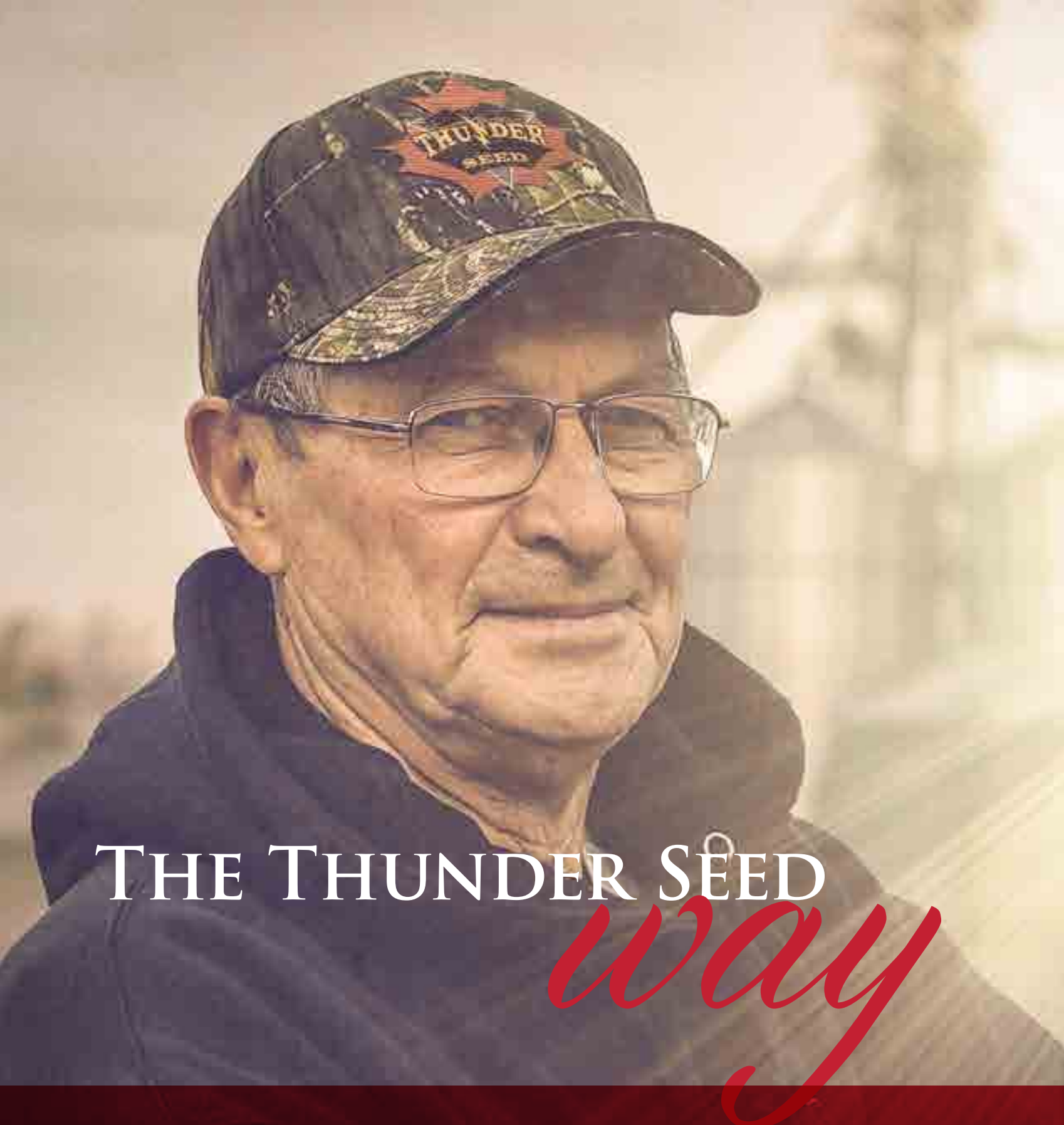


SEED GUIDE

2019



THE THUNDER SEED *way*

OUR MISSION

To develop and deliver soybean and corn seed that gives growers the greatest potential for high yields and profits year after year, and to deliver unrivaled support before, during and after every growing season.

Farming is so much more than our livelihood or our way of life. It's our legacy – the legacy of our parents and grandparents as well as the future legacy of our children and grandchildren. Our roots in this industry run deeper than the roots of any seed or plant you could grow. We wear the title of farmer with pride and contentment, just as our fathers did and their fathers before them.

Our dedication was both innate and learned through years of cultivating the soil and learning from our ancestors. To us, farming embodies the American dream and it's a bright future that we want to pass on to our sons and daughters. But it's not just nostalgia and daydreams, it's hard work, perseverance and dedication. And those are qualities we strive to pass on to the next generation of agriculturalists as well.

When our boots hit the ground each morning, we face the same challenges you do. Our hands are calloused and scarred, as we work hard to find a better way to achieve higher yields and tackle the pests that target our crops. We will continue to find new solutions – we are up to the challenge. We know you hit the fields with the same grit and determination. That's why we're committed to being your solutions partner. We work hard and test our seeds so you can be confident knowing that the seeds you plant have the best traits for your farm. We'll continue to develop new varieties to ensure Thunder Seed meets the needs of future generations. This is seed you can count on for years to come.

It's also about having a partner you can count on. When you need seed, we're there to deliver within 24 hours if needed. We have multiple production and cleaning facilities as well as a vast dealer network, so no matter where you are, we're right there for you. Our success is in large part because of you, the hard-working, dependable farmers who put in long hours to make sure the work gets done right. You've placed your trust in us and we will never take that trust for granted.

Thank you for making Thunder Seed *FIRST in the* FIELD.





2019 SEED GUIDE

HIGH-YIELDING, TECHNOLOGY DRIVEN SEED

Thunder Seed

Achieve high plant populations with our conventional Thunder Seed corn varieties. We perform standard and cold vigor germination testing for high tolerance to colder soils. Our seeds also offer high resistance to diseases, white mold and shattering, as well as superb standability to prevent lodging. And like all of our seeds, they are bred specifically for the Western Canadian Market and adjust to our changing conditions to deliver greater and more consistent yields.



SmartStax® RIB Complete® Corn Blend

Save time with a single-bag refuge — a first in the industry. SmartStax® RIB Complete® Corn Blend provides ear, stalk and root protection from a broad range of above- and below-ground insects and diseases, resulting in greater yield potential. In addition, you'll need fewer sprays throughout the season, so you'll have less impact on the environment. SmartStax® offers refuge-in-bag solutions to save you time when planting. Every bag includes 5 percent refuge seed, so there's no calculating. Simply fill your planter and hit the field.

Targets: Corn Rootworm, Corn Earworm, Fall Armyworms, Southwestern Corn Borer, European Corn Borer



VT Double PRO® RIB Complete® Corn Blend

Get superior protection from above-ground insects in a single-bag refuge solution. VT Double PRO® RIB Complete® Corn Blend is the first double-stacked trait with dual modes of action. It provides outstanding protection against above-ground pests with even greater protection for corn earworms. And with a blend of 95 percent traited seed and just 5 percent refuge, the lowest in the industry, you'll get higher yields.

Targets: Corn Earworm, Fall Armyworms, Southwestern Corn Borer, European Corn Borer



Roundup Ready® Corn 2 and Genuity® Roundup Ready 2 Yield® Soybeans

Get the broadest protection against weeds and the flexibility to apply herbicides the way you need to for the best results on your farm. Our Roundup Ready® Corn 2 and Genuity® Roundup Ready 2 Yield® Soybeans have a high tolerance to Roundup® herbicides for outstanding crop safety, saving you time you'd otherwise have to spend weeding. Spend less time spraying now and less time tilling next season.



Roundup Ready 2 Xtend® Soybeans

Find maximum disease and weed control, including glyphosate-resistant weeds, with Roundup Ready 2 Xtend® Soybean's groundbreaking seed technology. This soybean variety combines the high-yield potential of Genuity® Roundup Ready 2 Yield® Soybeans with powerful glyphosate and dicamba tolerance, making it the industry's first biotech-stacked soybean seed. Get the best weed protection this season to experience high yields in your fields.



LibertyLink® Soybeans

LibertyLink Soybeans have a superior tolerance to diseases and are resistant to Liberty herbicide, so you have the best protection for your crops and the greatest potential for yields.

IT ALL STARTS WITH *seed*

That one decision impacts everything that follows during a growing season. So it's critical to start with a seed that has been developed to withstand the challenges unique to the Western Canadian Market. We develop our seed for the fields it'll be planted in: yours. And to do it, we deliver quality traits and characteristics from the best technologies available.





GRAIN CORN

From conventional corn to varieties with additional protection, Thunder Seed’s selection has the combination of traits needed for growing success in your fields. These top-performing hybrids have strong yields and are disease resistant, all under low moisture.



Relative Maturity

73 Days

GRAIN CORN
TH7673 VT2P BRAND
Flowering: med-early ▼ CHUs Black Layer 2050

- Super early hybrid with excellent roots, stalks, and test weight
- Strong performance across various environments
- Performs best at high populations

VTDoublePRO RIB COMPLETE

Relative Maturity

74 Days

GRAIN CORN
TH7574 VT2P BRAND
Flowering: medium ▼ CHUs Black Layer 2075

- Tall plant with very good stalk strength
- Quick emergence and excellent seedling vigor
- Determinate ear type responds well to high population

VTDoublePRO RIB COMPLETE

Relative Maturity

74 Days

GRAIN CORN
TH4574 RR BRAND
Flowering: medium ▼ CHUs Black Layer 2075

- Tall plant with very good stalk strength
- Quick emergence and excellent seedling vigor
- Determinate ear type responds well to high population

Roundup Ready 2 CORN

PRODUCT	TRAIT	MATURITY	FLOWERING	CHU'S TO BLACK LAYER	PLANT HEIGHT	EAR HEIGHT	EAR TYPE	PLANTING RATE	KERNEL ROWS	SEEDLING VIGOR	ROOT RATING	STALK RATING	DROUGHT TOL.	GREENSNAP	STAYGREEN	DRYDOWN	TEST WEIGHT	GOSS'S WILT	NCLB	COMMON RUST	SILAGE POTENTIAL	TOUGH CONDITIONS	VARIABLE CONDITIONS	IDEAL CONDITIONS	HERBICIDE SENSITIVITY
TH7673 VT2P	VT2P	73	MED-EARLY	2050	MT	M	D	H	12-14	3	1	1	3	2	2	2	1	4	2	3	4	2	2	3	ok
TH7574 VT2P	VT2P	74	MEDIUM	2075	T	M	D	H	14-16	1	2	2	3	3	2	2	1	4	2	2	4	2	2	3	ok
TH4574 RR	RR	74	MEDIUM	2075	T	M	D	H	14-16	1	2	2	3	3	2	2	1	4	2	2	4	2	2	3	ok



2019 SEED GUIDE - GRAIN CORN

Relative Maturity

75 Days

GRAIN CORN

TH6875 VT2P BRAND

Flowering: late ▼ CHUs Black Layer 2100

- Attractive plant with great staygreen, test weight, and strong yield
- Excellent drydown; nice ear size and height, open husk
- Solid agronomics overall including very good vigor and stalks

Relative Maturity

77 Days

GRAIN CORN

TH7677 VT2P BRAND

Flowering: med-late ▼ CHUs Black Layer 2175

- Very good roots support very good yields
- Excellent staygreen and fall appearance
- Target lighter soils and harvest timely to maximize yield potential

Relative Maturity

77 Days

GRAIN CORN

NEW TH6977 VT2P BRAND

Flowering: med-early ▼ CHUs Black Layer 2200

- Medium height with great agronomics; performs best in the west
- Good Goss's Wilt and NCLB tolerance
- Good yield stability across variable soils

PRODUCT	TRAIT	MATURITY	FLOWERING	CHU'S TO BLACK LAYER	PLANT HEIGHT	EAR HEIGHT	EAR TYPE	PLANTING RATE	KERNEL ROWS	SEEDLING VIGOR	ROOT RATING	STALK RATING	DROUGHT TOL.	GREENSNAP	STAYGREEN	DRYDOWN	TEST WEIGHT	GOSS'S WILT	NCLB	COMMON RUST	SILAGE POTENTIAL	TOUGH CONDITIONS	VARIABLE CONDITIONS	IDEAL CONDITIONS	HERBICIDE SENSITIVITY
TH6875 VT2P	VT2P	75	LATE	2100	MT	MH	SD	MH	14-16	2	3	2	3	3	1	1	2	4	3	N/A	2	3	2	1	C (grp2)
TH7677 VT2P	VT2P	77	MED-LATE	2175	M	M	SD	MH	14-16	2	2	3	3	3	1	3	3	4	2	2	3	3	2	2	ok
NEW TH6977 VT2P	VT2P	77	MED-EARLY	2200	M	M	SD	MH	12-14	3	2	2	3	2	3	2	3	3	2	N/A	4	2	2	3	ok

Relative Maturity

78 Days

GRAIN CORN

TH7578 VT2P BRAND

Flowering: med-early ▼ CHUs Black Layer 2225

- Proven standout with strong performance across various environments
- Excellent roots and staygreen provide nice fall appearance
- Extremely reliable hybrid with great drydown

Relative Maturity

78 Days

GRAIN CORN

TH4578 RR BRAND

Flowering: med-early ▼ CHUs Black Layer 2225

- Proven standout with strong performance across various environments
- Excellent roots and staygreen provide nice fall appearance
- Extremely reliable hybrid with great drydown

Relative Maturity

79 Days

SILAGE CORN

TH4126 RR BRAND

Flowering: medium ▼ CHUs Black Layer 2250

- Quick out of the ground and great seedling vigor
- Great yield, grain quality, and digestibility
- Flint/dent hybrid sets kernel quickly but drydown is slower

PRODUCT	TRAIT	MATURITY	FLOWERING	CHU'S TO BLACK LAYER	PLANT HEIGHT	EAR HEIGHT	EAR TYPE	PLANTING RATE	KERNEL ROWS	SEEDLING VIGOR	ROOT RATING	STALK RATING	DROUGHT TOL.	GREENSNAP	STAYGREEN	DRYDOWN	TEST WEIGHT	GOSS'S WILT	NCLB	COMMON RUST	SILAGE POTENTIAL	TOUGH CONDITIONS	VARIABLE CONDITIONS	IDEAL CONDITIONS	HERBICIDE SENSITIVITY
TH7578 VT2P	VT2P	78	MED-EARLY	2225	MT	MH	SF	MH	14-16	2	1	2	2	3	1	2	3	3	2	2	2	2	2	2	ok
TH4578 RR	RR	78	MED-EARLY	2225	MT	MH	SF	MH	14-16	2	1	2	2	3	1	2	3	3	2	2	2	2	2	2	ok
TH4126 RR	RR	79	MEDIUM	2250	MT	M	SF	MH	12-16	2	2	2	3	2	2	4	2	N/A	N/A	N/A	2	2	2	2	ok



2019 SEED GUIDE - GRAIN CORN

2019 SEED GUIDE - GRAIN CORN
AGRONOMIC INFORMATION GUIDE

Relative Maturity

79 Days

GRAIN CORN

TH4126 CONV BRAND

Flowering: medium ▼ CHUs Black Layer 2250

- Quick out of the ground and great seedling vigor
- Great yield, grain quality, and digestibility
- Flint/dent hybrid sets kernel quickly but drydown is slower

Relative Maturity

81 Days

GRAIN CORN

TH7681 VT2P BRAND

Flowering: medium ▼ CHUs Black Layer 2375

- Very good grain yield for long season zones
- Ideal for highly productive fields; strong and steady growth
- Great agronomics including excellent staygreen; good for silage or grazing

VTDoublePRO RIB COMPLETE

Relative Maturity

82 Days

GRAIN CORN

NEW TH6982 VT2P BRAND

Flowering: early ▼ CHUs Black Layer 2425

- Excellent grain yields; combines great test weight and fast drydown
- Terrific disease package including good Goss's Wilt tolerance
- Plant on productive soils at higher population for best performance

VTDoublePRO RIB COMPLETE

PRODUCT	TRAIT	MATURITY	FLOWERING	CHU'S TO BLACK LAYER	PLANT HEIGHT	EAR HEIGHT	EAR TYPE	PLANTING RATE	KERNEL ROWS	SEEDLING VIGOR	ROOT RATING	STALK RATING	DROUGHT TOL.	GREENSNAP	STAYGREEN	DRYDOWN	TEST WEIGHT	GOSS'S WILT	NCLB	COMMON RUST	SILAGE POTENTIAL	TOUGH CONDITIONS	VARIABLE CONDITIONS	IDEAL CONDITIONS	HERBICIDE SENSITIVITY
TH4126 CONV	CONV	79	MEDIUM	2250	MT	M	SF	MH	12-16	2	2	2	3	2	2	4	2	N/A	N/A	N/A	2	2	2	2	ok
TH7681 VT2P	VT2P	81	MEDIUM	2375	T	MH	SD	MH-H	14-16	2	3	2	3	N/A	1	2	2	4	N/A	N/A	3	3	2	1	ok
NEW TH6982 VT2P	VT2P	82	EARLY	2425	M	ML	SD	MH-H	14-16	3	1	2	3	1	4	1	1	3	2	3	4	2	1	1	ok

PRODUCT	TRAIT	MATURITY	FLOWERING	CHU'S TO BLACK LAYER	PLANT HEIGHT	EAR HEIGHT	EAR TYPE	PLANTING RATE	KERNEL ROWS	SEEDLING VIGOR	ROOT RATING	STALK RATING	DROUGHT TOL.	GREENSNAP	STAYGREEN	DRYDOWN	TEST WEIGHT	GOSS'S WILT	NCLB	COMMON RUST	SILAGE POTENTIAL	TOUGH CONDITIONS	VARIABLE CONDITIONS	IDEAL CONDITIONS	HERBICIDE SENSITIVITY
TH7673 VT2P	VT2P	73	MED-EARLY	2050	MT	M	D	H	12-14	3	1	1	3	2	2	2	1	4	2	3	4	2	2	3	ok
TH7574 VT2P	VT2P	74	MEDIUM	2075	T	M	D	H	14-16	1	2	2	3	3	2	2	1	4	2	2	4	2	2	3	ok
TH4574 RR	RR	74	MEDIUM	2075	T	M	D	H	14-16	1	2	2	3	3	2	2	1	4	2	2	4	2	2	3	ok
TH6875 VT2P	VT2P	75	LATE	2100	MT	MH	SD	MH	14-16	2	3	2	3	3	1	1	2	4	3	N/A	2	3	2	1	C (grp2)
TH7677 VT2P	VT2P	77	MED-LATE	2175	M	M	SD	MH	14-16	2	2	3	3	3	1	3	3	4	2	2	3	3	2	2	ok
NEW TH6977 VT2P	VT2P	77	MED-EARLY	2200	M	M	SD	MH	12-14	3	2	2	3	2	3	2	3	3	2	N/A	4	2	2	3	ok
TH7578 VT2P	VT2P	78	MED-EARLY	2225	MT	MH	SF	MH	14-16	2	1	2	2	3	1	2	3	3	2	2	2	2	2	2	ok
TH4578 RR	RR	78	MED-EARLY	2225	MT	MH	SF	MH	14-16	2	1	2	2	3	1	2	3	3	2	2	2	2	2	2	ok
TH4126 RR	RR	79	MEDIUM	2250	MT	M	SF	MH	12-16	2	2	2	3	2	2	4	2	N/A	N/A	N/A	2	2	2	2	ok
TH4126 CONV	CONV	79	MEDIUM	2250	MT	M	SF	MH	12-16	2	2	2	3	2	2	4	2	N/A	N/A	N/A	2	2	2	2	ok
TH7681 VT2P	VT2P	81	MEDIUM	2375	T	MH	SD	MH-H	14-16	2	3	2	3	N/A	1	2	2	4	N/A	N/A	3	3	2	1	ok
NEW TH6982 VT2P	VT2P	82	EARLY	2425	M	ML	SD	MH-H	14-16	3	1	2	3	1	4	1	1	3	2	3	4	2	1	1	ok

Plant Height	Ear Height	v Type	Planting Rate	Herbicide Sensitivity	Scale
S Short	L Low	D Determinate	ML Medium Low	C Caution	1 Excellent
MS Medium Short	ML Medium Low	SD Semi-Determinate	M Medium	W Warning (do not use)	2 Very Good
M Medium	M Medium	SF Semi-Flex	MH Medium High	grp4 Group 4: growth regulator	3 Good
MT Medium Tall	MH Medium High	F Flex	H High	grp2 Group 2: SU/ALS inhibitor	4 Below Average
T Tall	H High			grp27 Group 27: HPPD inhibitor	5 Poor

RR - Roundup Ready® Corn 2 | VT2PRIB - VT Double PRO® RIB Complete® Corn Blend | SSRIB - SmartStax® RIB Complete® Corn Blend CONV - Conventional Thunder Seed Variety t

VT Double PRO[®]
RIB COMPLETE[®]

ARE YOU PREPARED IF ABOVE GROUND PESTS COME CRAWLING NEXT YEAR?

Get ready with VT Double PRO[®] RIB Complete[®] corn blend.

Pressure can be extremely unpredictable. Plan ahead with the corn product that can deliver effective dual modes of action against a broad spectrum of above ground pests, including European corn borer, corn earworm, southwestern corn borer and fall armyworm.

COMPARE ALL YOUR TRAIT OPTIONS AT
Genuity.com/TraitComparison

Follow us @GenuityTraits
#TraitAnswers

Individual results may vary. Important: RIB Complete[®] are blended seed corn products that require the planting of a structured refuge in the Cotton-Growing Area. Always read and follow IRM, grain marketing and all other stewardship practices and pesticide label directions. Details of these practices can be found in the Trait Stewardship Responsibilities Notice to Farmers printed in this publication. ©2017 Monsanto Company. vtpro7492c1-P139A

Think Before You Bin-Run

Verification Required

Most soybeans are still covered by a variety patent, and you will not be able to save and plant the seed from those varieties without a license giving you that added right. Check with your seed supplier before saving.

Higher Seeding Rate

Higher seeding rates may be required for bin-run compared to new branded seed.

Yield Loss

Genuity[®] Roundup Ready 2 Yield[®] soybean seed outyielded bin-run Roundup Ready[®] soybeans by 6.1 bu/A.¹

Cleanout Loss

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

Lost Income

Income lost by not selling a bushel of soybeans that is saved for planting the next year.

The higher yielding trait technology of Roundup Ready 2 Yield soybeans showed a 6.1 bushel per acre advantage over original Roundup Ready soybeans.

>6.1

High Value of New Branded Seed

Latest Technology

- Highest yielding soybean technology available
- Six soybean trait products anticipated to come from Monsanto in the next 2-7 years*
- Leading seed treatment options

*Pending regulatory approvals.

¹First year results of 2-year protocol study with independent cooperators across 8 locations examining the yield differences of saved Roundup Ready soybeans versus newly purchased Roundup Ready 2 Yield soybeans.

Customer Service

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

Reliable Germination and Quality

- Rigorously tested for quality and meets US Federal Seed Act requirements
- Free of seed-borne diseases
- Properly stored and conditioned



For more information about seed technology, visit ASTA's **Beyond the Seed Program** at www.beyondtheseed.org. ASTA, as a trade industry association, does not endorse products, services or technology of individual companies.

Monsanto receives hundreds of calls and letters nationwide each year about potential seed compliance matters. Anyone with concerns or questions can anonymously call 1-800-768-6387, Option 2.

Monsanto Company is a member of Excellence Through Stewardship[®] [ETS]. Monsanto products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Monsanto's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. This product has 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 Biotechnology Industry Organization.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready[®] crops contain genes that confer tolerance to glyphosate, the active ingredient in Roundup[®] brand agricultural herbicides. Roundup[®] brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Genuity[®], Monsanto and Vine Design[®], Roundup Ready 2 Yield[®], Roundup Ready[®], and Roundup[®] are registered trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners. ©2015 Monsanto Company. 32219 3J8L149893

MONSANTO



SOYBEANS

The large selection of soybeans means that we are able to accommodate your soil's needs and provide disease and pest protection for maximum yields. Our Roundup Ready 2 Xtend® and LibertyLink® brands also have high tolerance to herbicides.



TECHNOLOGY





Relative Maturity

00.3


SOYBEAN

TH 33003R2Y BRAND

IDC 1.9 ▼ PRR Gene 1c

- High yields with excellent pod set
- Upright plant with great pod height
- Good emergence and IDC





Relative Maturity


00.4


SOYBEAN

TH 37004 R2Y BRAND

IDC 2.0 ▼ PRR Gene 1c

- Taller plant stature
- Great white mold tolerance
- Adapted to multiple row spacing





Relative Maturity


00.4

SOYBEAN

TH 32004R2Y BRAND

IDC 1.9 ▼ PRR Gene 1c

- Proven consistent performer
- Good standability in all row spacings
- Great IDC tolerance



Product	Trait	Maturity	CHU	Emergence	Standability	IDC	SCN	Phytophthora Gene	Phytophthora Field Tolerance	White Mold	Plant Type	Plant Height	Flower Color	Pod Color	Hilum Color	Pubescence Color
TH 33003R2Y	RR2Y	00.3	2375	1.7	2.2	1.9	S	1c	N/A	N/A	Thin	M	P	BR	BR	T
TH 37004 R2Y	RR2Y	00.4	2400	1.5	3.0	2.0	S	1c	2	1.7	Intermediate	MT	P	BR	BL	T
TH 32004R2Y	RR2Y	00.4	2400	1.7	2.2	1.9	S	1c	2.3	2.2	Intermediate	M	P	BR	BL	T



2019 SEED GUIDE - SOYBEAN

TECHNOLOGY





Relative Maturity

00.5

SOYBEAN


TH 33005R2Y BRAND

IDC 1.9 ▼ PRR Gene 1c

- Very good IDC tolerance
- Excellent standability
- Great mid-maturity variety



ROUNDUP READY 2 YIELD SOYBEANS



Relative Maturity


00.6

SOYBEAN

TH 34006R2Y BRAND

IDC 2.2 ▼ PRR Gene 1c

- Starts quick with excellent emergence
- Good standability and white mold tolerance
- Great option for wider rows



ROUNDUP READY 2 YIELD SOYBEANS



Relative Maturity

00.8

SOYBEAN


ASTRO R2 BRAND

IDC 1.8 ▼ PRR Gene 1k

- Tall aggressive plant with high first-pod height
- First choice by many in longer season area
- Excellent top yield, stability, and white mold tolerance



ROUNDUP READY 2 YIELD SOYBEANS



Relative Maturity


000.5


SOYBEAN

NEW TH890005 R2XN BRAND

IDC 2.2 ▼ PRR Gene 1c+1k

- Ultra-early variety with SCN and double stack PRR genes
- Slender plant that stands well and prefers narrow rows
- Excellent yield potential; target lighter, fertile soils





Relative Maturity


000.8


SOYBEAN

TH 87000 R2X BRAND

IDC 2.2 ▼ PRR Gene N/A

- Tall, super early plant with some lateral branches
- Excellent emergence and early vigor
- Good pod height





Relative Maturity


00.3

SOYBEAN

TH 87003 R2X BRAND

IDC 1.7 ▼ PRR Gene 1c

- Tall, aggressive, and impressive variety
- Excellent yields consistently across zones and soil types
- Great IDC, SCN and disease package



Product	Trait	Maturity	CHU	Emergence	Standability	IDC	SCN	Phytophthora Gene	Phytophthora Field Tolerance	White Mold	Plant Type	Plant Height	Flower Color	Pod Color	Hilum Color	Pubescence Color
TH 33005R2Y	RR2Y	00.5	2425	1.8	1.9	1.9	S	1c	2.1	2.3	Intermediate	M	P	BR	IB	G
TH 34006R2Y	RR2Y	00.6	2450	1.5	2.2	2.2	S	1c	N/A	2	Intermediate	M	P	BR	BL	T
ASTRO R2	RR2Y	00.8	2500	1.5	2.2	1.8	S	1k	2.3	1.5	Intermediate	T	P	BR	BL	T

Product	Trait	Maturity	CHU	Emergence	Standability	IDC	SCN	Phytophthora Gene	Phytophthora Field Tolerance	White Mold	Plant Type	Plant Height	Flower Color	Pod Color	Hilum Color	Pubescence Color
NEW TH890005 R2XN	RR2X	000.5	2175	1.7	1.8	2.2	R	1c+1k	1.8	1.9	Thin	MS	P	BR	BL	T
TH 87000 R2X	RR2X	000.8	2250	1.5	2.5	2.2	S	N/A	N/A	2.5	Intermediate	T	P	LB	BR	T
TH 87003 R2X	RR2X	00.3	2375	1.5	2.2	1.7	R	1c	1.9	2.2	Intermediate	T	P	BR	BL	T



2019 SEED GUIDE - SOYBEAN

Relative Maturity

00.5

SOYBEAN

TH 88005R2XN BRAND

IDC 1.8 ▼ PRR Gene 1c

- Tall attractive plant with good standability and pod height
- Strong emergence followed by strong yield potential
- Great overall defense package; including brown stem rot resistance

ROUNDUP READY 2 XTEND SOYBEANS

Relative Maturity

00.7

SOYBEAN

TH 88007R2X BRAND

IDC 2.0 ▼ PRR Gene 1c

- Top yielding variety
- Big plant with lots of lateral branches; good choice for wider rows
- Great emergence and pod height

ROUNDUP READY 2 XTEND SOYBEANS

Relative Maturity

00.8

SOYBEAN

TH 88008 R2X BRAND

IDC 1.7 ▼ PRR Gene 1k

- Taller plant stature and great standability
- Combines yield with defense; SCN and IDC
- Excellent PRR field tolerance plus Rps1k gene

ROUNDUP READY 2 XTEND SOYBEANS

Product	Trait	Maturity	CHU	Emergence	Standability	IDC	SCN	Phytophthora Gene	Phytophthora Field Tolerance	White Mold	Plant Type	Plant Height	Flower Color	Pod Color	Hilum Color	Pubescence Color
TH 88005R2XN	RR2X	00.5	2425	1.6	2.0	1.8	R	1c	1.8	2	Intermediate	T	P	LB	BL	T
TH 88007R2X	RR2X	00.7	2475	1.5	2.3	2.0	S	1c	1.9	2.5	Intermediate/Bushy	M	P	BR	BL	T
TH 88008 R2X	RR2X	00.8	2500	1.5	2.0	1.7	R	1k	1.6	2.2	Intermediate	MT	P	BR	BL	T



2019 SEED GUIDE - SOYBEANS
AGRONOMIC INFORMATION GUIDE

Product	Trait	Maturity	CHU	Emergence	Standability	IDC	SCN	Phytophthora Gene	Phytophthora Field Tolerance	White Mold	Plant Type	Plant Height	Flower Color	Pod Color	Hilum Color	Pubescence Color
TH 33003R2Y	RR2Y	00.3	2375	1.7	2.2	1.9	S	1c	N/A	N/A	Thin	M	P	BR	BR	T
TH 37004 R2Y	RR2Y	00.4	2400	1.5	3.0	2.0	S	1c	2	1.7	Intermediate	MT	P	BR	BL	T
TH 32004R2Y	RR2Y	00.4	2400	1.7	2.2	1.9	S	1c	2.3	2.2	Intermediate	M	P	BR	BL	T
TH 33005R2Y	RR2Y	00.5	2425	1.8	1.9	1.9	S	1c	2.1	2.3	Intermediate	M	P	BR	IB	G
TH 34006R2Y	RR2Y	00.6	2450	1.5	2.2	2.2	S	1c	N/A	2	Intermediate	M	P	BR	BL	T
ASTRO R2	RR2Y	00.8	2500	1.5	2.2	1.8	S	1k	2.3	1.5	Intermediate	T	P	BR	BL	T
NEW TH890005 R2XN	RR2X	000.5	2175	1.7	1.8	2.2	R	1c+1k	1.8	1.9	Thin	MS	P	BR	BL	T
TH 87000 R2X	RR2X	000.8	2250	1.5	2.5	2.2	S	N/A	N/A	2.5	Intermediate	T	P	LB	BR	T
TH 87003 R2X	RR2X	00.3	2375	1.5	2.2	1.7	R	1c	1.9	2.2	Intermediate	T	P	BR	BL	T
TH 88005R2XN	RR2X	00.5	2425	1.6	2.0	1.8	R	1c	1.8	2	Intermediate	T	P	LB	BL	T
TH 88007R2X	RR2X	00.7	2475	1.5	2.3	2.0	S	1c	1.9	2.5	Intermediate/Bushy	M	P	BR	BL	T
TH 88008 R2X	RR2X	00.8	2500	1.5	2.0	1.7	R	1k	1.6	2.2	Intermediate	MT	P	BR	BL	T

Plant Height	Scale	SCN	Flower Color	Pod Color	Hilum Color	Pubescence
S Short	1 Excellent	R Resistant	P Purple	BR Brown	BL Black	T Tawny Brown
MS Medium Short	2 Very Good	MR Moderately Resistant	W White	LB Light Brown	BR Brown	G Gray
M Medium	3 Good	MS Moderately Susceptible			IB Imperfect Black	
MT Medium Tall	4 Below Average	S Susceptible				
T Tall	5 Poor					

R2Y - Genuity® Roundup Ready 2 Yield® Soybeans | R2YN - Genuity® Roundup Ready 2 Yield® Soybeans - includes nematode resistance
LL - LibertyLink® Soybeans | LLN - LibertyLink® Soybeans - includes nematode resistance | RR2X - Roundup Ready 2 Xtend® Soybeans

Out here, WEEDS DON'T STAND A CHANCE.

Because I've got MY WEED CONTROL—UNDER CONTROL.

THIS IS MY FIELD.

ROUNDUP READY®
XTEND
CROP SYSTEM

IT'S THE SYSTEM THAT MAKES THE DIFFERENCE.
XTEND YOUR WEED CONTROL + XTEND YOUR YIELD

Get industry-leading weed control with up to 14 days of soil activity on small-seeded broadleaf weeds* and featuring VaporGrip® Technology for a significant reduction in volatility potential.

**See your seed or ag chem dealer or visit
RoundupReadyXtend.com**

ROUNDUP READY 2
X TEND
SOYBEANS

+

X TENDIMAX
with VaporGrip.

Low-Volatility Dicamba



Enlist
Weed Control System™

AVAILABLE SOON

Exceptional weed control.
Ease of use. Excellent yield.

Don't let tough weeds keep you from reaching your full yield potential. The Enlist™ weed control system from Dow AgroSciences builds on the current glyphosate and glufosinate systems to advance herbicide and trait technology. Now you can take weed control to a whole new level.



Enlist E3™ Trait
Gives soybeans robust tolerance to new 2,4-D choline, glyphosate and glufosinate.



HERBICIDE WITH COLEX-D TECHNOLOGY

Enlist Duo® Herbicide
Combines new 2,4-D choline
and glyphosate to take care of
tough weeds.

 **Enlist One**
HERBICIDE WITH COLEX-D TECHNOLOGY

Enlist One™ Herbicide
Enlist One™ is a straight-goods
2,4-D choline with additional
tank-mix flexibility.

Enlist Ahead

Get the most from the Enlist system.

The Enlist Ahead management resource will help you get the best results from the Enlist system—today and for the future. From management recommendations to technology advancements, Enlist Ahead is designed to help growers make on-target applications and responsibly manage resistance in the field. To find out more, go to Enlist.com/EnlistAhead.

*On certain small-seeded broadleaf weeds. Results may vary, depending on rainfall and soil type. Always use dicamba with traditional residual herbicides in pre-emergence and postemergence applications that have different effective sites of action, along with other Diversified Weed Management Practices including the use of glyphosate. XtendiMax® herbicide with VaporGrip® Technology and in crop use may not be approved in all states.

Monsanto Company is a member of Excellence Through Stewardship® (ETS). Monsanto products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Monsanto's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. This product has 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 DIRECTIONS FOR USE ON PESTICIDE LABELING. 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. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. XTENDIMAX® HERBICIDE WITH VAPORGrip® TECHNOLOGY AND IN CROP USES MAY NOT BE APPROVED IN ALL STATES. 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.

Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Contact your Monsanto dealer or refer to Monsanto's Technology Use Guide for recommended weed control programs.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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Enlist E3 soybeans were jointly developed by Dow AgroSciences and MS Technologies. Enlist Duo herbicide is not registered for sale or use in all states or counties.

Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your area. Always read and follow label directions. ©2018 Dow AgroSciences LLC.



STAY INFORMED WHILE YOU *grow*

From our quarterly newsletter to our website and social media pages, we offer several resources for you to stay connected with us. Through these channels, you'll have the agronomic insight you need on new seed varieties, treatments and techniques to maximize yield potential.

Be sure to join us around the cyber tailgate! Stay connected with us on Facebook, Twitter and Instagram and check out our videos on YouTube. You can easily access any of our social media sites through our website, www.thunderseed.com

Text **THUNDERSEED** to **212121** to join our text club to stay up to date on current information!


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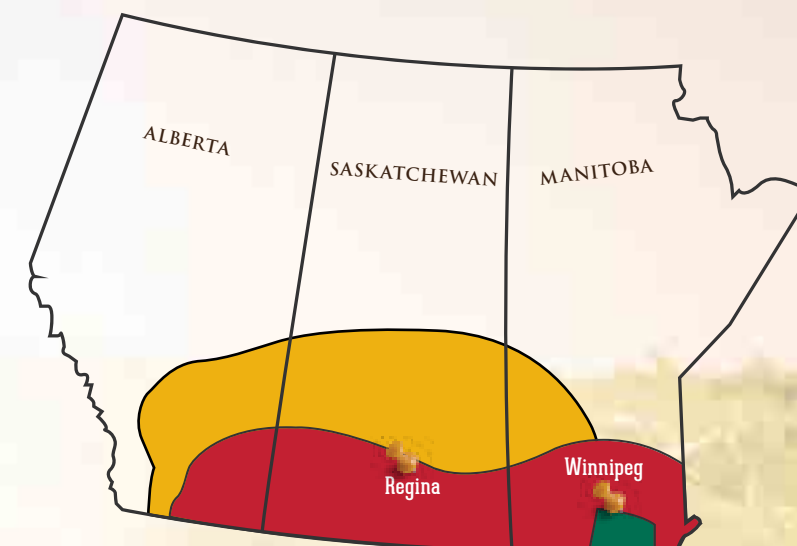
QUICK REFERENCE GUIDE

ZONE ADAPTATION

 Relative Maturity
00.5 - 00.3 RM

 Relative Maturity
00.3 - 00.5 RM

 Relative Maturity
00.6 - 00.8 RM



1. Field Selection/Crop Rotation

- a. No restrictions
- b. Avoid high-trash cover field (i.e., winter wheat)

2. Herbicide Residual Problems

- a. Mostly Lontrel types
- b. Minor problems with muster

3. Variety

- a. Earlier type and very light sensitive
- b. Strong germinator with good vigor

4. Inoculants

- a. 30-day liquid on seed
- b. 5-8 pounds/acre granular inoculant
- c. Use higher rates on virgin or cooler, minimum-tillage soils

5. Seed Treatments

- a. Only CruiserMaxx® Vibrance®

6. Fertility

- a. No nitrogen at all
- b. 0-40 pounds of phosphate depending on seed placement
- c. 0-60 pounds of potash broadcast (usually none is required)

7. Seeding Date

- a. Ideal: May 10-May 25
- b. Possible: May 1-June 10
- c. Seed when soils are warming up

8. Seeding Rate

- a. Solid seeding 200,000-220,000 seeds/acre
- b. Row crop 170,000-190,000 seeds/acre

9. Herbicide Program

Roundup®:

- a. Higher rates if needed
- b. Any time up to flowering

Volunteer Canola:

- c. Cut rate of Pursuit®
- d. Pre-emerge burn off
- e. Reflex®
- f. Valtera™
- g. Basagran®
- h. Viper

10. Insects

- a. Soybean Aphids: Until recently only an occasional problem in Red River Valley, easy to kill and rarely a problem in the west
- b. Spider Mites: Very rare in the valley

11. Disease

- a. Root Born: most varieties have reasonable tolerance
 - CruiserMaxx® Vibrance® Fungicide seed treatment and crop rotation help
- b. Foliar Diseases: Most disease results in minor yield losses
 - Sclerotinia can cause moderate reduction in yield
 - New seed treatment, crop rotation, crop spacing and lighter seeding rates can help combat the problem

12. Harvest

- a. Best method is straight combining with a flex header
- b. Swathing
- c. No need to desiccate
- d. Dry is 13-13.5 percent moisture

13. Storage

- a. Keeps well, especially if sample is clean
- b. Tough beans dry down easily with aeration

14. Marketing

- a. Easy and flexible in the Red River Valley
- b. Getting a lot better outside the Red River Valley
- c. Main line grain elevators, smaller grain brokers and small processors
- d. Hedging up to three years

15. Grading

- a. Very easy
- b. Much lower chance of downgrades
- c. Cracked beans are usually not dockage
- d. Lower dockage

16. Revenue/Cost

- a. Lower cost/acre than Canola
- b. Revenue depends more on moisture for the area
- c. Yield:
 - Dry conditions 20-25 bushels/acre
 - Moist conditions 30-55 bushels/acre



ADAMS **FARMS**

The Adams family's agricultural roots run deep in Minnesota, where the family's youngest generation continues to farm in Wendell. It's a passion that led them into agribusiness in the 1950s as Adams Seed – a legacy that continues today as part of Thunder Seed.



PETERMANN **FARMS**

The Petermann family lives and farms in Hawley, Minnesota, where their strong passion for agriculture continues from generation to generation. In 1960, they formed Petermann Seeds Inc. to share their success with others.



TOBOLT **FARMS**

Farming is way of life for the Tobolt family, who live and farm in Moorhead, Minnesota. Tobolt Seed, an 80-year-old family-owned business, continues helping farmers today as part of Thunder Seed.

WE'RE FARMERS *first*



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ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Agricultural herbicides containing glyphosate will kill crops that are not tolerant to glyphosate, and those containing dicamba will kill crops that are not tolerant to dicamba. Contact your Monsanto dealer or call the Monsanto technical support line at 1-800-667-4944 for recommended Roundup Ready® Xtend Crop System weed control programs. Roundup Ready® technology contains genes that confer tolerance to glyphosate, an active ingredient in Roundup® brand agricultural herbicides. Agricultural herbicides containing glyphosate will kill crops that are not tolerant to glyphosate. Genuity and Design®, RIB Complete®, Roundup Ready 2 Technology and Design®, Roundup Ready 2 Xtend®, Roundup Ready 2 Yield®, Roundup Ready®, Roundup®, SmartStax® and VT Double PRO® are trademarks of Monsanto Technology LLC, Monsanto Canada Inc. licensee. LibertyLink® and the Water Droplet Design are trademarks of Bayer. Used under license. Herculex® is a registered trademark of Dow AgroSciences LLC.

Seed containing a patented trait can only be used to plant a single commercial crop from which seed cannot be saved and replanted. Examples of seed containing a patented trait include but are not limited to Genuity® RoundupReady2 Yield® soybeans, Roundup Ready 2 Xtend® soybeans, Genuity® Roundup Ready® spring canola, and Genuity® Roundup Ready® winter canola. Additional information and limitations on the use of these products are provided in the Monsanto Technology Stewardship Agreement and the Monsanto Technology Use Guide. U.S. patents for Monsanto technologies can be found at the following webpage: <http://www.monsantotechnology.com>

To help preserve the benefits of our trait technology, an Insect Resistance Management (IRM) plan must be part of every farmer’s production strategy.

Farmers who purchase corn products that are not designated as RIB Complete® required to plant a refuge that is appropriate for that product.

As part of the IRM plan for RIB Complete corn, experts recommend that growers incorporate crop rotations (out of corn), use of pyramided traits for below ground pests and, when appropriate, use of insecticides to minimize selection of resistant populations. Farmers should monitor their RIB Complete corn fields for targeted insect pests and contact their local Monsanto representative, retailer, or Monsanto’s Technical Support line at 1.800.667.4944 if they observe any unusual performance problems.



The LibertyLink® system is the simply better solution for a stronger yield and superior weed control. Proven by over 2,100 observations across the Midwest, Delta, Northeast and Southeast in the 2016 Official Variety Trials, LibertyLink has a 2+ bu/ac advantage over Asgrow® Roundup Ready 2 Xtend® soybeans.* Plus, LibertyLink was ranked the No. 1 soybean system in 2017 by growers.

* Yield shown summarizes average of LibertyLink and Asgrow RR2Xtend varieties entered. Endorsement or recommendation by the universities is not implied.

2017 Soybean Trait Intentions market research

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The LibertyLink® system enables growers to use powerful Liberty,® the only working nonselective herbicide that is effective on tough-to-control grasses and broadleaf weeds, for over-the-top use on over 50 million LibertyLink-enabled corn hybrid acres with Herculex,® Genuity® SmartStax®® and Agrisure® hybrids with corn-borer protection.* The LibertyLink system is the simply better solution built upon high-performing genetics and superior weed control for a stronger yield.

* The active ingredient in Liberty is a Group 10 herbicide, which is the only broad-spectrum herbicide that effectively controls grasses and broadleaf weeds, and it has no known resistance in U.S. broadacre crops.

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Thunder Seed Company, Inc. is a quality seed company that is backed by many years of experience through its owner-operators.

Thunder Seed is committed to meeting the changing needs of today’s farmers. By monitoring the latest technologies then incorporating that knowledge into high-yielding seed products. Thunder Seed is linking today’s producer with tomorrow’s technology.

Look to Thunder Seed’s product line-up for high-yielding corn, trial-winning Roundup Ready® soybeans and conventional soybeans.

Roundup Ready soybeans are simply the most profitable and convenient way to grow soybeans. You can spray Roundup agricultural herbicides in-crop for emergence through flowering for unsurpassed weed control, proven crop safety and maximum yield potential. Thunder Seed puts their experience and reputation behind the quality and integrity of every unit they sell.

Thunder Seed recommends the purchase of new seed for a variety of benefits compared to bin run seed. Input costs are higher for planting bin run versus new certified seed. That cost includes higher seeding rate and loss of seed or shrinking that occurs when cleaning bin-run seed. Thunder Seed offers reliable seed supply in many maturities with a set standard of high-quality and high-potential product that has shown to out-yield much higher than in-bin seeds by 6 bushels or more per acre.*



THANK *you*

FOR CHOOSING THUNDER SEED

**First year results of 2-year protocol study with independent cooperators across 8 locations examining the yield differences of saved Roundup Ready® soybeans versus newly purchased Roundup Ready 2 Yield® soybeans.*

When you buy new seed from Thunder Seed, you will enjoy some limited warranty benefits. With Thunder Seed, you receive agronomic support and can participate in the Roundup Rewards program, which has paid out more than \$600 million to growers since 1997.

Thunder Seed is committed to our customers’ successes through linking today’s producer with tomorrow’s technology. Thunder Seed researches the newest traits and highest yielding germplasm to pick the right genetic packages that will work for your soil. New trait introductions take 7-9 years for commercialization and cost \$50-\$100 million. You have the assurance that Thunder Seed and Monsanto are 100% committed to our customers success. Input costs for the Roundup Ready® System – seed plus chemicals – have decreased over the past six years while other input costs rose.

WARRANTY: Thunder Seed of Hawley, MN, and Dealer warrants to the purchase that the seeds described on the tag are sold within recognized tolerances. Thunder Seed of Hawley, MN, gives no further warranties of the seed, express or implied, of merchantability or fitness for any particular purpose, nor any other warranty against loss of yield or for any other reason or cause, including environmental conditions. The parties agree the buyer’s sole and exclusive remedy against Thunder Seed of Hawley, MN, is the purchase price of the seed, and that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, loss of sales, injury to person or property, or any other incidental or consequential loss) shall be available to the purchaser. The parties further agree that purchaser may return seed within fifteen (15) days after purchase for a refund of purchase of the price and, unless this seed is returned within fifteen (15) days, that purchaser accepts these terms.

FIRST *in the* FIELD



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