent	
Stress Tolerance			2	
Forage Quality				1
Disease Tolerance			2	
Dry Hay				1
Silage		3		
Grazing				1

- Leafy, compact structure with extremely uniform maturing height
- Excellent yield potential and quick drydown; ideal for baled hay
- Resistant to sugarcane aphid; good disease tolerance and well-adapted for use in all growing areas
- Great for horses as dry hay or grazing with no prussic acid; harvest at 40 days or 40 inches
- Recommended seeding rate: 10 to 15 pounds per acre at a depth of 3/4 inch (by drill is recommended)

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FORAGE SORGHUM

	Maternity	Seeding Rate per Acre	Seeding Depth	Average Seeds per Lb (x1000)	Soil Temperature at Planting	Soil Temperature at Planting	BMR	Forage Quality	Drought Stress	Heat Stress	Sugarcane Aphid Tolerance	Disease Tolerance	Cold Tolerance	Wet Soils	Dry Hay	Balage	Silage	Grazing	
FORAGE SORGHUM HYBRIDS																			
BMR 3211	Early	60-70K seeds	1-1 1/2"	15.5	60	Y	1	2	3	2	2	1	2	3	2	4	3	3	4
1Q 3501	Mid	50-60K seeds	1-1 1/2"	15	60	N	2	1	2	1	2	1	-	3	2	5	3	1	5
NEW 3531 BMR Leafy	Mid	60-100K seeds	1-1 1/2"	15	60	Y	1	1	2	1	2	1	-	3	2	5	3	1	5
NEW 3681 AT	Mid/Late	60-70K seeds	1-1 1/2"	15	60	N	3	1	2	1	2	1	2	3	2	5	3	1	5
NEW 3731 BMR Leafy	Late	60-100K seeds	1-1 1/2"	15	60	Y	1	1	2	1	2	1	-	3	2	5	3	1	5
SORGHUM X SUDANGRASS HYBRID																			
Greentreat® 1531	Heads at ~50 days	20-25 lbs	1"	14	60	Y	1	1	1	2	2	1	-	3	3	3	1	1	3
NEW Dynamo II	Heads at ~75 days	20-25 lbs	1"	15	60	Y	1	3	3	3	3	1	-	3	3	1	1	3	1
NEW GUARDIAN AT	Heads at ~60 days	20-25 lbs	1"	16.5	60	Y	2	3	3	3	3	1	1	3	3	1	1	3	1
NEW DYNAMIC	photoperiod sensitive	20-25 lbs	1"	14.5	60	Y	2	2	2	3	3	-	-	4	4	2	1	2	2
NEW Greentreat® 1923	photoperiod sensitive	20-25 lbs	1"	14.5	60	Y	3	2	2	3	3	-	4	4	2	1	2	2	2
NEW Honey Sweet AT	Heads at ~50 days	20-25 lbs	1"	15	60	N	4	2	2	2	2	1	1	3	3	2	1	2	1
PEARL MILLET																			
PM 4611 BMR	Heads at ~50 days	10-15 lbs	3/4"	60	65	Y	1	2	1	2	2	1	1	4	3	3	1	2	3
NEW PM 4612 BMR	Heads at ~50 days	10-15 lbs	3/4"	60	65	Y	1	2	1	2	1	2	1	4	3	1	2	3	1
NEW PM 4507 PM	Heads at ~50 days	10-15 lbs	3/4"	60	65	N	1	2	2	2	2	1	1	4	3	1	1	3	1

KEY

Scale

- 1 = Excellent
- 2 = Strong
- 3 = Acceptable
- 4 = Manage
- 5 = Not Recommended

Product descriptions and ratings are generated from Answer Plot® trials and/or from the genetics supplier and may change as additional data is gathered.

Hybrid Number System

First Number: 1 = Sorghum x Sudan; 2 = Sudan; 3 = Forage Sorghum; 4 = Pearl Millet
Second Number: 1 = Very Early; 2 = Early; 3-4 = Mid-Early; 5 = Mid-Late; 6-7 = Mid-Late; 8 = Late; 9 = PPS
Third Number: 0 = No Special Features; 1 = BMR; 2 = BMR and Photoperiod; 3 = BMR and Brachytic; 5 = Conventional Dwarf; not a Brachytic; 8 = Photoperiod
Fourth Number: Series number or new variety type

FORAGE SORGHUM



Product Name _____

Attributes _____

Placement _____



SPRING CANOLA

As one of the industry leaders, our innovations include the latest solutions to help reduce shatter, resistance to clubroot and blackleg and crop safety/ weed-control features, delivering outstanding yield potential and easier management.

KEY TAKEAWAYS

- 1 Pick the right genetics for your environment.
- 2 Utilize the latest resistance genes for blackleg and clubroot.
- 3 Leverage the LibertyLink® system and TruFlex™ canola with Roundup Ready® Technology for enhanced weed management and crop safety features.
- 4 Take advantage of products with straight-cut (SC) and straight-cut plus (SC+) technology to help provide increased shatter tolerance in straight-cut systems.

CHOOSE THE RIGHT GENETICS AND TRAITS FOR YOUR ENVIRONMENT

► The CROPLAN® seed canola portfolio brings genetic diversity to the farm with the latest weed-control options such as the LibertyLink®



canola system and TruFlex™ canola, which offers outstanding crop safety.



LIBERTYLINK® CANOLA SYSTEM

- Liberty® herbicide use on canola hybrids with the LibertyLink® trait provides an excellent means for growers to rotate non-selective herbicide systems to effectively manage tough to control weeds.
- Provides an alternative herbicide tolerance system.
- Unique mode of action.

THE TRUFLEX™ WITH ROUNDUP READY® TECHNOLOGY SYSTEM HELPS YOU:

- Have the ability to spray up to first flower.
- Manage both annual weeds and tough-to-control perennials, including Canada thistle, dandelion and wild buckwheat.

- Be flexible with the Roundup PowerMAX® herbicide application rate to get the job done using 44 fluid oz. per acre or applying sequential rates of 22 fluid oz. per acre.
- Achieve better weed control and crop safety compared to Roundup Ready® Canola for improved yield potential.

MANAGE DISEASE

Optimizing canola performance includes evaluating cropping system elements such as disease environment, crop rotation and other production practices.

BLACKLEG

- Select hybrids that are rated "R" (most resistant) for this disease.
- Rotation is very important in keeping disease inoculum levels low.
- Rotation of blackleg-resistant groups can also be beneficial.
- Tank mixing a fungicide with an early weed-control application at the 2- to 3-leaf stage can potentially reduce your risk of yield loss.

CLUBROOT

- Clubroot hinders the canola plant root from developing and utilizing soil moisture and nutrients.
- It can be mistaken for other diseases, such as sclerotinia or blackleg, so it is important to dig up suspected plants.
- It is more difficult for clubroot to thrive when soils have a pH above 7.0.
- To avoid the spread of clubroot, clean equipment thoroughly.

LUMIDERM™ INSECTICIDE SEED TREATMENT

- Improved 30-day control of flea beetle and cutworm.
- Giving your crop a leg up on flea beetles and cutworms during this period provides it with the opportunity to experience increases in stand establishment, plant vigor and biomass.

TIPS FOR STRAIGHT-CUTTING CANOLA

- 1 Utilize straight-cut hybrids offering shatter and standability assurance.
- 2 Ensure a uniform stand. Proper seeding rates will help.
- 3 Harvest in a timely manner (as soon as the seed is dry enough to store).
- 4 Control weeds and diseases in every field.



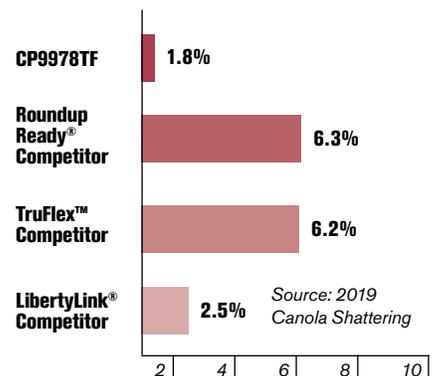
SC designates these products have met the minimum requirements for

standability and reduced shatter to be considered a straight-cut hybrid. SC+ indicates a hybrid has met the highest level of requirements for optimum straight-cut performance.

CROPLAN® SEED DELIVERS AN EXCELLENT SHATTER SCORE¹

CROPLAN® seed TruFlex™ canola (CP9978TF) showed a lower shatter score than competitive checks in a recent study from Roseau, MN.

% OF YIELD LOSS TO SHATTER



Variety Trial.

Northern Resources, Roseau, Minn.

1. Results not statistically significant and may vary. Because of factors outside of WinField United's control, such as weather, product application and any other factors, results to be obtained, including but not limited to yields, financial performance or profits, cannot be predicted or guaranteed by WinField United.

CROPLAN CP930RR

Spring Canola



Characteristics

	Not Recommended			Excellent		
Oil Content						1
Drought Tolerance						1
Lodging						1
Straight Cutting			3			

- Industry-leading oil content
- Excellent yield potential for early maturity; strong stress tolerance
- Good for straight-cutting; good shatter scores
- Strong vigor; for less-than-ideal seedbeds and no-till

NEW

CROPLAN CP9221TF

Spring Canola



Characteristics

	Not Recommended			Excellent		
Oil Content						2
Drought Tolerance						1
Lodging						1
Straight Cutting						2

- Strong yield potential at an early maturity
- Excellent choice for stressed environments or as an earlier product to manage workload in timely straight cut systems
- TruFlex™ hybrid that offers crop safety at higher rates and a wider application window
- Strong disease package with resistance to both clubroot and blackleg

CROPLAN CP9978TF

Spring Canola



Characteristics

	Not Recommended			Excellent		
Oil Content						2
Drought Tolerance						2
Lodging						1
Straight Cutting						1

- Excellent for straight-cutting with one of the industry's leading shatter and pod drop tolerance hybrids
- TruFlex™ hybrid that offers crop safety at higher rates and a wider application window
- Excellent yield potential, especially in moderate- to higher-yielding environments
- LepR3, RlmS provide enhanced blackleg resistance

CROPLAN CP7130LL

Spring Canola



Characteristics

	Not Recommended			Excellent		
Oil Content			3			
Drought Tolerance						2
Lodging						2
Straight Cutting						2

- Liberty® herbicide tolerance provides an excellent alternative herbicide system
- Top yield potential LibertyLink® product with very good shatter scores in 2020 Answer Plot® trial testing
- Very good standability along with good shatter for straight cut systems
- Blackleg and clubroot resistance

NEW

CROPLAN CP7250LL

Spring Canola



Characteristics

	Not Recommended			Excellent		
Oil Content						2
Drought Tolerance			3			
Lodging						2
Straight Cutting						2

- High yield potential hybrid in moderate- to higher-yielding environments
- Excellent shatter/pod drop resistance in stressed 2021 evaluation trials
- Taller plant type but very good lodging scores
- Brings sclerotinia, clubroot and blackleg resistance

KEY

Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

Product descriptions and ratings are generated from Answer Plot® trials and/or from the genetics supplier and may change as additional data is gathered.

= Straight-Cutting = Straight- Cutting Plus



SPRING CANOLA

	Herbicide Tolerance Trait	Common Seed Size Range	Days to Flower	Relative Maturity	Height ¹	Blackleg ²	Resistance Group ³	Major Resistance Gene(s)* ⁴	Clubroot ⁵	Response to Population (RTP) ⁶	Oil Content	Vigor	Lodging	Straw-Cutting	Drought Tolerance	
ROUNDUP READY® CANOLA																
CP930RR	Roundup Ready	Hybrid	90-120,000	45	90	S	R	C	Rlm3	S	1	1	L	1	3	1
TRUFLEX™ CANOLA																
NEW CP9221TF	TruFlex	Hybrid	90-120,000	43	88	M-S	R	Multi	Multi	R - SOURCE A/B	2	1	NA	1	2	1
CP9978TF	TruFlex	Hybrid	100-115,000	46	92	M-S	R	A, G	LepR3, RlmS	S	2	1	M	1	1	2
LIBERTYLINK® CANOLA																
CP1730LL	LibertyLink	Hybrid	90-120,000	48	91	M	R	Multi	Multi	R - 2, 3, 5, 6, 8	3	1	NA	2	2	2
NEW CP1250LL	LibertyLink	Hybrid	90-120,000	50	94	M	R	Multi	Multi	R - 2, 3, 5, 6, 8	2	1	NA	2	2	3

KEY

1 Scale

- 1 = Excellent
- 2 = Strong
- 3 = Acceptable
- 4 = Manage
- 5 = Not Recommended

2 Height

- T = Tall
- M = Medium
- S = Short

3 Blackleg Field Resistance

- R = Resistant
- MR = Moderately Resistant
- MS = Moderately Susceptible
- S = Susceptible

4 Blackleg Resistance Group

- A
- B
- C
- D
- E1
- E2
- F
- G
- H
- X
- Multi

5 Blackleg Major Resistance Gene(s)*

- Rlm1 or LepR3
- Rlm1
- Rlm3
- LepR1
- Rlm4
- Rlm7
- Rlm9
- RlmS
- LepR2
- QTL
- Unknown
- Multi

6 Clubroot

- R = Resistant; clubroot genes are effective against pathotypes 2, 2B, 3, 3A, 5, 5X, 6, 8 and Source A/B
- S = Susceptible

RTP Ratings

- L = Low Response
- M = Moderate Response
- H = High Response

Product descriptions and ratings are generated from Answer Plot® trials and/or from the genetics supplier and may change as additional data is gathered.
*Major resistance gene groups are subject to change.

SPRING CANOLA



Product Name _____

Attributes _____

Placement _____



SUNFLOWER

We're making great strides in improving sunflower insights and recommendations by doubling our number of research locations, developing extensive hybrid management testing, along with screening many new products from the world's top breeders. Because with the right hybrids and our expertise, we can help you manage pressures in your fields for an optimized ROI.

KEY TAKEAWAYS

- 1 Understand your market options.
- 2 Gain access to new genetics.
- 3 Choose traits designed to manage weed pressure.
- 4 Implement an effective weed-control strategy.
- 5 Experience double crop opportunities for pest management using your own ground equipment with our short statured, ultra-early hybrid.

ACHIEVE YOUR MARKETING OBJECTIVES

Sunflower has become a market segmented by grain uses, and any single hybrid might fit one or more market options. Sunflower markets include:

OIL-TYPE SUNFLOWER

► High Oleic

Specific oil levels trending above 85% oleic based on market requirements.*

► NuSun®

Standard for the oil market.

► Hulling

All oil types that have proper seed size and ease of shell removal.

► Birdseed

Regional markets throughout the United States for all oil types.

**Contracting buyers' current high oleic percent rate.*

NEW SUNFLOWER PRODUCT LINE: SHORT STATURED, ULTRA-EARLY HYBRIDS

- Double crop opportunities to wider geographies
- In-season opportunities for pest management using your own ground equipment
- Wider window opportunity for planting or replant

CONSIDER SEED SIZE AND COATING

SUNFLOWER SEED SIZE

Plant-to-plant spacing is important, and seed size can play a role in achieving the correct spacing and population in sunflower crops.

PROSUN™ PRECISE SEED COATING

Prosun™ precise seed coating is available on select CROPLAN® sunflower hybrids and offers:

- More seed size options per hybrid
- Consistent seed size, which helps optimize yield potential
- Uniformity in stand establishment
- Even growth for optimal weed, disease and insect management

CHOOSE THE RIGHT TRAITS

We have a long history of offering farmers the DuPont™ ExpressSun® and the Clearfield® Production System traits. Both provide good weed-control options to farmers.

CONTROL WEEDS

BEYOND® AND EXPRESS® HERBICIDES

- Both traits have advanced yield potential.
- Both require preemergence herbicide treatments (Spartan® Charge, BroadAxe® or Prowl® H₂O) or preplant-incorporated herbicides (Framework®, Prowl® H₂O or Sonalan®) to combat kochia and Russian thistle.
- Both are a Group 2 herbicide mode of action.
- The DuPont™ ExpressSun® trait is tolerant to Express® herbicide.
- The Clearfield® Production System is tolerant to Beyond® herbicide.

ACTIVITY	BEYOND® HERBICIDE	EXPRESS® HERBICIDE
Activity on grass	Yes	No
Recommended Section® Three herbicide tank mix	Yes	Yes
Residual control	Yes	No
Better control of cocklebur, nightshade, lanceleaf sage, smartweed and grasses	Yes	No
Better control of Canada thistle, lambsquarters and wild buckwheat	No	Yes
Can be applied across a broader crop stage, from one leaf to bud	No	Yes
Can be applied a second time for later flushes	No	Yes

CROPLAN CP432E

ExpressSun® Sunflower

**Characteristics**

	Not Recommended			Excellent	
Stalk Quality				2	
Root Strength			3		
Phomopsis				2	
Oil Content		4			
Dry down					1

- High yield potential for early maturity
- Shorter plant height; very uniform
- DMR PI 8; resistant to all common U.S. races of downy mildew
- Nice seed size for dehulling option

CROPLAN CP450E

ExpressSun® Sunflower

**Characteristics**

	Not Recommended			Excellent	
Stalk Quality					1
Root Strength					1
Phomopsis				2	
Oil Content			3		
Dry down				2	

- Excellent yield potential; great compliment to CP455E
- Top performer in stressed environments
- Stronger standability than CP455E; good hybrid to plant early
- DMR PI 8; resistant to all common U.S. races of downy mildew

CROPLAN CP455E

ExpressSun® Sunflower

**Characteristics**

	Not Recommended			Excellent	
Stalk Quality					2
Root Strength			3		
Phomopsis				2	
Oil Content				2	
Dry down					1

- Excellent yield potential; top performer in CROPLAN® lineup
- Widely adapted across regions and field conditions
- Medium-short plant with excellent drydown
- DMR PI 6; resistant to most common U.S. races of downy mildew

CROPLAN CP4909E

ExpressSun® Sunflower

**Characteristics**

	Not Recommended			Excellent	
Stalk Quality				2	
Root Strength				2	
Phomopsis			3		
Oil Content				2	
Dry down					1

- Top-end yield potential in high-yield environments; use caution on droughty soils
- Unique genetic diversity in the ExpressSun® lineup
- Short stature for excellent standability
- Great stalk strength but doubles/triples may cause lodging

NEW**CROPLAN CP5045CL**

Clearfield® Sunflower

**Characteristics**

	Not Recommended			Excellent	
Stalk Quality					1
Root Strength					1
Phomopsis			3		
Oil Content				2	
Dry down			3		

- Very high yield potential with excellent agronomics
- PI 6 & PI 17 DMR for industry-best downy mildew tolerance
- Excellent stalks and roots; medium plant height for excellent late-season standability
- Increased staygreen and slower drydown in cooler environments - a good candidate for desiccation

CROPLAN CP545CL

Clearfield® Sunflower

**Characteristics**

	Not Recommended			Excellent	
Stalk Quality					1
Root Strength					1
Phomopsis			3		
Oil Content				2	
Dry down			3		

- Outstanding yield and high oil-per-acre potential
- Mid-maturity with strong overall disease package
- DMR PI 6; resistant to most common U.S. races of downy mildew
- Increased staygreen and slower drydown in cooler environments

KEY Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

Product descriptions and ratings are generated from Answer Plot® trials and/or from the genetics supplier and may change as additional data is gathered.

CROPLAN CP3845

Conventional Sunflower

Characteristics

	Not Recommended			Excellent	
Stalk Quality				2	
Root Strength			3		
Phomopsis	4				
Oil Content					1
Dry down				2	

- Strong yield potential in higher-yielding environments
- Consistent performance across multiple environments
- One of the top oil content products in the CROPLAN® lineup
- Plant at higher populations for best results

CROPLAN CP4157E

ExpressSun® Sunflower

DuPont
ExpressSun
DMR PI 6**Characteristics**

	Not Recommended			Excellent	
Stalk Quality				2	
Root Strength		4			
Phomopsis					1
Oil Content				2	
Dry down				2	

- Very high yield potential with best performance in offensive environments
- Excellent Phomopsis tolerance
- Good roots and stalks on a medium-tall stature provide solid late-season standability
- DMR PI 6; resistant to most common U.S. races of downy mildew

KEY

Scale
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SUNFLOWER

	High Oleic ¹	Muslin [®] ¹	Dehulling ¹	Birdseed ¹	Days to Maturity	Downy Mildew Resistance ²	Phenopsis	Seleotima	Height	Root Strength	Stalk Quality	Drydown	Drought Tolerance	Oil Content	Starch Content	Common Planting Seed Size	
EXPRESSSUN[®] SUNFLOWER																	
CP432E	●	●	●	●	89	PI 8	2	3	Short	3	2	1	2	4	NA	2, 3, 4	
CP450E	●	●	●	●	94	PI 8	2	2	Medium	1	1	2	1	3	2	2, 3, 4	
CP455E	●	●	●	●	94	PI 6	2	2	Medium	3	2	1	2	2	1	2, 3, 4	
CP4909E	●	●	●	●	91	-	3	2	Short	2	2	1	3	2	NA	2, P3, 3, 4	
CP4157E	●	●	●	●	TBD	PI 6	1	2	Medium	4	2	2	4	2	NA	3, 4	
CLEARFIELD[®] SUNFLOWER																	
NEW CP5220CLSS	●	●	●	●	TBD	PI 6	1	NA	Super Short	1	1	1	1	1	4	3	
NEW CP5045CL	●	●	●	●	TBD	PI 6,17	3	2	Med-Short	1	1	1	3	1	2	NA	
CP545CL	●	●	●	●	94	PI 6	3	2	Short	1	1	1	3	2	2	NA	2, P3, 3, 4
CP71919CL	●	●	●	●	98	PI 6	1	3	Med-Tall	2	2	3	2	2	2	2, 3, 4	
CONVENTIONAL SUNFLOWER																	
CP3845	●	●	●	●	96	-	4	5	Med-Short	3	2	2	3	3	1	1	3, 4

- KEY**
- Scale**
- 1 = Excellent
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 - 5 = Not Recommended

Product descriptions and ratings are generated from Answer Plot[®] trials and/or from the genetics supplier and may change as additional data is gathered.

1 Market Options

Grain not guaranteed to be sold in your area. Due to factors outside our control, WinField United does not guarantee oleic levels.

TBD = still in testing.

2 Downy Mildew Resistance

PI 2 gene = This gene is resistant to some of the early races of downy mildew, but it is susceptible to most of the common races found today.

PI 6 gene = This gene is resistant to races prevalent before 2009; it is susceptible to races 314, 704, 714, 734 and 774.

PI 8 gene = This gene can get infected, but then stops downy mildew from advancing or having an economic impact on all common races.

PI 13 gene = This gene is exclusive to CROPLAN[®] hybrids and is resistant to all known races of downy mildew.

PI P gene = Proprietary gene developed to control all known races of downy mildew.

PI 17 gene = Advanced control, resistant to all known races of downy mildew.

SUNFLOWER



Product Name _____

Attributes _____

Placement _____



HARD RED SPRING WHEAT

Backed by Answer Plot® data, research and the right genetics, we can help you manage a strong wheat crop. By ensuring you manage your varieties appropriately, you'll support responsible land use and deliver high performance potential.

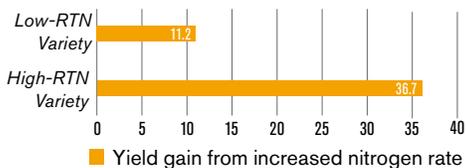
KEY TAKEAWAYS

- 1 Top-dress nitrogen on responsive genetics for added potential.
- 2 Plant at the right population for optimal varietal performance.
- 3 Know how to manage your variety to best enable its response-to-fungicide (RTF) score.
- 4 Use new CoAXium® varieties to an innovative, comprehensive solution for controlling tough, grassy weeds.

MANAGE YOUR VARIETY'S RESPONSE-TO-NITROGEN (RTN) SCORE¹

Customize nitrogen rate by variety to capture ROI potential. Optimize yield potential on more productive acres with higher nitrogen management by planting varieties with higher RTN scores. Protect yield potential on tougher acres by utilizing lower RTN score varieties on acres with lower-productivity soils or less nitrogen management.

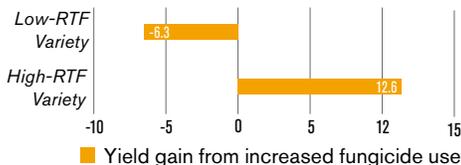
▶ RTN Yield Response Variance — 25.5 bu/A



USE RESPONSE-TO-FUNGICIDE (RTF) SCORES TO AID DECISION-MAKING¹

Fungicides are another tool to help you optimize the yield potential of your wheat crop. RTF scores help you understand where premium fungicides may increase yield potential and protect ROI potential.

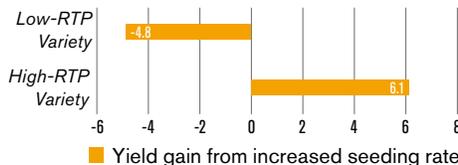
▶ RTF Yield Response Variance — 18.9 bu/A



OPTIMIZE SEEDING RATE BY VARIETY¹

Each CROPLAN® variety has its own response to population (RTP). Managing population correctly will help you optimize yield potential and help increase standability. Use seed size when determining optimal seeding rates. For more uniform emergence, use Warden® Cereals seed treatments plus Ascend® plant growth regulators.

▶ RTP Yield Response Variance — 10.9 bu/A



SEEDING RATE CHART²

Example of how to use the chart:

1. Select total planting seed.
Example: 1.4 million seeds per acre
2. Select seeds per pound.
Example: 13,000
3. Determine recommended seeding rate.
Example: 108 lbs. per acre

Calculation assumptions:
Germ: 95%
Survivability: 10%
Total stand loss: 15%

- ① MILLION SEEDS PER ACRE
- ② PLANTS PER ACRE
- ③ PLANTS PER SQUARE FOOT

TOTAL PLANTING SEED ①	PURE LIVE SEED ①	SEED SIZE: SEEDS PER POUND					FINAL STAND ②	PLANTS/SQ FT ③
		11,000	12,000	13,000	14,000	15,000		
0.8	0.8	73	67	62	57	53	0.7	15.6
1.0	1.0	91	83	77	71	67	0.9	19.5
1.2	1.1	109	100	92	86	80	1.0	23.4
1.4	1.3	127	117	108	100	93	1.2	27.3
1.6	1.5	145	133	123	114	107	1.4	31.2
1.8	1.7	164	150	138	129	120	1.5	35.1
2.0	1.9	182	167	154	143	133	1.7	39.0
2.2	2.1	200	183	169	157	147	1.9	42.9

1. Response ranges show the importance of how varieties respond to each management practice to help ensure the highest yield potential. 2019 nationwide Answer Plot® data.

2. Because of factors outside of WinField United's control, such as weather, product application and any other factors, results to be obtained, including but not limited to yields, financial performance or profits, cannot be predicted or guaranteed by WinField United.

HARD RED SPRING WHEAT

2 of 2



REVOLUTIONARY GRASSY WEED CONTROL

CROPLAN® seed is pleased to offer one CoAXium® variety. Created in part by wheat farmers for wheat farmers, the CoAXium® Wheat Production System provides cost-effective, excellent control of annual and perennial grasses, higher quality grain, and increased yield potential.

This system combines elite wheat varieties, the AXigen® trait and Aggressor® herbicide with an industry-wide stewardship program. AXigen® is an ACCase herbicide-tolerant trait that protects wheat varieties from Aggressor® herbicide, which delivers effective, consistent, broad-spectrum control of problem grasses.



A WINNING EQUATION

ELITE VARIETIES

+

PATENTED HERBICIDE-TOLERANT TRAIT

+

NEW HERBICIDE

+

STEWARDSHIP PROGRAM

=

A REVOLUTIONARY SYSTEM

SMART SOLUTION FOR THE TOUGHEST WEEDS

When used in conjunction with CoAXium® varieties, Aggressor® herbicide is a valuable new tool for consistent control of tough weeds in wheat, including ALS-resistant biotypes. Aggressor® provides systemic and selective broad-spectrum control of these problem grasses:

- Barnyard grass
- Bromus species, including ALS-resistant biotypes
- Feral and cereal rye
- Jointed goatgrass, including ALS-resistant biotypes
- Wild oats (non-resistant Group 1)
- Volunteer cereals

TECHNOLOGY WORTH PRESERVING

To ensure the success of the system, farmers are required to adhere to the CoAXium® Wheat Production System Grower Stewardship Agreement, which outlines policies on product rates, crop rotation, best practices and product use limitations over time. Policies include:

- Do not use the CoAXium® Wheat Production System more than two years in a row, and rotate with Group 2 or Group 15 herbicide modes of action in annual crop winter wheat.
- Rotate herbicide modes of action between crop cycles, especially between Glyphosate, Group 1 and Group 2 herbicides.
- Herbicide-tolerance traits in cereals are not cross tolerant, so good farm management and record keeping is required.
- Do not allow grassy weed escapes to go to seed.
- The use of Certified Seed is required.

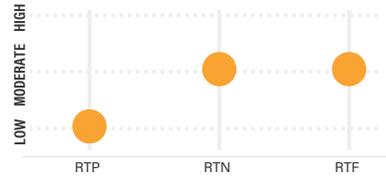
FOLLOW THESE MANAGEMENT PRACTICES

1. Aggressor® herbicide is the only legal and registered Group 1 ACCase inhibitor for use in CoAXium® wheat.
 - » Do not use Clethodim herbicide on CoAXium® wheat.
2. Group 1 modes of action benefit from:
 - » Good spray coverage: Spray with minimum 15gpa carrier with medium droplet size to get deep coverage on tough to cover grass. Delivering more droplets in the ideal droplet diameter spectrum.
 - » Oil adjuvants: 0.5gal Superb® HC/100gal water OR 0.5gal Destiny® HC/100gal water OR 0.5gal StrikeLock®/100gal water
 - » Deposition: 2 to 4oz InterLock®/Acre OR 6.4oz MasterLock®/Acre
3. To avoid possible crop injury, do not apply Aggressor® to CoAXium® Wheat Production System and varieties with the AXigen® trait when extreme cold temperatures (less than 40° F maximum daytime temperature) are expected within 1 week of application.
4. Do not tank-mix MCPA amine, 2,4-D amine or Metribuzin with Aggressor® herbicide.
5. Make sure that the broadleaf herbicides are approved to be used with MSO or COC's.

CROPLAN CP3530

Hard Red Spring

Response Scores



Characteristics

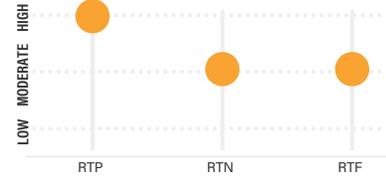
	Not Recommended	Excellent
Standability	4	
Fusarium Head Blight	2	
Test Weight	3	
Protein	2	

- Excellent yield potential and strong protein
- Performs best at low-to-medium populations and split-application nitrogen management
- Strong fusarium head blight and leaf disease tolerance; acceptable bacterial blight tolerance
- Utilize moderate to low populations on highly productive soils

CROPLAN CP3915

Hard Red Spring

Response Scores



Characteristics

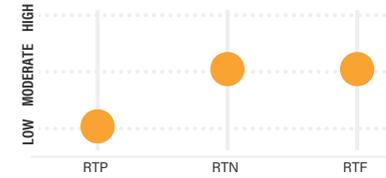
	Not Recommended	Excellent
Standability	2	
Fusarium Head Blight	2	
Test Weight	2	
Protein	2	

- High yield and protein potential that can increase with additional N
- Excellent agronomics, very good BLS tolerance and straw strength
- Excels under higher yield environments; stable in lower yielding environments
- High response to population, recommended @ 1.4-1.7 M seeds/Ac

CROPLAN CP3099A

Hard Red Spring

Response Scores



Characteristics

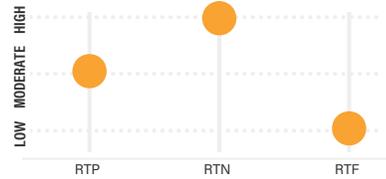
	Not Recommended	Excellent
Standability		1
Fusarium Head Blight	2	
Test Weight	3	
Protein	5	

- Awnless genetics, unique background to the industry
- Extremely high yield potential – among the highest yielding products in 2020 Answer Plot testing
- Lower protein, but additional nitrogen may increase both yield potential and total protein per acre
- Excellent forage/dual-purpose potential as silage or dry hay

CROPLAN CP3119A

Hard Red Spring

Response Scores



Characteristics

	Not Recommended	Excellent
Standability		1
Fusarium Head Blight	2	
Test Weight	4	
Protein	4	

- Full-season awnless product with very high yield potential
- Very large, healthy plant; good standability and large flag leaf to drive grain fill
- High yield potential; lower-protein can be improved with N management
- Extended-season wheat with longer grain-fill gives higher yield potential

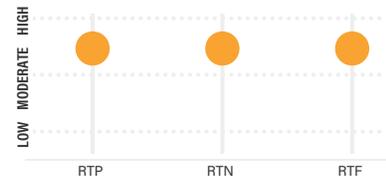
NEW

CROPLAN CP3201AX

Hard Red Spring



Response Scores



Characteristics

	Not Recommended	Excellent
Standability	2	
Fusarium Head Blight	N/A	
Test Weight	2	
Protein		1

- Can control resistant weeds by utilizing CoAXium® technology driven by Aggressor® herbicide using an ACCase inhibitor
- Nicely balanced product for both yield and protein potential, for success across markets
- Good agronomics and yield potential, especially in moderate to higher yielding environments
- Medium-late maturity with earlier flowering and longer grain fill; medium plant height

KEY
Scale
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

Product descriptions and ratings are generated from Answer Plot® trials and/or from the genetics supplier and may change as additional data is gathered.



HARD RED SPRING WHEAT



VARIETY	Wheat Class	Days to Heading	Days to Maturity	Height ²	Standability ²	Test Weight	Baking Quality	Response to Population (RTP)	Response to Nitrogen (RTN) ¹	Response to Fungicide (RTF) ¹	Placement on Irrigation	Fusarium Head Blight	Leaf Rust	Stem Rust	Stripe Rust	Leaf Disease	Bacterial Leaf Streak	Wheat Stem Sawfly	
CONVENTIONAL WHEAT																			
CP3530	Hard Red	57	87	T	4	3	2	3	L	M	M	4	2	2	1	3	2	3	3
CP3915	Hard Red	55	86	M	2	2	2	2	H	M	M	1	2	1	1	NA	3	1	3
CP3188	Hard Red	55	85	T	3	2	4	NA	L	L	M	3	2	2	2	NA	2	3	3
CP3099A	Hard Red	61	92	T	1	3	5	NA	L	M	M	2	2	2	2	NA	2	3	3
CP319A	Hard Red	62	96	T	1	4	4	NA	M	H	L	2	2	2	2	NA	2	2	2
COAXIUM® WHEAT																			
NEW CP3201AX	Hard Red	55	87	M	2	2	2	1	NA	NA	NA	NA	2	NA	NA	NA	NA	NA	3

KEY

- Scale**
 1 = Excellent
 2 = Strong
 3 = Acceptable
 4 = Manage
 5 = Not Recommended

Product descriptions and ratings are generated from Answer Plot® trials and/or from the genetics supplier and may change as additional data is gathered.

- 1 RTP/RTM/RTF Ratings**
 L = Low Response
 M = Moderate Response
 H = High Response

- 2 Height**
 S = Short
 M = Medium
 T = Tall

The comparison ratings are with CROPLAN® wheats only. These ratings reflect trends observed in research trials, which will change based on various factors, including variations in rainfall, temperature and production patterns.



Product Name _____

Attributes _____

Placement _____



Warden® CX

By WINFIELD UNITED

WARDEN® CX SEED TREATMENT HELPS PROTECT YIELD POTENTIAL FROM THE START

Warden® CX insecticide-fungicide seed treatment is designed to protect high-value seed from yield-robbing seedling disease and insect pests. Containing three fungicides for multiple modes of action, Warden® CX seed treatment can help provide optimal protection against *Fusarium*, *Rhizoctonia*, *Phytophthora* and *Pythium*. With Cruiser® insecticide for unmatched defense against seed and foliar-feeding insects, Warden® CX seed treatment is the first step toward high yield and profit potential.

EARLY-SEASON ADVANTAGES

Warden® CX seed treatment features the following crop protection advantages over untreated seed:

- Increases plant stands, promotes quick canopy closure and can improve yield potential.
- Helps improve root health and provides industry-leading *Rhizoctonia* protection.
- Contains sedaxane, the first fungicide developed exclusively for use as a seed treatment.
- Warden® CX includes one of the highest available rates of Apron XL® fungicide available in the industry. This allows for extended *Phytophthora* control in tough growing conditions.

ADDITIONAL ADVANTAGES

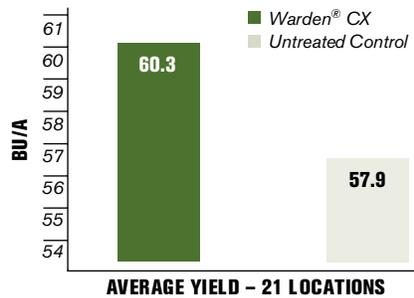
- Incorporates the active ingredient from Cruiser® insecticide, an industry standard for seed-applied insect protection, delivering the patented vigor effect (U.S. Patent number 6,753,296).
- Improves seed handling and flowability.

OUTSTANDING DISEASE PROTECTION

Warden® CX seed treatment contains sedaxane, a fungicide designed exclusively as a seed treatment. Creating strong, healthy root systems, it also provides *Rhizoctonia* protection. Warden® CX seed treatment has a high rate of mefenoxam, providing *Pythium* and *Phytophthora* seed and young seedling protection.

WARDEN® CX SEED TREATMENT HAS BEEN SHOWN TO IMPROVE PLANT STANDS, REGARDLESS OF PLANTING DATE¹

Data from these trials showed that Warden®



Source: 21 locations across key soybean-growing states; trials conducted with independent contract researchers.

1. Because of factors outside of WinField United's control, such as weather, product application and any other factors, results to be obtained, including but not limited to yields, financial performance or profits, cannot be predicted or guaranteed by WinField United.

DISEASES AND INSECTS CONTROLLED

Warden® CX seed treatment is designed to control a broad spectrum of destructive diseases, including the following:

DAMPING-OFF AND SEED ROTS

- *Fusarium*
- *Pythium*
- *Phytophthora*
- *Rhizoctonia*

ROOT ROT

- *Phomopsis**
- *Sclerotinia**
- *Phytophthora*

*Suppression only.

Warden® CX seed treatment is also designed to control a wide variety of destructive insects, including the following:

- Aphids
- Bean leaf beetles
- Grape colaspis
- Leafhoppers
- Leaf miners
- Mexican bean beetles
- Seedcorn maggots
- Threecornered alfalfa hoppers
- Thrips
- White grubs
- Wireworms

PAIR WARDEN® CX WITH AN INOCULANT

Help meet the nitrogen needs of soybean crops by adding a microbial inoculant. These symbiotic rhizobia bacteria fix atmospheric nitrogen, improving modulation and boosting plant-available nitrogen.



Fortivent® Plus

By WINFIELD UNITED

EARLY-SEASON INSECT AND DISEASE CONTROL WITH OPTIMIZED PLANT VIGOR

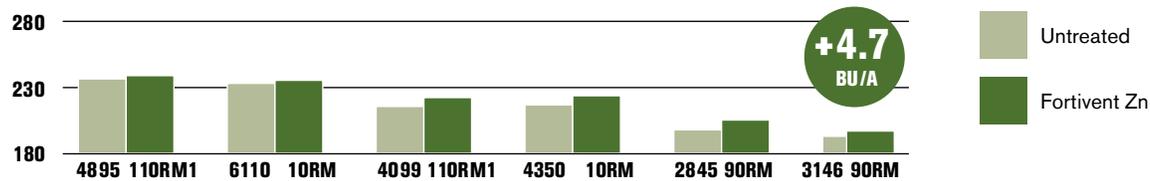
Fortivent® Plus seed treatment combines the early-season insect control of Poncho® VOTiVO® seed treatment, ethaboxam fungicide for enhanced Pythium control and Fortivent Zn for early-season corn vigor. The Poncho® insecticide at a rate of 500 mg active ingredient combined with the nematode control of VOTiVO® seed treatment is designed to help control insects, while Fortivent Zn aids in early corn development, including stand establishment and enhanced yield potential.

► Fortivent® Plus Features and Benefits

- All CROPLAN® hybrids come with Poncho® VOTiVO® seed treatment
- Provides enhanced Pythium control with ethaboxam fungicide
- Includes Fortivent Zn for success in early-season growth and root development
- Includes 100% replant offering on all CROPLAN® hybrids

YIELD ADVANTAGE

► Fortivent Zn — 2018 Answer Plot® Testing



Active Ingredients*	Rates
Insecticide	
Clothianidin5	500
*Clothianidin1	1250
Base Fungicides (Acceleron® Seed Treatment)	
Fluoxastrobin	0.24 fl. oz./100 lbs. of seed
Prothioconazole	0.24 fl. oz./100 lbs. of seed
Metalaxyl	0.10 fl. oz./100 lbs. of seed
Ethaboxam	0.20 fl. oz./100 lbs. of seed
Nematicide	
Poncho® VOTiVO® - 500	2.7 fl. oz./80,000 seeds

*Always read and follow label instructions.



TECHNOLOGY

INNOVATIVE TECHNOLOGY

Traits include SmartStax® corn technology with a broad spectrum of control for above- and belowground insects, along with herbicide tolerance. DroughtGard® Hybrids are available with risk-management benefits for corn hybrids facing drought stress.

CORN TRAITS

- Farmers choose their level of insect protection field by field.
- SmartStax® RIB Complete® corn blend offers a broad spectrum of above- and belowground insect protection with the simplicity and convenience of a single-bag refuge solution. Two modes of action against corn earworm and corn rootworm help optimize yield potential.
- As the first double-stacked corn trait with two ways to help control ear-feeding insects, VT Double PRO® corn delivers a broad spectrum of protection against above-ground pests, including European corn borer, southwestern corn borer, fall armyworm and corn earworm.
- DroughtGard® Hybrids provide farmers with a valuable tool for managing water-deficit risks.
- Trecepta® hybrids are built on the proven performance of VT Double PRO® technology to help promote cleaner ears with broad spectrum control of above-ground pests, including corn borer, corn earworm, fall armyworm, black cutworm and western bean cutworm.

SmartStax® technology helps protect corn against ear-feeding insects.



SMARTSTAX® RIB COMPLETE® CORN BLEND

- It includes a 5% structured refuge, the lowest in the corn-growing area.
- Roundup Ready® 2 Technology and LibertyLink® herbicide tolerance provide weed control.
- This corn trait platform is achieved through best-in-class trait integration to help provide the highest level of whole-farm success.



► Aboveground Control

SmartStax® technology controls aboveground insects by uniting *Bacillus thuringiensis* (B.t.) proteins with multiple modes of action from VT Triple PRO® and Herculex®. It stops stalk-feeding insects, such as corn borers, and protects against ear-feeding insects, including western bean cutworm, corn earworm and black cutworm. This protection has the potential to help improve grain quality.

► Belowground Control

Belowground, SmartStax® technology combines high-performing VT Triple PRO® trait protection with complementary Herculex® XTRA rootworm protection. This unique combination of B.t. technologies provides season-long control of corn rootworm, a primary pest.

► Roundup Ready® 2 Technology and LibertyLink® Traits Together

In addition to above- and belowground insect control traits, SmartStax® products include standard-setting weed control — the Roundup Ready® 2 Technology and LibertyLink® systems — for unprecedented weed management.

► The First Single-Bag Refuge Solution

SmartStax® RIB Complete® corn blend products are a single-bag refuge solution for farmers — the first of its kind on the market. With SmartStax® RIB Complete® corn blend, the refuge seed is distributed in the bag along with seeds containing the SmartStax® trait, allowing farmers to plant an entire field with just one product. Farmers in corn-growing areas will no longer need to plant a separate, structured refuge when they use SmartStax® RIB Complete® corn blend.

► SmartStax® RIB Complete® Corn Blend Benefits

- Controls key above- and belowground insects.
- Provides optimal yield protection with two ways to control corn rootworm and corn earworm.
- Includes a blend of 95% traited and 5% refuge seed with no separate, structured refuge required in the corn-growing area.
- Offers a truly simple refuge-in-a-bag solution — just fill your planter and go.

► Bringing New Germplasm to Market Faster

SmartStax® RIB Complete® corn blend products are developed using best-in-class trait integration that can bypass traditional slower breeding processes. This allows seed brands to bring new germplasm to market sooner. With all-in-one protection, seed brands will now be able to better evaluate each product's true performance in the field.



VT DOUBLE PRO® RIB COMPLETE® CORN BLEND

VT Double PRO® RIB Complete® corn blend allows you to plant the most traited acres fencerow to fencerow with the simplicity of a single-bag solution. There's no need to calculate or plant a separate structured refuge ever again. VT Double PRO® RIB Complete® corn includes 95% traited seed and 5% refuge seed. You get all the benefits of the VT Double PRO® trait plus the convenience of 5% refuge seed interspersed in every bag.

► VT Double PRO® RIB Complete® Corn Blend Benefits

- Optimal yield protection with two ways to control corn earworm.
- A blend of 95% traited and 5% refuge seed with no separate, structured refuge required in corn-growing areas.
- The truly simple refuge-in-a-bag solution — just fill your planter and go.

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TECHNOLOGY



THE TRULY SIMPLE REFUGE-IN-A-BAG SOLUTION

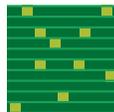
RIB Complete® is a single-bag refuge solution for farmers. With RIB Complete® corn blend, the refuge seed is distributed in the bag along with seeds containing B.t. traits, allowing farmers to plant an entire field with just one product. Farmers in the Corn Belt will no longer need to plant a structured refuge when they use RIB Complete® corn blend products.



20% refuge



5% refuge



5% refuge
in the bag



TRECEPTA® RIB COMPLETE® CORN BLEND

Trecepta® Technology helps reduce yield loss by protecting your corn crop from a wide range of above-ground pests. Built on the proven VT Double PRO® Technology, Trecepta Technology gives you more complete control against corn borers (European and southwestern), fall armyworm, western bean cutworm, black cutworm and corn earworm.

► 3 Modes of Action to Protect Against Above-Ground Pests

By controlling insects through multiple modes of action, Trecepta® Technology helps protect your yield potential and reduce the likelihood of resistance issues developing

► Control Weeds with Glyphosate Applications

Trecepta contains Roundup Ready 2 Technology which allows the corn plant to withstand glyphosate treatments used to prevent weeds from competing with corn.



ROUNDUP READY® CORN 2 SYSTEM

Whether you follow a pre- and postemergence spray program or only spray postemergence, Roundup Ready® Corn 2 will fit your system. Designed to work with Roundup® agricultural herbicides, the Roundup Ready® Corn 2 System provides outstanding yield potential without the crop injury other postemergence herbicides can cause.



DROUGHTGARD® HYBRIDS

DroughtGard® Hybrids are part of a system to help farmers manage risk by mitigating yield loss due to drought. The system offers farmers improved genetics, agronomic practice recommendations and the drought-tolerant biotech trait. DroughtGard® Hybrids can help increase hydroefficiency under drought stress, which can result in increased kernel numbers and reduced frequency of barren plants, providing the opportunity to reduce yield loss in certain drought conditions. DroughtGard® Hybrids are available for sale in all states.

► Traits Available With DroughtGard® Hybrids

DroughtGard® Hybrids will be available with the following corn traits: VT Double PRO® corn, VT Double PRO® RIB Complete® corn blend and Roundup Ready® Corn 2.

► Advantages of DroughtGard® Hybrids

- In drought-stress conditions that caused damaging yield losses, comparisons demonstrated a 5-bushel-per-acre performance advantage with DroughtGard® Hybrids over commercially available competitive check products.³
- Ongoing research indicates that products with the drought-tolerant biotech trait have had more kernels per ear and can use less water during severe drought stress.
- DroughtGard® Hybrids have the potential to maintain top-end yield in well-watered conditions and provide a valuable tool for managing water-deficit risks.

1. Based on approved EPA herbicide labels for the herbicides recommended for use in each system as of 10/28/2020.

2. Results may vary, depending on rain fall and soil type. Always use dicamba with residual herbicides in pre-emergence and post-emergence applications that have different, effective sites of action, along with other Diversified Weed Management Practices.

3. 2012 Monsanto GroundBreaker plot trial based on approximately 250 growers in the western Great Plains.



UNLOCK MORE PROFITABILITY POTENTIAL

Built on the high-yielding Roundup Ready 2 Xtend® technology, XtendFlex® soybeans offer proven performance potential and herbicide tolerance to dicamba, glyphosate and glufosinate. These three modes of action give farmers control over 337 weeds¹ and up to 14 days of soil activity on certain small-seeded broadleaf weeds from XtendiMax® herbicide and VaporGrip® Technology, a restricted use pesticide.²

XtendFlex® soybean varieties are bred with the latest genetics to improve yield potential. Herbicide application flexibility and outstanding agronomic benefits give farmers more opportunity to improve their bottom line.



AN EASY FIT FOR YOUR OPERATION

Enlist E3® soybeans offer the most advanced trait technology available in soybeans, providing a new standard for weed control and yield performance. Farmers gain access to more herbicides featuring effective sites of action for better weed control.

Enlist E3® soybeans offer resistance to 2,4-D choline, glyphosate and glufosinate and have no plant-back restrictions after using an Enlist™ herbicide for burndown. Enlist E3® soybeans are compatible with nearby crops, such as soybeans without the Enlist™ trait, alfalfa, corn, peanuts, sorghum, rice and wheat. Farmers can apply Enlist™ herbicides on Enlist E3® soybeans planted right next to these compatible crops with no wind directional restrictions.

This technology gives farmers the confidence to take down tough weeds such as Palmer amaranth, common and giant ragweed, waterhemp, and marestail, along with other tough-to-control broadleaf weeds such as lambsquarters and velvetleaf.

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TECHNOLOGY



ROUNDUP READY 2 YIELD® SOYBEANS

With more three-, four- and five-bean pods, Roundup Ready 2 Yield® soybeans offer a proven yield advantage over the competition. With more beans per pod and more bushels per acre, Roundup Ready 2 Yield® soybeans also provide more profit potential.

Research demonstrates a significant yield increase with Roundup Ready 2 Yield® soybeans over Roundup Ready® soybeans, with the same simple, dependable weed control as the Roundup Ready® Soybean System.¹

► Powerful Performance

Roundup Ready 2 Yield® soybeans contain in-plant tolerance to Roundup® agricultural herbicides, allowing farmers to spray Roundup® agricultural herbicides on crops from emergence through flowering.

The occurrence of more three-, four- and five-bean pods per plant is contributing to the increased yields seen with Roundup Ready 2 Yield® soybeans. These soybeans have demonstrated a clear yield advantage opportunity over the competition by delivering an average of 4.5 bushels per acre more than original Roundup Ready® soybeans.²

1. Roundup Ready 2 Yield® soybeans yield higher than Roundup Ready® soybeans, based on 73 Monsanto field trials (17 to 20 per year) from 2004 to 2007. The four-year average percentage increase for Roundup Ready 2 Yield® equals 8.63, with a 95% confidence interval of 6.8% to 10.5% advantage from Roundup Ready 2 Yield®.
2. Data as of October 29, 2012. Includes all breeding and commercial strip trial data. All head-to-head comparisons are within a +/-0.4 day maturity. Data represents the top-performing Roundup Ready 2 Yield® products (with a minimum of 30 comparisons per product) versus competitive Pioneer® and NK® brands with Roundup Ready® by state.

ACCELERON® PROMOTES STRONG EARLY-SEASON GROWTH



ACCELERON® SEED APPLIED SOLUTIONS FOR CORN

Acceleron® Seed Applied Solutions help corn seedlings emerge strong by providing superior protection against seed and seedling diseases as well as early-season insects and pests. With protection from Acceleron® Seed Applied Solutions at planting, high-yielding seed develop more uniform, vigorous plant stands for high yield potential.

► Insect and Disease Protection for Corn

Insect Protection: Protection from early-season pests such as wireworms, seedcorn maggots, white grubs, grape colaspis and black cutworms (suppression).

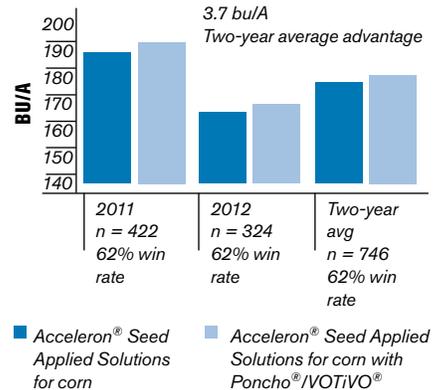
Disease-Fighting Protection: Excellent control of soilborne and seedborne disease, including *Fusarium*, *Rhizoctonia* and *Pythium*.

► Poncho®/VOTiVO® for Corn, Soybeans and Cotton

Acceleron® Seed Applied Solutions paired with Poncho®/VOTiVO® helps protect against seed and seedling diseases and early-season pests.

- **For corn:** Offers a unique biological mode of action for nematode management. Protects against damage from a range of nematode species and early-season insects, from planting through early development.
- **For soybeans:** Can provide the maximum level of protection against seed and seedling diseases; early-season insects; and nematodes including soybean cyst, reniform and root-knot.
- **For cotton:** Controls early-season insects such as thrips and aphids, and also protects against damage from nematodes including reniform and root-knot.

► Two-Year Performance



Source: 2011 and 2012 Internal Monsanto Commercial Field Trials. Individual results may vary.

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TECHNOLOGY



ECONOMICAL, CONSISTENT HERCULEX® YIELD PROTECTION

Herculex® *Insect Protection* technology helps top-performing hybrids achieve their highest performance potential.



HERCULEX® XTRA

Herculex® *XTRA Insect Protection* combines Herculex® *I Insect Protection* and Herculex® *RW Rootworm Protection* for powerful protection above- and belowground. It enables top-performing hybrids to reach their optimal yield potential by combining high-yielding genetics with consistent, season-long control of European corn borer, corn rootworm and black cutworm.

Herculex® XTRA is stacked with LibertyLink® technology, offering the ability to use a cost-effective, alternative weed-control option such as Liberty® herbicide or a conventional herbicide program. Herculex® XTRA is an effective corn insect management trait option for greater profit potential.



HERCULEX® I

If you don't need corn rootworm protection, **Herculex® *I Insect Protection*** gives full-plant protection all season long against European corn borer, black cutworm and other yield-robbing, aboveground pests. All Herculex® *I* hybrids contain LibertyLink® technology, making them resistant to over-the-top applications of Liberty® herbicide.

HERCULEX® XTRA AND HERCULEX® I DELIVER A WIDE WINDOW OF PROTECTION

Black cutworm

Corn rootworm¹

First- and second-generation
European corn borer and
southwestern corn borer

Western bean cutworm

Fall armyworm



CROP AND GRAIN MARKETING STEWARDSHIP

Corteva Agriscience is a member of Excellence Through Stewardship® (ETS). Corteva Agriscience products are commercialized in accordance with ETS Product Launch Stewardship Guidance and in compliance with the Corteva Agriscience policies regarding stewardship of those products. In line with these guidelines, our product launch process for responsible launches of new products includes a longstanding process to evaluate export market information, value chain consultations, and regulatory functionality. Growers and end-users must take all steps within their control to follow appropriate stewardship requirements and confirm their buyer's acceptance of the grain or other material being purchased. For more detailed information on the status of a trait or stack, please visit www.biogradestatus.com.

Properly managing trait technology is key to preserving it as a long-term crop protection tool. Growers who fail to comply with insect resistance management (IRM) requirements risk losing access to this product. To help preserve the effectiveness of B.t. corn technologies, growers planting B.t. corn technologies are required to follow an IRM Plan. Consult the Corn Product Use Guide for appropriate refuge configuration options. Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, including applicable refuge requirements for insect resistance management, for the biotechnology traits expressed in the seed as set forth in the Technology Use Agreement and Product Use Guide. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements. For complete details on IRM requirements for hybrids with B.t. technology, including refuge examples and important information on the use of insecticides on refuge and B.t. corn acres, please consult the appropriate Product Use Guide. Go to www.corteva.us/Resources/trait-stewardship.html to download the latest Dow AgroSciences Corn Product Use Guide.

Herculex® *Insect Protection* technology by Dow AgroSciences and Pioneer® Hi-Bred. Herculex® and the Herculex® logo are trademarks of The Dow Chemical Company ("Dow") or an affiliated company of Dow. Bayer CropScience LP, 2 T.W. Alexander Drive, Research Triangle Park, NC 27709. Always read and follow label instructions. Liberty®, LibertyLink® and the Water Droplet Design are registered trademarks of Bayer. Liberty® is not registered in all states. For additional product information, call toll-free 1-866-99-BAYER (1-866-992-2937) or visit our website at www.BayerCropScience.us.

¹ Corn rootworm is only controlled with Herculex® *XTRA Insect Protection*. Follow IRM, grain marketing and all other stewardship practices and pesticide label directions.

ExpressSun® trait

EXPRESSSUN®

The ExpressSun® trait provides exceptional weed control of many broadleaf weeds, including Canada thistle—and gives you the flexibility to apply herbicides from burndown to bud formation.

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BREAKTHROUGH CORN TRAIT TECHNOLOGY

Agrisure® trait stacks deliver corn insect control, water optimization technology and outstanding herbicide tolerance to optimize the yield potential of elite hybrids.

ARTESIAN™

- Maximize yield potential when it rains and increase yield potential when it doesn't.

Built using scientifically selected genes, this elite class of high-performing hybrids can respond to water stress with multiple genes and at virtually any stage of growth — managing gaps in rainfall throughout the season. Artesian™ corn hybrids can help manage the unpredictability of weather and improve yield consistency by converting water to grain more efficiently than other hybrids.

ARTESIAN™ ADVANTAGE (LEFT)



Elkville, Ill., 2012

VIPTERA™ TRAIT STACKS

- More control of more above-ground insects for more yield potential.

Viptera™ provides the most comprehensive corn insect control, reducing insect feeding damage to ears and the subsequent development of molds and mycotoxins. By controlling major leaf-, stalk- and ear-feeding corn insects, Viptera™ offers better crop stands and lower levels of disease, resulting in increased yield and profit potential. The Viptera™ trait stack offers dual modes of action against above-ground insects, with a 5% single-bag refuge, and is available in combination with Artesian™ technology for maximized yield in water-stressed environments.

VIPTERA™ PERFORMANCE ON WESTERN BEAN CUTWORM¹

1. Viptera™ on western bean cutworm vs. competitive



Hybrid with Viptera™ trait Hybrid without Viptera™

hybrid. Sterling, Colo., 2014.

DURACADE™

The Duracade™ trait stack provides multiple modes of action against corn rootworm and corn borer, as well as suppression of ear-feeding insects. This trait stack includes a novel, alternate mode of action to help preserve trait durability and delay insect adaptation for long-term field health, and the convenience of an integrated E-Z Refuge® seed blend.

Pests controlled: European corn borer, southwestern corn borer, black cutworm, beet armyworm, southern cornstalk borer, lesser cornstalk borer, sugarcane borer, western corn rootworm, northern corn rootworm and Mexican corn rootworm.

Pests suppressed: Corn earworm, western bean cutworm, fall armyworm and common stalk borer.

Important: Always read and follow label and bag tag instructions; only those labeled as tolerant to glufosinate may be sprayed with glufosinate ammonium based herbicides. For grain marketing information, visit <http://www.biotradestatus.com/>.

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TECHNOLOGY



CALIBRATE® TECHNOLOGIES

KNOW THE QUALITY OF YOUR FORAGES

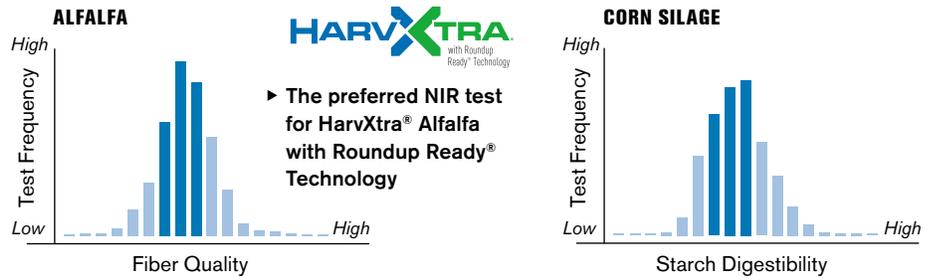
Variation in any dairy feeding program can cause underperformance: lost milk production, lower feed efficiency and lower profit potential. Calibrate® fiber and starch quality tests are designed to reduce the impact of nutrition variation in feedstuffs and allow more value to be obtained from forages, grown or purchased.

Calibrate® patented forage quality tests are designed to:

- Feed homegrown forages more effectively.
- Assist in making informed decisions when purchasing hay.
- Enable and assist your nutritionist to further improve rations.
- Confidently feed highly digestible forages in the ration and maximize ROI potential.
- Get optimal performance out of lower-quality forages.
- Determine if forage quality is a limiting factor to milk production.
- Provide more peace of mind because better decisions are made with available feedstuffs.

WITH HIGH- OR LOW-QUALITY FORAGES, CALIBRATE® TESTS DELIVER RELIABLE ACCURACY

Laboratory analysis can be less accurate when forage quality is not average. In the quality graphs below, the light bars represent where fiber and starch digestibility is either high or low. The analysis accuracy of these extremes is financially critical to forage growers and dairy farmers. Calibrate® forage quality tests maintain their accuracy as feeds drift toward the extremes.



CALIBRATE® PATENTED FORAGE QUALITY TESTS OFFER EXCEPTIONAL DIGESTIBILITY INFORMATION

Calibrate® technology provides forage analysis testing with improved accuracy for forages of all qualities. Designed to eliminate the necessity of an in vitro analysis (wet chem), Calibrate® forage analysis tests were developed using in vitro results from over 125,000 samples and 15 years of research, representing a wide range of forage quality from across the U.S. The volume of samples tested and the emphasis on samples of extreme quality (high and low) make Calibrate® forage analysis more precise.

CALIBRATE® HIGH QUALITY FORAGE ANALYSIS FOR ALFALFA

In addition to starch and fiber digestibility values for feed and forage feedstuffs, Calibrate® also offers the Calibrate® HQ Forage Analysis specifically targeted at alfalfa. This test provides crude protein, ash, NDF and NDFD, as well as calculated values for summative TDN, RFV and RFQ. 2021 brought the addition of a value for Leaf Percentage to help understand how the leaf to stem ratio affects alfalfa quality.

For more information, contact your local WinField United representative or go to www.calibratetechnologies.com.



TECHNOLOGY



THE KEMIN® NUTRISAVE® SYSTEM HELPS OPTIMIZE FORAGE QUALITY

The Kemin® NutriSAVE® Forage Management System is a complete forage management approach to preserving quality in the forages you grow for use in dairy or beef production. The products and support offered through the NutriSAVE® System aid producers in helping maintain forage quality by reducing shrinkage and spoilage, resulting in better nutrition. The NutriSAVE® System includes management recommendations from harvest to storage and through feeding. The system's crop- and condition-specific products include the latest technology and are backed by current research and experts in the forage management field.

ACID-BASED PRODUCTS

- **Fresh CUT® Plus Liquid Hay Preservative**
Applied to hay baled at up to 25% moisture. The blend of acids helps control the growth of mold and wild yeast, preventing bale heating and preserving nutrients.
- **Silage SAVOR® Plus Liquid and Silage SAVOR® Dry Silage Preservatives**
These forage preservatives are applied to ensiled crops before storage. The acid blends are used to prevent mold and wild yeast growth, allowing for improved fermentation.
- **Myco CURB® Liquid and Dry Mold Inhibitors**
Designed to prevent mold growth on stored grain, feed and feed ingredients. For more than 35 years, Myco CURB® has been the gold standard for mold control.
- **Ultra CURB® Liquid and Dry Mold Inhibitors**
These products contain a powerful blend of four organic acids designed to control heating in total mixed rations (TMRs).

BENEFITS OF THE NUTRISAVE® PROGRAM AND PRODUCTS

The minute forages are harvested, the race against time begins. The crop quickly deteriorates after cutting, and the quality CROPLAN® seed that was so carefully selected can fail to deliver the nutrients expected without proper preservation. Forage quality can have a huge impact on your operation's profitability and performance. That is why generating the most value from the forages you grow is important. High-quality forage optimizes productivity and herd health.

The NutriSAVE® Forage Management System features acid-based solutions. The blended organic acid products work to reduce mold and wild yeast growth to widen harvest windows, enhance fermentation and increase aerobic stability, both before and after storage. The flexibility to offer the ideal solution for nearly every forage management challenge is why producers have relied on the NutriSAVE® Forage Management System for decades.

KEY FEATURES OF USING NUTRISAVE® PRODUCTS

- Acid-based products for all forage applications.
- Helps reduce shrinkage and spoilage of dry matter.
- Reduces growth of mold and wild yeast.
- Promotes faster fermentation or curing.
- Extends aerobic stability at feedout.
- Supports optimal animal performance.

PROVEN PERFORMANCE WITH NUTRISAVE® PRODUCTS AND PROGRAMS

Extensive laboratory, university and field trials show that NutriSAVE® products can outperform other additives. By using the tools and resources available, NutriSAVE® programs can help you achieve a greater potential return on your forage investment. For more information about the Kemin® NutriSAVE® Forage Management System, talk with your WinField United representative or contact Kemin® at KeminAg@kemin.com or 515-559-5304. Additional product details are available online at kemin.com/feedquality.

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PROPER MANAGEMENT PROTECTS TECHNOLOGY'S VALUE

Sound management practices and compliance with stewardship requirements will help protect the benefits and value of biotech trait seed technology for future generations.

INSECT RESISTANCE MANAGEMENT

Insect-protected crops are genetically improved to provide in-plant protection against selected insect pests. Beneficial insects are not affected. To preserve the benefits and insect protection of these technology crops, Bayer CropScience, Syngenta Crop Protection and Corteva Agriscience have developed IRM guidelines that must be incorporated by everyone purchasing and planting insect-protected crops.



Verification Required The last patent on the original Roundup Ready® soybean trait expired a few years ago and U.S. farmers may legally plant saved seed from some varieties of soybean containing the Roundup Ready® soybean trait. However, it is important that you check with your seed supplier to determine if a specific Roundup Ready® soybean variety is covered by other intellectual property rights, and if so, the policy for saving seed of that variety.

Higher Seeding Rate A higher seeding rate may be required for bin-run Roundup Ready® soybeans compared to new branded seed.

Yield Loss Roundup Ready 2 Yield® soybean, Roundup Ready 2 Xtend® soybean, and XtendFlex® soybean varieties typically have a higher yield opportunity than Roundup Ready® soybean varieties.

Cleanout Loss Loss of seed and/or shrink occurs during the seed cleaning and handling processes for bin-run seed.

Seed Treatment Costs Treating your seed will add costs—both the cost of the treatment and the application of that treatment.

Lost Income Every bushel of saved seed you plant is a bushel you're not selling as commodity grain.

Increased Seed Management If you plan to save and bin-run Roundup Ready® soybeans for planting, you will have to manage your harvest operations and grain storage so that the seed isn't co-mingled with other seed that's covered by intellectual property rights.

High Value of New Branded Seed

Latest Technology

- // High-yielding soybean technologies
- // Better variety options
- // Leading seed treatment options

Customer Service

- // Dealer agronomic support before and after the sale
- // Replant policy support
- // Convenient packaging and delivery

Reliable Germination and Quality

- // Rigorously tested and meets U.S. Federal Seed Act requirements
- // Free of seed-borne diseases
- // Properly stored and conditioned

For a list of Bayer's trait patents go to cs.bayerpatents.bayer.com

For questions regarding seed intellectual property, or to anonymously report a saved seed tip, you can contact Bayer in the following ways:

1. Call 1-866-99-BAYER
2. Send a letter: Trait Stewardship, 622 Emerson Rd., Suite 150, Creve Coeur, MO 63141
3. Submit a contact request at cropscience.bayer.us/contact or scan the QR code



Bayer is a member of the Seed Innovation and Protection Alliance. Visit www.seedipalliance.com to learn more. SIPA™ is a trademark of the Seed Innovation and Protection Alliance.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba or glyphosate are approved for in-crop use with Roundup Ready 2 Xtend® soybeans. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® technology. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® technology.

Roundup Ready® Technology contains genes that confer tolerance to glyphosate. Roundup Ready® 2 Technology contains genes that confer tolerance to glyphosate. Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Products with XtendFlex® Technology contain genes that confer tolerance to glyphosate, glufosinate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.

Contact your Bayer retailer, refer to the Bayer Technology Use Guide, or call the technical support line at 1-888-283-6847 for recommended Roundup Ready® Xtend Crop System weed control programs.

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Rev 01/2022

Roundup Ready 2 Yield® soybeans and Roundup Ready 2 Xtend® soybeans are covered by different patents than original Roundup Ready® soybeans and cannot be saved and planted. For more information about seed innovation and intellectual property protection, please visit www.seedipalliance.com.

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CORN INSECT RESISTANCE MANAGEMENT OVERVIEW¹

QUICK COMPLIANCE GUIDE FOR DEALERS AND FARMERS

1 REFUGE SIZE

Plant the correct size refuge for the area and corn product.

► The Corn-Growing Area

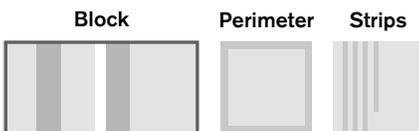
- 20% required for some B.t. products (20 acres of refuge for every 80 acres of B.t.)
- 5% only for SmartStax[®], Trecepta[®] and VT Double PRO[®] (5 acres of refuge for every 95 acres of B.t.)

► The Cotton-Growing Area

- 20% only for SmartStax[®] and VT Double PRO[®] (20 acres of refuge for every 80 acres of B.t.)

2 REFUGE LOCATION

Plant the required refuge within each field that contains B.t. insect-protected corn. There are other options, but an in-field refuge is always accepted. The refuge should always be a minimum of four contiguous rows wide.



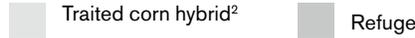
3 REFUGE PLANTING

In each field, plant your refuge first before planting any insect-protected corn. This will ensure that the minimum refuge size requirement is met should unforeseen circumstances (e.g., adverse weather) alter your planting schedule and strategy. Use a refuge product that contains no B.t. insect-protection traits (e.g., Roundup Ready[®] or conventional corn are acceptable). Growers must read the IRM/Grower Guide for complete refuge planting requirements.

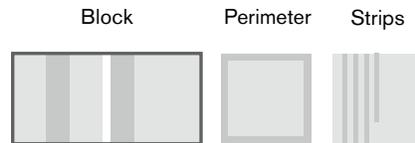
4 TREATMENT

If you need to treat your refuge with a non-B.t. foliar insecticide, you may have to treat the B.t. technology in a similar manner. Growers must read the IRM/Grower Guide for complete treatment options.

COMMON REFUGE CONFIGURATIONS



► In-Field Configuration Examples



Minimum of four rows

► Adjacent-Field Configuration Examples



Separated by road, path, ditch, etc., but not by another field

SEPARATE REFUGE CONFIGURATIONS



► Block



← ≤ 1/2 mile

← ≤ 1/2 mile

► Perimeter



← ≤ 1/2 mile

← ≤ 1/2 mile

1. Provided as a summary only. Farmers must read the IRM/Grower Guide prior to planting for important information on planting and insect resistance management.

2. Traited = B.t., RW or B.t./RW.

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TECHNOLOGY



REFUGE REQUIREMENTS FOR BIOTECH CORN PRODUCTS^{1, 2}

	% NON-B.T. REFUGE	CONFIGURATIONS	REFUGE LOCATION
SMARTSTAX® RIB COMPLETE® CORN BLEND³	5% in the bag	—	No separate planted refuge is required
VT DOUBLE PRO® RIB COMPLETE® CORN BLEND³	5% in the bag	—	No separate planted refuge is required
DROUGHTGARD® HYBRIDS WITH VT DOUBLE PRO® RIB COMPLETE® CORN BLEND³	5% in the bag	—	No separate planted refuge is required
TRECEPTA® RIB COMPLETE® CORN BLEND	5% in the bag	—	No separate planted refuge is required
SMARTSTAX® CORN	5% corn-growing areas; 20% cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within or adjacent to SmartStax® field; if adjacent, may be separated by a road, path, ditch, etc., but not another field
VT DOUBLE PRO® CORN	5% corn-growing areas; 20% cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within, adjacent to or within 1/2 mile from VT Double PRO® field
AGRISURE® TOTAL	5% in the bag, 20% supplemental cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within or adjacent to Agrisure® Total
VIPTERA™	5% in the bag 20% supplemental cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within, adjacent to or within 1/2 mile away from Viptera™ field
DURACADE™	5% in the bag 20% supplemental cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within or adjacent to Duracade™ field
AGRISURE VIPTERA® 3111	20% corn- and cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within or adjacent to Agrisure Viptera® 3111 field; if adjacent, may be separated by a road, path, ditch, etc., but not another field
AGRISURE® 3000GT	20% corn-growing areas; 50% cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within or adjacent to Agrisure® 3000GT field; if adjacent, may be separated by a road, path, ditch, etc., but not another field
HERCULEX® XTRA INSECT PROTECTION	20% corn-growing areas; 50% cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within or adjacent to Herculex® XTRA field; if adjacent, may be separated by a road, path, ditch, etc., but not another field
HERCULEX® I INSECT PROTECTION	20% corn-growing areas 50% cotton-growing areas	Block, Perimeter, Strips, Adjacent	Within, adjacent to or within 1/2 mile from Herculex® field

1. All refuge configurations require a minimum of four rows.

2. Provided as a summary only. Farmers must read the IRM/Grower Guide prior to planting.

3. SmartStax® RIB Complete®, Trecepta® RIB Complete, VT Double PRO® RIB Complete® and DroughtGard® Hybrids with VT Double PRO® RIB Complete® corn blends are each a blend of 95% traited seed and 5% refuge seed interspersed in the bag and do not require a separate structured refuge in corn-growing areas.

For more detailed refuge requirements please visit: <https://traits.bayer.com/stewardship/Pages/Insect-Resistance-Management.aspx>

Corn trait technology incorporated into these seeds is commercialized under license from Syngenta Seeds, LLC. Herculex® Technology incorporated into these seeds is commercialized under license from Corteva Agriscience LLC. HERCULEX® and the HERCULEX Shield are trademarks of Corteva Agriscience LLC.

Seed products with the LibertyLink® (LL) trait are resistant to the herbicide glufosinate ammonium, an alternative to glyphosate in corn, and combine high-yielding genetics with the powerful, non-selective, post-emergent weed control of Liberty® herbicide for optimum yield and excellent weed control. LibertyLink®, Liberty® and the Water Droplet logo are registered trademarks of BASF.

Important: Always read and follow label and bag tag instructions; only those labeled as tolerant to glufosinate may be sprayed with glufosinate ammonium-based herbicides. Agrisure® and Viptera™ are trademarks of a Syngenta Group Company.

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EXCELLENCE THROUGH STEWARDSHIP

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

Forage Genetics International, LLC ("FGI") is a member of Excellence Through Stewardship® (ETS). FGI products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with FGI's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Any crop or material produced from this product can only be exported to, or used, processed or sold only in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotechnology traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Growers should refer to biotradestatus.com for any updated information on import country approvals. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

INSECT RESISTANCE MANAGEMENT

IMPORTANT IRM INFORMATION: Always read and follow IRM requirements. Insect-protected crops are genetically improved to provide in-plant protection against selected insect pests. Beneficial insects are not affected. To preserve the benefits and insect protection of these technology crops, Bayer, Syngenta Crop Protection and Dow AgroSciences have developed insect resistance management (IRM) guidelines that must be incorporated by everyone purchasing and planting insect-protected crops.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba or glyphosate are approved for in-crop use with Roundup Ready 2 Xtend® soybeans. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® Technology. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® Technology.

B.t. products may not yet be registered in all states. Check with your seed brand representative for the registration status in your state.

IMPORTANT IRM INFORMATION: RIB Complete® corn blend products do not require the planting of a structured refuge **except** in the Cotton-Growing Area where corn earworm is a significant pest. **See the IRM/Grower Guide for additional information. Always read and follow IRM requirements.**

Roundup Ready® Technology contains genes that confer tolerance to glyphosate. **Roundup Ready® 2 Technology** contains genes that confer tolerance to glyphosate. **Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Products with XtendFlex® Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba.** **Glyphosate** will kill crops that are not tolerant to glyphosate. **Dicamba** will kill crops that are not tolerant to dicamba. **Glufosinate** will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.

Insect control technology provided by **Vip3A** is utilized under license from Syngenta Crop Protection AG. Herculex® is a registered trademark of Dow AgroSciences LLC. Agrisure Viptera® is a registered trademark of a Syngenta group company. LibertyLink® and the Water Droplet Design® is a trademark of BASF Corporation. Respect the Refuge and Corn Design® and Respect the Refuge® are registered trademarks of National Corn Growers Association. Acceleron®, DroughtGard®, RIB Complete®, Roundup Ready 2 Technology and Design™, Roundup Ready 2 Xtend®, Roundup Ready 2 Yield®, Roundup Ready®, SmartStax®, Trecepta®, TruFlex™, VT Double PRO® and XtendFlex® are trademarks of Bayer Group.

Important: Always read and follow label and bag tag instructions; only those labeled as tolerant to glufosinate may be sprayed with glufosinate ammonium based herbicides.

Agrisure® Technology incorporated into these seeds is commercialized under license from Syngenta Seeds, Inc. Herculex® Technology incorporated into these seeds is commercialized under license from Dow AgroSciences LLC. HERCULEX® and the HERCULEX shield are registered trademarks of Dow AgroSciences LLC.

Seed products with the LibertyLink® (LL) trait are resistant to the herbicide glufosinate ammonium, an alternative to glyphosate in corn, and combine high-yielding genetics with the powerful, non-selective, postemergent weed control of Liberty® herbicide for optimum yield and excellent weed control. LibertyLink®, Liberty® and the Water Droplet logo are registered trademarks of BASF Corporation.



Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, **including applicable refuge requirements for insect resistance management**, for the biotechnology traits expressed in the seed as set forth in the Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation and agreement to comply with the most recent stewardship requirements.



GENERAL DISCLAIMERS

Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the growers' fields.

Important: Always read and follow label instructions. Some products may not be registered for sale or use in all states or counties. Please check with your local extension service to ensure registration status.

Please know that, despite the challenges, Bayer stands fully behind XtendiMax[®] herbicide and will continue working with the EPA, growers, academics, and others to provide long-term access to this important herbicide.

However, no dicamba may be used in-crop with seed in the Roundup Ready[®] Xtend Crop System, unless and until approved or specifically permitted by the U.S. EPA and the appropriate state agency for such use. As of July 13, 2020, no dicamba formulations are currently registered by the U.S. EPA for in-crop use with seed in the Roundup Ready[®] Xtend Crop System in the 2021 season. Current stocks of low-volatility dicamba herbicides XtendiMax[®] herbicide, Engenia[®] herbicide, and FeXapan[®] herbicide previously approved for in-crop use with seed in the Roundup Ready[®] Xtend Crop System may not be used after July 31, 2020. Dicamba may harm crops that are not tolerant to dicamba. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with seed in the Roundup Ready[®] Xtend Crop System.

NOTICE: DO NOT APPLY ANY HERBICIDE TO SEED IN THE ROUNDUP READY[®] XTEND CROP SYSTEM UNLESS IT HAS A PRODUCT LABEL SPECIFICALLY AUTHORIZING THAT USE. TO USE A HERBICIDE IN ANY MANNER INCONSISTENT WITH ITS LABELING IS A VIOLATION OF FEDERAL LAW. REFER TO THE BAYER TECHNOLOGY USE GUIDE FOR DETAILS AND RECOMMENDATIONS ON USING APPROVED HERBICIDES ON SEED IN THE ROUNDUP READY[®] XTEND CROP SYSTEM.

SOYBEAN AND CANOLA PIRACY

Seed containing a patented trait can only be used to plant a single commercial crop. It is unlawful to save and replant seed from that crop. Examples of seed containing a patented trait include but are not limited to Roundup Ready 2 Yield[®] soybeans, Roundup Ready 2 Xtend[®] soybeans, XtendFlex[®] soybeans, Roundup Ready[®] spring canola, Roundup Ready[®] winter canola, and TruFlex[™] canola with Roundup Ready[®] Technology. Additional information and limitations on the use of these products are provided in the Technology Stewardship Agreement and the Bayer Technology Use Guide: <https://tug.bayer.com>. U.S. patents for Bayer technologies can be found at the following webpage: <http://www.monsantotechnology.com>

ALFALFA

HarvXtra[®] Alfalfa with Roundup Ready[®] Technology: Purchase and use of HarvXtra[®] Alfalfa with Roundup Ready[®] Technology is subject to a Seed and Feed Use Agreement, requiring that products of this technology can only be used on farm or otherwise be used in the following states: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. In addition, due to the unique cropping practices do not plant HarvXtra[®] Alfalfa with Roundup Ready[®] Technology in Imperial County, California, pending import approval and until Forage Genetics International, LLC (FGI) grants express permission for such planting. HarvXtra[®] Alfalfa with Roundup Ready[®] Technology has pending import approvals. **GROWERS MUST DIRECT ANY PRODUCT PRODUCED FROM HARVXTRA[®] ALFALFA WITH ROUNDUP READY[®] TECHNOLOGY SEED OR CROPS (INCLUDING HAY AND HAY PRODUCTS) ONLY TO UNITED STATES DOMESTIC USE.** Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted.

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