

PIONEER® BRAND PRODUCTS AND SERVICES

A COMMITMENT TO GROWING PROGRESS

We come from generations of farmers, so we take pride in making agriculture better.

Our purpose is to enrich the lives of those who produce and those who consume, ensuring progress for generations to come.

2

While we have a global network of resources, farmers like you expect us to know all about the specific challenges you face in your region.

To help farmers flourish, experts in our local research centres never stop creating solutions for the unique climate and soil in every community across Canada. So, we can always help customize an approach that's just right for you.

Corteva Agriscience[™] is the agricultural company dedicated to farmers.

KEEP GROWING.



Learn more at Corteva.ca

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HERC

BIGGER than EVER!



2018 Pioneer Yield Hero Winners Across Western Canada

Enter for a Chance to Win!

One (1) of 33 trips for two (2) to the

Commodity Classic in San Antonio, Texas

February 27-29, 2020

The Pioneer[®] Yield Hero contest is an opportunity to celebrate your high yields and success! #yieldhero19 Join our growing list of heroes who grow Pioneer[®] brand seed products.

NEW! FOR THE 2019 YIELD HERO CONTEST:

• LibertyLink[®] Canola Category on Twitter - #LLHybridHero Silage Corn Category

For complete contest rules and details visit: yieldhero.pioneer.com OR follow us @PioneerSeedsCA #yieldhero19



2018 Yield Hero Winners at the Continental Cup of Curling, Las Vegas, Nevada.

Grower Name	Town	Province	Crop	Pioneer [®] brand Seed Product	Yield (bu/ac)
Birkland Farms Ltd.	WINNER Winkler	MB	Corn	P9188AM	221.2
🎔 Toews Valley Farms	Winkler	MB	Corn	P7958AM	221
Gilmer Toews	Hadashville	MB	Corn	P7527AM	203.8
CAW Farms Ltd.	Glenboro	MB	Corn	P7211HR	177.8
Lewis Farms Ltd.	WINNER 2018! Spruce Grove	AB	Canola	45CS40	91.3
🎔 Curtis Harrish	Calmar	AB	Canola	45CM36	89.3
Cadrain Farms Inc.	Leask	SK	Canola	45CM36	84.6
JDJ Farms	Roblin	MB	Canola	45M35	83.5
Awd Hoffus Farms	Porcupine Plain	SK	Canola	45CM39	83.1
Richard Thoben	St. Paul	AB	Canola	45H33	80.6
🔰 ADR Farms	Lloydminster	SK	Canola	45CM36	79
Garrett Farms	Paynton	SK	Canola	45CM36	75.2
🎔 Miller Farms	Swan River	MB	Canola	45H33	73
David Zabolotniuk	High Prairie	AB	Canola	45H37	69.3
Prairie Rock Farms Ltd	E. Okotoks	AB	Canola	45M35	66.4
Mitchell Hudy	Melville	SK	Canola	45CM36	65.2
Wilton Farms Ltd.	Langbank	SK	Canola	45M35	65.1
🎔 R+D Mclean	WINNER 2018! Manitou	MB	Soybean	P005A27X	56.7
Gary Malyk	Airdrie	AB	Canola	45H37	52.4
Robert Lax	Pense	SK	Canola	45CM39	46.3

Contest Rules and Regulations:

CONTEST RULES: Subject in all respects to Official Rules at: www.yieldhero.pioneer.com. Contest begins 12:00 a.m. MT 19/8/19 and ends 11:59 p.m. MT 10/11/19. Open to legal residents of SK, AB, MB, or BC who are age of majority+ and own or work on a farm Void outside of the foregoing provinces. Winners who enter via Twitter must correctly answer a time-limited mathematical skill-testing question to be eligible to win a prize. There are 33 grand prizes available to be won. Grand prize winners will be awarded a trip for 2 to the weekend of the 2020 Commodity Classic in San Antonio, Texas. The approximate retail value ("ARV") is \$4256.50 (CAD) per grand prize winner)



🔰 2018 Twitter Winners







INSECTICIDE SEED TREATMENT

Lumisena[™]

FUNGICIDE SEED TREATMENT

LumiGEN™ technologies is a seed treatment portfolio brand exclusive to the seed brands of Corteva Agriscience. LumiGEN™ technologies protect your investment in Brevant[™] seeds genetics with best-in-class

Best-in-class treatment protection: LumiGEN™ technologies represents the development, research, and formulation behind diverse seed applied technologies offerings that help maximize productivity. Corteva Agriscience works to offer an innovative lineup of fungicides, insecticides, nematicides and biologicals that offers the right combination of protection

Proven results: With our robust testing infrastructure, we thoroughly evaluate all seed treatments prior to commercialization. We extensively test every component across multiple years, geographies, environments, and equipment variations. Seed treatment recipes and ingredients are optimized on Brevant seeds genetics to establish healthier, more uniform crops with great yield

Confidence: Our seed treatment delivers the latest and best technologies through extensive research and testing. You can plant with confidence knowing your seeds and seedlings have advanced protection against pests, disease and uncertain soil conditions during the critical early growth period.

Lumiderm

INSECTICIDE SEED TREATMENT

Better Start. Better Harvest.

Lumiderm[™] insecticide seed treatment provides excellent plant protection against both flea beetles and cutworms in one convenient bag.

See the Lumiderm[™] difference in protection against flea beetles

Across Western Canada, flea beetles are causing significant damage to canola crops and growers are demanding a better solution. Lumiderm[™] insecticide seed treatment offers a new way to obtain enhanced flea beetle protection on both crucifer and striped flea beetles for your canola crop.



Standard Treatment

Source: Lumsden, SK. 22 Days After Seeding.

Key Benefits:

- Enhanced crucifer and striped flea beetle protection
- Excellent control of early season cutworms
- Excellent early season seedling stand establishment, vigour and biomass
- Up to 35 days of protection through the critical stages of seedling growth
- Novel class of chemistry (Group 28) for resistance
 management

See the Lumiderm[™] difference in cutworm control

Cutworms are a real problem in canola production. If you're not paying close attention to your fields, they can destroy a significant portion of your crop in a matter of days. Cutworms are very difficult to detect since they typically live underground during the day and feed at night. During the first 35 days of seedling growth, Lumiderm[™] protects your canola from cutworm feeding which helps enhance early season stand establishment and crop vigour.

Look at the results

Treating your seed with Lumiderm[™] is the best way to prevent a patchy, bare field and reduce yield loss due to cutworm damage.



Standard Treatment

Lumiderm™

See the Lumiderm[™] Yield results

Lumiderm[™] resulted in a positive yield increase 78% of the time across Western Canada.[†]

Lumiderm[™] + Standard Treatment

- 35% Less Flea Beetle Damage*
- 1.4 bu/ac higher yield**

† Results from large scale grower managed field trials across Western Canada in 2015.

- * Source: 192 DuPont Research & Development (replicated) trials and Grower Demo strip trials (2010-2015).
- ** Source: Canola yield averaged across 137 Grower Demo Strips, Western Canada (2013-2015).

For more information, visit **Lumiderm.corteva.ca**

Se CANOLA



Source: Seven Persons, AB. 42 Days After Seeding.

Yield, Performance and Peace of Mind

Maximize Your Yield, Protect Your Canola and Your Profits.

Pioneer[®] brand canola hybrids with Pioneer Protector[®] traits – the **YIELD**, performance, profitability and protection against disease and harvest challenges that you have come to trust. **NOW AVAILABLE** in Genuity[®] Roundup Ready[®] and LibertyLink[®] canola herbicide tolerant systems.



In 2009, Pioneer[®] brand canola was the first to offer clubroot protection to western Canadian canola growers. Now, backed by the power of the Corteva Agriscience[™] breeding program, all future Pioneer® canola hybrids will come with clubroot protection, a critical tool against a growing disease threat to western Canadian farmers.

Pioneer Protector® traits lineup



Pioneer Protector® HarvestMax CR is a powerhouse of protection, combining the benefits of Protector clubroot with the harvest flexibility of Protector HarvestMax.



The Pioneer Protector® HarvestMax trait is a key tool for harvest management on your farm. HarvestMax delivers swath timing flexibility, straight cut option, reduced pod shatter, and reduced volunteers in next year's crop you decide!



Pioneer Protector[®] Plus is a powerhouse of clubroot combined with sclerotinia protection built into one package.



Since 2008, Pioneer Canada has continued to introduce high-yielding canola hybrids with built-in sclerotinia resistance for western Canadian growers.

Look for the Pioneer Protector[®] logo for high-yielding canola hybrids with built-in disease protection.





Heading into the growing season, there's a lot you may not know about your canola crop. When will you be able to plant it? When will the crop be ready for harvest? What other demands will there be on your time and your harvest equipment? Finally, will you swath or straight-cut your canola?

You need flexibility and we've got good news. Canola hybrids with the built-in Pioneer Protector® HarvestMax trait give you more control at harvest time.

Pioneer Protector® HarvestMax Trait Delivers:

- Swath Timing Flexibility A wider window for swathing & harvesting allows greater time management and the option to delay harvest, giving pods more time to fill
- Straight-Cut Option Multiple sources of pod shatter resistance makes straight cutting a practical option
- Reduced Pod Shatter Reduced pod shatter means more seed in the bins and more profit
- Reduced Volunteers Easier weed management in the field for next season
- Peace of Mind Flexibility in harvest timing and method

CANOLA

Swath or Straight Cut





Weyburn, Saskatchewan, 2015

CANOLA | 11

Clubroot

Clubroot is on the Move

Once seen as an Alberta-specific disease, clubroot has grown to be a significant disease problem across western Canada, and recently has also been identified in Northwest Saskatchewan. Clubroot is now a significant concern for all canola growers.

Clubroot was first reported in 2003 near Edmonton, Alberta. Since then, it has become a prevalent disease in Central Alberta. It was also initially found in two fields in Manitoba in 2013. Why should you be concerned? An early infection with favourable conditions and moderate to high spore loads can lead to 100% loss.

Managing Clubroot on Your Farm

Good management practices can help prevent the spread of clubroot to, and within, your fields. Focus on these three practices:

1) Prevent Infestation

You can help prevent clubroot infection on your farm by performing these stewardship practices:

- · Scout fields early, often and carefully
- · Clean and disinfect equipment, vehicles and boots
- Practice soil conservation to reduce soil movement. Reduce tillage and soil disturbance to minimize soil and pathogen spread within a field and reduce movement caused by wind and water
- · Avoid use of straw, hay, green feed, silage and manure from infested or suspect areas
- Avoid use of seed of any crop (for example, wheat seed) harvested from infected fields
- · Keep host weeds in check, especially volunteer canola, in all crops

2) Practice Rotation

Crop rotation is essential to the management of the clubroot threat.

- Rotate crops to manage spore loads the longer the rotation, the better
- Canola Council of Canada recommends a minimum three-year crop rotation

3) Protect Your Fields

When the first outbreak of clubroot occurred in 2003, growers had no genetic line of defense. Today, clubroot-resistant canola is an effective and trusted strategy. We recommend:

- Planting Pioneer[®] brand canola hybrids with the Pioneer Protector[®] clubroot resistance trait in both infected and clean fields.
- If you plant clubroot-resistant hybrids on fields without clubroot, this will not introduce the disease into your fields. In fact, existing spore populations are reduced when resistant hybrids are grown.



Leading the Industry in **Developing Clubroot Resistance**

Pioneer[®] brand canola offered the first clubroot resistant hybrid back in 2009.

Our Extensive Breeding Platform Includes:

- Multi-source clubroot resistance breeding strategy
- Stacking clubroot resistance genes
- Multi-site testing and characterization

This approach has allowed the development of a Pioneer[®] brand canola lineup with the Pioneer Protector® trait that are adaptable across Western Canada and deliver high-yielding canola hybrids with very good standability.

Many of our canola hybrids contain our consistent, multi-race clubroot resistance - providing a high level of resistance to the most prevalent race of clubroot (race 3) and resistance to other races 2, 5, 6 and 8. Plus the emerging pathotypes of 3A, 2B and 5X.

Plant Canola With the Pioneer Protector[®] **Clubroot Resistance Trait for Peace of Mind**

Pioneer® canola lineup offers a wealth of valuable resources to help growers maximize their yields and protect their crops from disease and harvest losses.

The threat of clubroot is real. We invite you to review these recommendations and consider which of the five canola hybrids with the Pioneer Protector® clubroot resistance trait would best suit your farm in 2020.









CANOLA

CLUBROOT SUSCEPTIBLE



The above canola hybrids in the photo have no resistance to variants of clubroot races 2 and 3.

CLUBROOT RESISTANT



The above canola hybrids in the photo has a new source of clubroot resistance to variants of races 2 and 3.



Blackleg

Stepping Up the Fight Against Blackleg

With today's shortened canola rotations, Pioneer believes it's more important than ever to understand the causes of blackleg and the management toolbox that's available.

Blackleg is a serious disease of canola that was first detected in 1975 in northeast Saskatchewan and has since become widespread throughout western Canada. According to the Canola Council of Canada, yield losses up to 50% have been reported in individual fields.

Why are Blackleg Levels Increasing?

- · Shorter rotations
- More surface residue with less tillage
- More residue from increased canola yields
- Many canola hybrids rely on seedling resistance alone

Blackleg Disease Symptoms

- · Blackleg occurs on cotyledons, leaves, stems and pods
- Leaf lesions are grevish white, round to irregular in shape, often dotted with black fruiting bodies
- Stem lesions can occur at the base of the stem or at points of leaf attachment
- Stem cankers appear as dry sunken lesions with black borders that girdle the base of the stem and cause the plant to lodge
- Inoculum produced on stubble causes infection in subsequent years

Races of Blackleg

- 90% of blackleg (L.maculans) falls into seven races in western Canada, with races 2, 3, and 4 being predominant
- More than one race of blackleg can be present within a given field, so it is important to know if your canola hybrid of interest has strong adult plant resistance

Types of Blackleg Resistance

There is no quick way to know what race or how many blackleg races you have in your field - most fields have several races present. Products with strong adult plant resistance provide peace of mind.

Adult plant resistance: Protects against multiple races of blackleg and is strong and durable resistance over time. Adult plant resistance can provide more durable product performance in situations where selection pressure for overcoming resistance is increased (e.g., high canola frequency in rotations).

Seedling resistance: This resistance protects against only one race of blackleg.









Recommendations for Reducing Blackleg

- Always choose a canola hybrid with a complete package of yield, disease resistance and agronomic characteristics that are best for your operation. Learn how different canola hybrids perform in your area and on your farm.
- Scout your fields often to determine blackleg incidence and severity.
- Crop rotation is key. Tight rotations do not allow enough time for disease-bearing stubble to break down in the soil. If blackleg is a concern, a break of at least two years between canola crops on the same field can be effective in reducing blackleg in subsequent crops.

Pioneer® brand Canola with Blackleg Resistance

Our blackleg resistance breeding platform includes:

- A multi-source blackleg resistance strategy
- The stacking of resistance genes
- Building a solid, adult plant resistance first for long-term stabilit
- Blackleg resistance in Pioneer[®] brand canola involves many genes, giving our canola products stability and performance across many different environments.

Pioneer® brand offers a wealth of valuable resources to help growers maximize their yields and protect their crops from disease and harvest losses.

Your local Pioneer sales representative will have solutions to help you manage the disease on your farm. See some of our great canola product options below.



CANOLA



Cross section of canola stems showing resistance to blackleg vs. stems of a susceptible canola hybrid on the right



A blackleg stem canker lesion on canola.

FLEX REVARDS CORTEVA AGRISCIENCE

OUR ALL-NEW REWARDS PROGRAM IS HERE!

Flex+ Rewards gives you the flexibility to make the best agronomic decisions for your farm while saving money for your operation.

With Flex+ Rewards, choose from eligible crop protection products and SAVE.

Purchase seed and SAVE MORE.

Book early and SAVE THE MOST.

For detailed information visit : FlexRewards.Corteva.ca







PROTECTOR

Superior yielding canola with Pioneer Protector[®] and LibertyLink[®] traits.

- Outstanding yield potential
- Very good for lodging
- "R" for blackleg
- "R" for Clubroot



Canola hybrid with Pioneer Protector[®] HarvestMax CR trait, offers exceptional yield potential, blackleg resistance and a new source of clubroot resistance.

- Excellent yield potential 103% of Pioneer[®] brand 45H33
- Excellent early growth
- Very good lodging score
- "R" for Blackleg
- Slightly shorter than Pioneer® brand 45H33
- "R" for Clubroot New Source
- Resistant to current pathotypes 2,3,5,6 and 8, and emerging pathotypes 3A, 2b, and 5X





Yield, standability and harvest flexibility in one package.

- Great yield potential
- Excellent early growth
- Excellent lodging score

Visit us at corteva.ca

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CANOLA



High-yielding canola with the Clearfield® trait.

- Great yield potential
- Very good early growth
- Excellent lodging score
- "R" for Blackleg

45M38 FRUNCE AND PROTECTOR

- Early maturity (5) canola hybrid with superior blackleg resistance (seedling and adult plant), and with the Pioneer Protector® HarvestMax trait.
- Good yield to maturity
- Excellent early growth
- Very good lodging score
- "R" for Blackleg





Yield, Pioneer Protector[®] Clubroot and Sclerotinia resistance, and blackleg resistance in one package.

- Great yield potential
- Excellent early growth
- Very good lodging score
- "R" for Blackleg

Pioneer® Brand Product	L Maturity	7 Herbicide Tolerant Trait	ි Blackleg	Blackleg	9 Sclerotinia	 Clubroot Resistance 	2 Clubroot Resistance	 Fusarium Wilt 	© Early Growth	10 Green Seed Content	11 Standability	51 Straight Cut	ୁ Plant Height	Dil Content	
			CHARAC	TERISTIC R	ATINGS*										
P501L	5		R	7	1	R	8	R	8	8	7	G	7		
5CM39	5	ROUNDUP READY SPRING CANOLA	R	7	1	R	8	R	8	8	7	VG	7	8	
ISCS40	5	ROUNDUP READY SPRING CANOLA	R	7	6	R	8	R	8	7	7	G	8	7	
5 M 35	5	ROUNDUP READY SPRING CANOLA	MR	7	1			R	8	8	8	VG	8	8	
I5H33	5	ROUNDUP READY SPRING CANOLA	R	7	1	R	8	R	8	8	7	G	8	7	
5M38	5	ROUNDUP READY SPRING CANOLA	R	8	1			R	8	8	7	VG	7	7	
I5H31	5	ROUNDUP READY SPRING CANOLA	R	7	1			R	8	8	8	G	7	7	
I5H37	5	ROUNDUP READY SPRING CANOLA	R	7	1	R	8	R	8	8	7		7	7	
I3E03	3	ROUNDUP READY SPRING CANOLA	MR	6	1			R	7	9	5		6	7	
6H75	6	Clearfield Production System for Canela	R	7	1			R	8	8	8	G	8	8	
5H76	5	Clearfield Production System for Canola	R	8	1			R	8	8	7	G	8	7	
P502CL	5	Clearfield Production System for Canela	R	7	1			R	7	8	7		7		

NOTES

*For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 48.



Pioneer® hybrid 45CM39 yield data was summarized over 1 year (2017) from Pioneer Canada IMPACT™ trials across Western Canada as of April 7, 2018. All other canola yield data summaries were averaged across 2 years (2016-2017). Yield data collected from large-scale, grower managed Proving Ground™ trials across Western Canada as of March 8, 2018. Product responses are variable and subject to any number of environmental, disease and pest pressures. Individual results may vary. Multi-year and multi-location data is a better predictor of future performance. Refer to www.pioneer.com/yield or contact a Pioneer sales representative for the latest and complete listing of traits and scores for each Pioneer® brand product.













45**M**35 ROUNDUP READY SPRING CANOLA PROTECTOR

45CM39

ROUNDUP READY SPRING CANOLA

NEW





CANOLA

Multi-Year Performance (2015-2018)

Pioneer® brand research plot data yields in Western Canada as of November 2018. Individual results may vary. Multi-year and multi-location data are a better predictor of future performance

CORTEVA AGRISCIENCE CROP PROTECTION PRODUCTS

Prospect[™]

Arylex[™]active

HERBICIDE

A NEW Pre-Seed Herbicide Solution Ahead of Canola

For canola growers, Prospect[™] pre-seed herbicide, in combination with glyphosate, offers exceptional control of tough broadleaf weeds, including chickweed, cleavers (overwintered and group 2 resistant biotypes), flixweed, hemp-nettle, lamb's-quarters, narrow-leaved hawk's-beard, volunteer canola, and much more.

Prospect* Herbicide Benefits

- Just Go Benefits of Arylex[™] active
- Exceptional crop safety
- Multi-mode of action control
- Compatible with all forms of glyphosate
- Low use rates
- Control of tough broadleaf weeds

Efficacy

Prospect Herbicide provides faster and more complete control than glyphosate alone. Tank mixed with glyphosate, Prospect provides 3 modes of action to reduce the onset of alyphosate resistance.

Weed Control vs. Conquer Herbicide

2-7 Weeks after Treatment (WAT): Without Glyphosate



Based on small plot field research trials conducted by Corteva Agriscience in Western Canada between 2016-2018





Prospect + Glyphosate



Glyphosate

* This product is currently being assessed for registration under the Pest Control Products Act. It cannot be manufactured, imported, distributed or used in Canada at this time, unless explicit authorization has been obtained from Health Canada to use this product for the purpose of conducting research under the Pest Control Products Regulations.

** Prospect herbicide applied with 0.5% v/v MSO

*** Applied as bromoxynil + carfentrazone in 2016 and bromoxynil + pyraflufen in 2017-2018

Choose From Our Full Line-Up of Herbicide Products to Help Protect Your Pioneer® Canola, Corn and Soybeans



HERBICIDE

HERBICIDE

HERBICIDE

HERBICIDE

Lontrel[™]xC

Eclipse[™] XC

Sortan[™]IS

- A new, low volatility formulation of dicamba with VaporGrip[™] technology

Lontrel[™] XC

- For use on number of crops including, both corn and canola
- The most effective in-season thistle control available
- Flexibility to choose your rate for optimal thistle control

Eclipse[™] XC

- Broad-spectrum weed control in both glyphosate tolerant canola and corn for superior control of wild buckwheat and Canada thistle
- Convenient all-in-one control with 2 modes of action
- Two modes of action for resistance management

Sortan[™] IS

- An excellent pre-seed or early post-emergence option for your corn
- Remove early season weed pressure, including volunteer Roundup Ready® canola and wild buckwheat

FeXapan[™] with VaporGrip[™] Technology

 A new tool for weed control in Roundup Ready 2 Xtend[®] soybeans that delivers improved control of hard-to-kill weeds, such as kochia and wild buckwheat

 Another mode of action for growers to manage Group 2 and glyphosate resistant weeds

 Moisture-activated extended control throughout the critical weed free-period



CORN



FEATURED CORN PRODUCTS

P6909_R

1950 HEAT UNITS Roundup Roady

- Ultra early silage corn hybrid with very good drought tolerance and stalk strength
- Higher silage yields than Pioneer[®] hybrid 39F44

NEW Р7417ам™ **2125 HEAT UNITS** AcreMax LIBERTY ACREMANT

- Consistent yielding corn product with very good stalk strength
- Taller plant good option for Western Manitoba and Southern Alberta

NEW Р7861ам™

2250 HEAT UNITS

AcreMax LIBERTY

- Excellent dual purpose corn product with a good Goss's Wilt resistance score
- High yielding corn product -5 bu/ac increase over Pioneer® brand 39V09AM



2425 HEAT UNITS

- New dual-purpose corn product with very good stalk and root strength
- · Good product for silage in Manitoba and Southern Alberta

P7211AM[™]

2050 HEAT UNITS

- · Consistent, high-yielding corn product with very good test weight and grain quality
- Excellent drought tolerance scores and above average stock strength

Р7527ам™

2150 HEAT UNITS AcreMax LIBERTY LINK W

- Excellent yield potential with average Goss's wilt resistance
- Very good grain dry down with excellent drought tolerance



2275 HEAT UNITS

- Excellent yielding grain corn product with very good stalk and root strength
- Average Goss's Wilt resistance scores and good test weight



2550 HEAT UNITS AcreMax LIBERTY

- Taller plant, great product for silage
- · Very good root strength scores and good stalk strength
- · Good Goss's Wilt resistance















- New dual-purpose corn hybrid with very good stalk strength
- Similar height and flowering to Pioneer[®] P7213R; silks earlier than Pioneer® P7332R





- Excellent silage hybrid with good Goss's wilt resistance rating
- · Very good stalk and root strengh scores

P7958AM[™]

2275 HEAT UNITS



- Excellent dual-purpose corn product with very good drought tolerance and root strength
- Moderate Goss's wilt resistance



Pioneer [®] Brand Product	Technology Segment	Western Canadian Corn Heat Units	CRM	Silk CRM	Phy.CRM	GDUs to Silk	GDUs to Phy. Maturity	Stalk Strength	Mid-Season Brittle Stalk	Root Strength	G Stress Emergence	 Drought Tolerance 	Staygreen	2 Grain Drydown	Ear Flex	∞ Test Weight	O Plant Height	Ear Height	Husk Cover	Goss's Wilt
					RA	TING	S*													
P6909 r		1950	73	70	77	890	1810	7	6	6	4	6	3	5	3	9	3	4	3	4
39F44		2000	73	70	72	890	1680	4	6	4	7	5	3	6	2	7	3	4	3	3
Р7005ам™		2000	70	74	77	940	1810	3	4	7	5	6	4	7	3	9	3	4	6	2
P7202 am™		2050	72	69	76	880	1790	5	7	6	4	6		8	2	8	3	4	5	3
Р7211 ам™		2050	72	70		890		6	5	5	4	7	3	6	2	7	3	4	4	3
P7213 r		2050	72	75	74	950	1730	4	6	7	6	5	3	3	6	7	3	4	3	3
P7417 _R	Read	2100	74					7	4	5	4	7	4	6		5	3	5		4
P7455r	Paint	2100	74	74	75	940	1760	8	7	8	5	6	4	5	5	7	3	4		5
Р7417ам™		2125	74					7	4	5	4	7	4	6		5	3	5		4
Р7527ам™		2150	75	78	77	980	1810	5	6	5	5	7	3	7	5	5	3	4	4	5
Р7527 амхт™		2150	75	78		980		5	6	5	5	7	3	7	5	5	3	4	4	5

NOTES

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9 OUTSTANDING 1 POOR INSUFFICIENT DATA NEW

All Pioneer® brand corn products are available with Lumivia® insecticide seed treatment, which offers excellent protection against key early-season corn pests. Lumivia® is not considered a Class 12 pesticide under Ontario Regulation 63/09 of the Pesticides Act. Select Pioneer® brand corn products are available treated with high-rate seed treatment (Poncho® 1250 + VOTiVO™ / clothianidin), which are Class 12 pesticides. For more information, talk with your Pioneer sales representative.



NEW

Roundup Ready

Roundup Ready

W

123	3.9 bu/ac		109.8 bu/ac
P720)2ам	VS	DeKalb® 26-40RIB
14.1 	ou/ac incr	ease	6
100%	6 WI	NS	large-scale, grow managed trials



NEW Р7417ам™ 2125 heat units AcreMax LIBERTY W VieldGard Com Berer Roundup Ready



P7527AM[™] 2150 heat units Р7527ам AcreMax LIBERTY 10.2 bu/ac increase HX VieldGord Com Barer **81%** WINS managed trials

*2 year (2017-2018) Corn Yield Data Summarized from large-scale, grower and Pioneer IMPACT plots across Western Canada as of May 23, 2019.

GRAIN CORN

Pioneer [®] Brand Product	Technology Segment	Western Canadian Corn Heat Units	CRM 5	Silage CRM	Silk CRM	GDUs to Silk	Root Strength	Stalk Strength	Ear Flex	O Plant Height	Ear Height	Husk Cover	9 Silage Yield	2 Starch and Sugar, %	Fibre Digestibility	6 Whole-Plant Digestibility	Silage Crude Protein	17 Milk or Beef Per Acre	Beef Per Acre	Milk or Beef Per Ton
	r				RA	TING	S*			1										
P6909r	}	1950	73	69	70	890	6	7	3	3	4	3	6	9	5	8	6	7	7	7
39F44		2000	73		70	890	4	4	2	3	4	3	5	8	9	8	8	7	5	8
Р7005ам™		2000	70	68	74	940	7	3	3	3	4	6	6	8	6	7	9	7	7	7
Р7202ам™		2050	72	71	69	880	6	5	2	3	4	5	5	9	9	9	8	7	7	8
Р7211ам™		2050	72	71	70	890	5	6	2	3	4	4	8	9	9	8	7	9	9	9
P7213 r		2050	72	71	75	950	7	4	6	3	4	3	6	8	8	8	9	6	6	9
P7417 _R		2100	74	74			5	7		3	5		7	4	8	8	9			
P7455r		2100	74	70	74	940	8	8	5	3	4		8	9	8	8	8	7	7	8
Р7417ам™		2125	74	74			5	7		3	5		7	4	8	8	9			
Р7527ам™		2150	75	75	78	980	5	5	5	3	4	4	9	8	9	9	8	9	9	9
P7527 amxt™		2150	75	75	78	980	5	5	5	3	4	4	9	8	9	9	8	9	9	9

NOTES

*For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 48.

9 OUTSTANDING 1 POOR INSUFFICIENT DATA

All Pioneer® brand corn products are available with DuPont™ Lumivia® insecticide seed treatment, which offers excellent protection against key early-season corn pests. Lumivia[®] is not considered a Class 12 pesticide under Ontario Regulation 63/09 of the Pesticides Act. Select Pioneer® brand corn products are available treated with high-rate seed treatment (Poncho[®] 1250 + VOTiVO[™] / clothianidin), which are Class 12 pesticides. For more information, talk with your Pioneer sales representative.



Р7527ам™

P7527AM[™]

2150 heat units

AcreMax LIBERTY

2150 heat units

AcreMax LIBERTY

HX

Roundup Ready







LAGE CORN

160.7 bu/ac

Pioneer [®] Brand Product	L Technology Segment	Western Canadian Corn Heat Units	CRM	Silk CRM	© Phy.CRM	GDUs to Silk	GDUs to Phy. Maturity	Stalk Strength	Mid-Season Brittle Stalk	Root Strength	G Stress Emergence	Drought Tolerance	Staygreen	2 Grain Drydown	Ear Flex	© Test Weight	© Plant Height	Ear Height	Husk Cover	Goss's Wilt
					RA	TING	S*													
P7861 r		2200	78					7	5	6	4	8	6	5		5	7	7		6
Р7861ам™		2250	78					7	5	6	4	8	6	5		5	7	7		6
Р7940ам™		2275	79					7	7	7	4	7	5	6		6	5	7		5
Р7958ам™		2275	79	84	83	1060	1960	6	4	7	5	6	6	4	4	6	5	5	3	5
P8034	Conventional		80	82	85	1030	2020	8	4	8	4	6	5	7	3	5	4	4	4	5
Р8234 ам™		2400	82	84	85	1060	2020	8	4	8	4	6	5	7	3	5	4	4	4	5
Р8352ам™		2425	83					7	6	7	4	7	3	6		5	5	6		4
P8352 amx™			83					7	6	7	4	7	3	6		5	5	6		4
Р8407ам™		2450	84					7	3	7	4	8	6	3		4	7	7		5
P8673 xr		2550	86	86	84	1080	1990	5	6	8	5	5	4	7	5	5	6	7	7	4
Р8736ам™	AcreMax LIBERTY 🛃 😿 🔮	2550	87					6	4	7	4	7	8	3		4	8	8		6
P8581 R		2575	85	94	89	1180	2120	8	5	7	5	7	5	7	7	5	7	7	4	5
Р8700 ам™		2600	87	85	87	1070	2070	4	6	7	5	8	3	5	5	5	3	4		6
P9188	Conventional	2600	91	89	91	1120	2170	6	5	8	4	7	4	4	5	6	4	4	6	5
Р8989 ам™		2625	89					7	7	5	5	7	7	3		5	5	7		5
₽8989 амхт™			89					7	7	5	5	7	7	3		5	5	7		5
Р9188ам™		2650	91	89	91	1120	2170	6	5	8	4	7	4	4	5	6	4	4	6	5
Р9330ам™		2700	93	95	94	1190	2240	4	5	7	6	6	3	6	5	6	7	6	5	7

NOTES

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9 OUTSTANDING 1 POOR INSUFFICIENT DATA

All Pioneer[®] brand corn products are available with DuPont[™] Lumivia[®] insecticide seed treatment, which offers excellent protection against key early-season corn pests. Lumivia® is not considered a Class 12 pesticide under Ontario Regulation 63/09 of the Pesticides Act. Select Pioneer® brand corn products are available treated with high-rate seed treatment (Poncho® 1250 + VOTiVO™ / clothianidin), which are Class 12 pesticides. For more information, talk with your Pioneer sales representative.





158.9 bu/ac		154.3 bu/ac	
940am	VS	DeKalb® 33-78RIB	
bu/ac increa	se	24	
6 WI	IS	large-scale, gro managed trials	we



*2 year (2017-2018) Corn Yield Data Summarized from large-scale, grower and Pioneer IMPACT[™] plots across Western Canada as of May 23, 2019.

RAIN CORN

Pioneer [®] Brand Product	Technology Segment	Western Canadian Corn Heat Units	CRM 2	Silage CRM	Silk CRM	GDUs to Silk	Root Strength	Stalk Strength	Ear Flex	© Plant Height	Ear Height	Husk Cover	D Silage Yield	Z Starch and Sugar, %	Eibre Digestibility	6 Whole-Plant Digestibility	Silage Crude Protein	Milk or Beef Per Acre	BMilk or Beef Per Ton
				R/	ATIN	IGS*													
P7861 r		2200	78	80			6	7		7	7		7	8	8	9	9		
P7861 am™		2250	78	80			6	7		7	7		7	8	8	9	9		
Р7940ам™		2275	79	81			7	7		5	7		7	5	8	9	9		
Р7958ам™		2275	79	75	84	1060	7	6	4	5	5	3	7	5	7	5	7	7	6
P8034	Conventional		80	82	82	1030	8	8	3	4	4	4	8	6	8	8	9	7	8
Р8234ам™		2400	82	85	84	1060	8	8	3	4	4	4	8	6	8	8	9	7	8
P8352 am™		2425	83	84			7	7		5	6		7	5		9	9		
P8352 amx™			83	84			7	7		5	6		7	5		9	9		
Р8407 ам™		2450	84	86			7	7		7	7		8	3	8	8	8		
P8673 xr		2550	86	86	86	1080	8	5	5	6	7	7	8	9	9	9	6	8	9
Р8736ам™		2550	87	87			7	6		8	8		9	6	8	8	7		
P8581 r		2575	85	89	94	1180	7	8	7	7	7	4	8	6	5	6	9	7	7
P8700 am™		2600	87	83	85	1070	7	4	5	3	4		8	8	8	8	7	9	8
P9188	Conventional	2600	91	85	89	1120	8	6	5	4	4	6	6	8	7	7	6	7	7
P8989 am™		2625	89	86			5	7		5	7		8	4	7	6	8	8	7
₽8989 амхт™			89	86			5	7		5	7		8	4	7	6	8	8	7
Р9188ам™		2650	91	85	89	1120	8	6	5	4	4	6	6	8	7	7	6	7	7
Р9330ам™		2700	93	94	95	1190	7	4	5	7	6	5	9	1	6	5	8	8	5

All Pioneer[®] brand corn products are available with DuPont[™] Lumivia[®]

insecticide seed treatment, which offers excellent protection against key

early-season corn pests. Lumivia® is not considered a Class 12 pesticide

(Poncho® 1250 + VOTiVO™ / clothianidin), which are Class 12 pesticides.

under Ontario Regulation 63/09 of the Pesticides Act. Select Pioneer® brand corn products are available treated with high-rate seed treatment

For more information, talk with your Pioneer sales representative.

NOTES

*For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 48.

9 OUTSTANDING 1 POOR INSUFFICIENT DATA NEW

P 7958 am™	
275 heat units	

P7958AM[™]

P8234AM[™]

VasjdGard Corn Barer

P8700AM[™]

2600 heat units

AcreMax LIBERTY

HX

Roundup Roady

2400 heat units

AcreMax LIBERTY

HX

2275 heat units

AcreMax LIBERTY

HX

Roundup Ready

Roundup Roady

6.6 Increase in Starch

21.10	19.88
Tons/A	cre (35% DM)
Pioneer [®] I	brand P7558AM
2 large-scale, gr	ower managed trials

3% Increase in Starch

23.69 21.9	90

Tons/Acre (35% DM)

Pioneer[®] brand P7958_{AM} 3 large-scale, grower managed trials

8.0% Increase in Starch

22.23 21.39

Tons/Acre (35% DM)

Pioneer[®] brand P8234_{AM} 1 large-scale, grower managed trials

1.1% Increase in Starch



2 year (2017-2018) corn silage data summarizeda from large-scale, grower managed plots across Western Canada as of March 12, 2019.

30 | CORN

AGF CORN







Grazing Corn

Corn offers a high quality and high quantity feed choice that will out-perform other feed options available to producers for winter grazing beef cattle.

In grazing situations, corn will help lower your cost of production, increase your cow-days per acre and maintain cow health and condition throughout the winter grazing season.

Some things to consider when planning for winter grazing your corn crop:

Corn Hybrid Choice & Management for Grazing

- Grazing corn should be at 30-50% milk line at first killing frost
- Choose a hybrid that is 150-300 CHU later than your corn heat unit area to reduce risk of acidosis and increase palatability
- Plant multiple hybrids to cover off an earlier or later season 2-3 hybrids spread over 100-200 CHU differences

Grazing Management & Monitoring

 Take a whole-plant representative feed sample and have a feed test analysis completed

Initial Feed Introduction

- Gradually introduce corn feed, especially for naive cows
- Full rumen entry recommended
- · Supplemental feed recommended based on feed analysis
- Limit to small-grazing paddock (2-3 hours of grazing)

General Needs for Beef Cows When Winter Grazing Corn

- · Ensure good, clean, adequate water supply and shelter source
- Ensure a proper mineral package is provided, based on your feed analysis
- Limit grazing the animals on a 2-3 day rotation for proper nutrition
- Document the crop stage at first killing frost and manage accordingly e.g., if corn was at blacklayer, add supplemental roughage to minimize risk of acidosis

FAQ's

How many acres do I need to graze my cows?

- Expect between 150 300 cow-days per acre
- e.g. 200 cows grazing for 30 days will need:
- 30 days X 200 cows = 6000 cow grazing days required.
- Based on 200 cow-days per acre, you would require: 6000 cow grazing days ÷ 200 cow-days per acre = 30 acres of corn

What will my feed cost be?

- Range from \$0.70 \$1.40 per cow, per day including yardage
- Corn produces more tons of feed per acre
- Fewer acres are required to feed the same amount of cattle

Approximate Economics of Swath **Grazing Barley vs. Corn Grazing**

Grazing 100 – 1000 lb cows for 30 days										
Silage Yield										
Barley wet weight	Corn wet weight									
yield (Ton/acre)	yield (Ton/acre)									
8	12									
Input Costs										
Approx. Barley	Approx. Corn									
Input Costs	Input Costs									
\$180 / acre	\$260 / acre									
Grazing	Expenses									
(cost/c	ow/day)									
Barley Feed	Corn Feed									
\$1.21	\$1.12									

Corn is an Important Feed Source for Animals

Our corn silage products provide excellent early starch production for high energy feed and an early silage harvest. They also feature excellent stay-green characteristics for green harvest and high tonnage.

Key Benefits of Planting Corn for Silage

- Corn has lower starch digestion rates per hour in rumen than barley, which means possibly lower incidence of acidosis, and better balance between rumen fermentation and intestinal digestion
- When considering the best silage option for your operation, look first at the importance of starch in the animal diet
- Corn produces almost 2X the tons of wet silage harvested per acre than barley
- Corn also has better water use efficiency compared to wheat, barley or oats (Teutsch, 2013)

Things to Keep in Mind About Corn Silage

- When considering the best silage option for your operation, remember the importance of starch as an energy source in the diet
- Match the hybrid rating to the CHU of your location to ensure optimal starch production
- At silage maturity, the corn plant is still producing starch the longer it stays in the field, the more starch is produced
- To ensure silage success adhere to proper silage whole-plant moisture when determining harvest timing
- When comparing costs of barley silage versus corn silage, use a per ton basis while per acre costs are higher for corn silage, production costs on a per ton basis favour corn silage

How Nutrient Composition Compares for Barley and Corn Silages



Barley vs Corn: Average Tons of Wet Silage Harvested/Acre

Acres required to produce 10,000 tons/acre of silage:

- Average barley silage yield 6.75 tons (wet)/acre = 1481 barley acres needed
- Average corn silage yield 12.5 tons (wet)/acre = 800 corn acres needed
- Corn silage can free up 680 acres available for alternative crops on your farm

Corn silage, on a per-ton basis, is more cost effective than barley silage.

ILAGE CORN

Corn silage is usually 2X-3X higher starch compared to barley silage Barley silage is usually 3-4% points higher crude protein compared to corn silage

Energy sources in corn: 65% grain 10% cell contents 25% NDF (fibre)

CORN 33

Pioneer[®] brand Optimum[®] and AcreMax[®]

Maximized Yields And Simplified Refuge Compliance

Pioneer is committed to delivering integrated refuge products that provide growers with increased flexibility and convenience for insect resistance management (IRM). Pioneer® brand Optimum® and AcreMax® products bring multiple modes-of-action for insect protection, to help increase overall farm yields by reducing refuge and extending the durability of important traits.

	AcreMax [*]	Sptimum AcreMax XTreme
Technologies	YieldGard® Corn Borer (YGCB) x Herculex® I (HX1) + herbicide tolerant refuge (LL, RR2) (AM, LL, RR2)	Agrisure® RW (RW) x Herculex® XTra (HXX) x YieldGard® Corn Borer (YGCB) + herbicide tolerant refuge (LL, RR2) (AMXT, LL, RR2)
Pests Controlled or Suppressed	European Corn Borer Corn Earworm Fall Armyworm Black Cutworm	European Corn Borer Corn Earworm Fall Armyworm Black Cutworm Western Corn Rootworm Northern Corn Rootworm
Description	Single bag product with integrated corn borer refuge	Single bag product with integrated corn borer and corn rootworm refuge
Benefits	 Ultimate simplicity Maximized farm yields Technology preservation 	 Simplifies refuge Reduced refuge, maximum yields Technology preservation Proven performance Multiple modes of insect protection
Refuge	Integrated refuge; no separate refuge required	Integrated refuge; no separate refuge required
Refuge Examples	Acree Max Acree Max	Rented National LL 402 with moder 120

Corn Traits and Technologies

Efficacy levels based on Pioneer university entomologist results against susceptible insect populations. Product responses can vary by location, pest population, environmental conditions and agricultural practices.

		European Com Borer #	Corn Earworm #	Western Bean Cutworm *	Fall Armyworm #	Black Cutworm	Southwestern Corn Borer	Lesser Comstalk Borer	Sugarcane Borer	Southern Cornstalk Borer	Stalk Borer (Common)	Western Corn Rootworm #	Northern Corn Rootworm	Mexican Corn Rootworm
Technology Segment Identifiers	Corn Technology Traits				l	nsed	ct Ef	fica	cy Lo	evel	S			
RR2	Roundup Ready® Corn 2													
LL	LibertyLink®													
AM, LL, RR2	Optimum® AcreMax®, LibertyLink, Roundup Ready Corn 2 (Corn Borer)	C	S		C	C	C	C	C	C	S			
AMXT, LL, RR2	Optimum® AcreMax® XTreme, LibertyLink, Roundup Ready Corn 2 (Corn Borer/Rootworm)	C	S		C	C	с	с	C	С	s	C	C	C

C = Controlled S = Supressed Blank = Not Labeled All scores of integrated refuge products are based upon the major component.

Various factors, including pest pressure, reduced susceptibility, and insect resistance in some pest populations may affect efficacy of certain corn technology products in some regions. To help extend durability of these technologies, Pioneer recommends you implement Integrated Pest Management (IPM) practices such as crop rotation, cultural and biological control tactics (including rotating sources of Bt-protected corn traits), pest scouting, and appropriate use of pest thresholds when employing management practices such as insecticide application. You must also plant the required refuge when using these technologies. Please contact your authorized Pioneer Representative or consult with your local university extension for more information regarding insect resistance management guidelines, best management practices and to understand whether there has been a shift in susceptibility or insect resistance with certain pests documented in your area.

* Western bean cutworm has been removed from the Pioneer product use statement for several corn products that contain Herculex® I (Cry1F) but lack another mode of action for western bean cutworm due to a wide-spread decrease in susceptibility indicating the possibility of field-evolved resistance to Cry1F in most geographies.

GRAIN CORN

SOYBEAN



Key Benefits of Pioneer[®] brand A-Series Soybeans:

- Multiple product choices with Roundup Ready[®] 2 Xtend trait in all maturity groups
- Maximize yield and profitability on your soybean acres •
- Provide varieties suited to all environments in • Western Canada

Pioneer[®] brand soybeans with the Roundup Ready[®] 2 Xtend trait offer you a resistance management tool to help protect your A-Series soybean yield when glyphosate-resistant weeds (like kochia and **ROUNDUP READY 2** wild buckwheat) are present.



NEW FEATURED SOYBEAN VARIETIES





2300 HEAT UNITS

- New 00 maturity Xtend soybean with excellent harvest standability and early growth scores
- · Very good anti-shatter score
- 4 bu/ac higher yielding than Pioneer® variety P000A87R

POO5A83X ROUNDUP READY 2 SOVERANS **2375 HEAT UNITS**

• New mid maturity soybean with SCN resistance

• Good canopy width soybean with very good



- Very good field emergence and

· Performs well on heavy soils

yield potential

SOYBEAN







• New 00 maturity Xtend soybean with excellent yield potential

· Very good harvest standability





• New Xtend soybean variety with very good plant height for maturity

good harvest standability scores



Your better beans are here.



Better genetics. Better yields. Better for your community. Introducing Enlist E3[™] soybeans, a more advanced seed with high yield potential and a robust herbicide tolerance. Spray it with Enlist Duo™, part of the Enlist[™] weed control system, for a better low drift, near-zero volatility solution.

Talk to your local Pioneer® sales representative.

Simply Better Soybeans. | Learn more at enlistcanada.ca





Advancing Modern Farming

The Enlist[™] weed control system will change how you think about weed management in soybeans. Farmers will be able to purchase Pioneer® brand Enlist E3[™] varieties for western Canada in the future, and will be able to take control of resistant and hard-to-control weeds..

INTRODUCING THE ENLIST[™] WEED CONTROL SYSTEM

The Enlist weed control system will help growers meet the challenge of farming today, and in the future.

Key Benefits of the Enlist weed control system:

- Provides robust crop tolerance to Enlist Duo™, a new herbicide featuring glyphosate and new 2,4-D choline, containing Colex-D[™] Technology
- Enables the use of a multi-mode of action herbicide approach against hard-to-control and resistant weeds
- Includes a stewardship initiative to promote responsible use and sustain long-term performance

ENLIST E3 SOYBEANS

Enlist E3 soybeans provide elite, high yielding soybean genetics and industry leading multi-mode of action herbicide tolerance.

- Enlist E3 soybeans provide robust herbicide tolerance to 2, 4-D, glyphosate and glufosinate
- Enlist Duo herbicide can be used in Enlist E3 soybeans with confidence as a pre-emergent or post-emergent herbicide
- Enlist E3 soybeans provide an alternate glyphosate tolerance trait source
- A multi-mode of action program approach is recommended to minimize the potential for the development of resistant weeds. This includes the use of residuals and complementary effective modes of action for pre-emergent and in-crop weed control



• Bo • Cr • Ec • Gr • QI • Vo • Blu • Bu wi • Co • Co • Ch

• Gi

ENLIST DUO[™] HERBICIDE

Enlist Duo herbicide, a proprietary blend of glyphosate and 2,4-D choline, contains Colex-D™ Technology. Enlist Duo has two modes of action to provide exceptional weed control and herbicide resistance management.

COLEX•D [™] technology									
		WHAT GO	ES INTO IT						
2,4-D choline Latest Proprietary with Colex-D formulation manufacturir Technology science process									
		WHAT IT	DELIVERS						
Near zero volatility	Mi pr for	nimized otential physical drift	Low odour		Improved handling characteristics				

KEY WEEDS CONTROLLED BY ENLIST DUO

Enlist Duo controls more than 70 weeds, including the toughest to control. Here's a snapshot of some of the most important.

WEEDS CONTROLLED									
Grass Weed S	pecies								
 Barnyard grass Crabgrass Fall panicum Green foxtail Quack grass Volunteer barley 	 Volunteer wheat Wild oats Wild proso millet Yellow foxtail And many more 								
Broadleaf Weed	l Species								
 Bluebur Buckwheat, tartary & wild Canada fleabane* Canada thistle Chickweed Cocklebur Cormon ragweed* Corn spurry Dandelion Eastern black nightshade Field horsetail Flixweed 	 Hemp-nettle Kochia* Lady's-thumb Lamb's-quarters Morning glory Palmer Amaranth Red root pigweed Smartweed Sow thistle Velvetleaf Vetch Volunteer canola* Waterhemp And many more 								

*Including biotypes resistant to glyphosate and ALS modes of action



Pioneer® Brand Product	 Relative Maturity 	Canadian Heat Units	Technology Segment	Harvest Standability	© Field Emergence	Phytophthora Gene	Gi Phytophthora Field Tolerance	Brown Stem Rot Marker Predicted	Iron Chlorosis	Downy Mildew	 White Mold 	2 SCN Source	© Canopy Width	© Shattering	0 Plant Height for Maturity	11 % Protein @ 13% Moisture	Seed Size Range	Pubescence Color	E Hila Color	Pod Color
RATINGS*																				
P0007A73 x	0007	2175	ROUNDUP READY 2	8**	7	1a	4**	MS	6	4**	5**		5**	7**	5		2750-3350	Т	BR	BR
P000A52r	000	2275	genuity ROUNDUP READY 2 YIELD SOYBEANS	7**	7	1c	3	HT	7		6**		6**		5	34.8	2900-3500	Т	BR	BR
P001A48X	001	2300	ROUNDUP READY 2	8**	8	1c	5**	MS	5	6**	4**		6**	7**	5		2950-3550	Т	ΤN	TN
P002A63 r	002	2325	ROUNDUP READY 2 YIELD SOYBEANS	8	8	1c	5	MS	6	6**	4		6	7**	5	34.9	2750-3350	Т	ΤN	TN
P003A97x	003	2350	ROUNDUP READY 2	7	7	1k	4	MS	6		4**	P188788	5**		4	34.8	2700-3300	L	G	BR
P005A83 x	005	2375	ROUNDUP READY 2	7	8	1c	5**	MS	6**	5**	5**	Peking	6**	8**	5		2600-3200	Т	BL	BR
P005A27 x	005	2400	ROUNDUP READY 2	6	8	1c	4	MS	6	8**	5**		6	7**	4	35.0	2350-2950	L	BR	ΤN
P006A37 x	006	2425	ROUNDUP READY 2	7	7	1c	5	MS	6	7**	4**		5	7**	5	33.3	2550-3150	Т	BR	BR
P007A08x	007	2450	ROUNDUP READY 2	6	7	1c	4	HT	5		5**		5**		7	34.4	2800-3400	Т	G	BR
P007A90 r	007	2450	ROUNDUP READY 2 VIELD SOYBEANS	7	8	1c	5	MS	7	5**	6	Peking	5	8**	6	33.7	2450-3050	Т	BL	BR
P00A49x	00	2525	ROUNDUP READY 2	6	7	1c	5	ΗT	7		5	P188788	4	5**	6	33.7	2750-3350	L	BR	BR
P00A75x	00	2525	ROUNDUP READY 2	7	7	1k	5	MS	6		4		6**	6**	5	33.6	2350-2950	G	IB	BR

NOTES

Symbol indicates above average resistance to: 🜚 Soybean Cyst Nematode.

All Pioneer brand soybean varieties listed above have purple flowers.

** Ratings denoted with a double asterisk (**) reflect preliminary data subject to change when additional data becomes available.

*For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 49.

9 OUTSTANDING 1 POOR INSUFFICIENT DATA

All Pioneer[®] brand soybean products are available with LumiGEN[™] insecticide seed treatment, which offers excellent protection against key early-season pests. Seed treated with this insecticide seed treatment is not considered a Class 12 pesticide under the Ontario Regulation 63/09 of the Pesticides Act. For more information, talk with your Pioneer sales representative.

POODLAAABX 2300 heat units	28.6 bu/ac 24.7 bu/ac P001A48x vs P000A87R 3.9 bu/ac increase 87% WINS 15 large-scale, grower managed trials
POOSA97x 2350 heat units	32.2 bu/ac 31.1 bu/ac P003A97x vs S0009-M2 1.2 bu/ac increase 67% WINS large-scale, grower managed trials
POO6A37 x 2425 heat units	30.9 bu/ac 28.9 bu/ac 28.9 bu/ac P006A37x vs P006T46R 2.1 bu/ac increase 92% WINS 12 large-scale, grower managed trials
P007A08 x	32.7 bu/ac 30.8 bu/ac 9007A80x vs 25-10RY

2425 heat units

ROUNDUP READY 2

1.8 bu/ac increase

50% WINS

6

managed trials

SOYBEAN



Lumisena

FUNGICIDE SEED TREATMENT

Best-in-class protection against phytophthora.

See the light with Lumisena[™].

Introducing new Lumisena[™] Fungicide seed treatment for soybeans.

NEW Corteva Agriscience Lumisena[™] provides the best protection against phytophthora for healthier, more vigourous soybean stands and higher yield potential.

Key benefits

- Most advanced seed-applied technology to protect against phytophthora
- Enhances emergence and vigour to maximize yield potential
- Improves soybean plant stands
- New class of chemistry for improved above and below ground disease control

Protection against phytophthora

- Phytophthora is the #1 disease in soybeans and can significantly reduce yields
- NEW Lumisena[™] fungicide seed treatment offers an entirely new mode of action to provide the best protection against phytophthora
- Seed treatment research has demonstrated that Lumisena[™] will provide greater protection against phytophthora than existing seed treatments

Look at the results

The first six weeks are important for a soybean crop's yield potential. Observe the difference in performance between two soybean plants, 40 days after planting, treated with the high rate of metalaxyl versus Lumisena[™] when phytophthora is present.

Lumisena[™] is the new, best choice for protection against phytophthora. It is the only seed-applied technology that delivers residual protection across multiple stages of the phytophthora pathogen's life cycle:

preventative

eradicative

 curative antisporulant



Granular

Streamline your scouting efforts with industry-leading Directed Scouting tools in Granular Insights.

Features like notifications, smart field rankings, and high-frequency satellite imagery will help you take the guesswork out of scouting.

Know more. Grow more. Make more.



A grower spotted an area of unusually high vegetation early in the season using the Vegetation Index. Upon scouting, the dark spot turned out to be a stubborn weed pressure.

A timely herbicide application formulated to target the weed eliminated the issue and prevented yield loss at harvest.

Getting Started is Easy

Create an account and start adding fields in 90 seconds, with auto-detected field boundaries and a simple interface. Access your fields from anywhere using the mobile app or website.

Notifications





.....

Get a list of the top fields in most need of scouting sent straight to your inbox every week.

Check the complete rankings of all your fields based on a proprietary algorithm that rates vegetation changes.

Learn more about Granular Insights, talk to your local Pioneer sales representative for more information or get a demo at **ca.granular.ag**

For more information, visit **Lumisena.corteva.ca**

Catch Problems Faster

Satelite Imagery

Pinpoint where you need to scout with high frequency 3-m imagery combined with the GPS-enabled Find Me feature.

Pioneer® Brand Product	Herbicide System	Relative Maturity	Yield	ယ Emergence	Drydown	Percent Oil	A Mid-Oleic Score	о High-Oleic Score	Self Fertility	9 Plant Height	2 Stem Curvature	Neck Strength	Stalk Strength	Root Strength	Rust Field Tolerance	Root Sclerotinia	Head Sclerotinia	Phomopsis	Midge Score	G Downy Mildew Race Resistance	Test Weight	Hull Score	11 PCT013
RATINGS*																							
MID-OLEIC (NuSun [®] Oil)																							
P63ME70	ExpressSun	37	8	6	6	7	8		9	6	8	8	7	7		7	6	6		1-4	5	5	5
P63ME80	ExpressSun	38	8	6	6	7	8		8	6	7	6	7	7		5	6	6	6	1-4	7	4	5
	LINOLEIC (Conventional Oil)																						
63A21		29	7	8	7	4	7		8	8	7	8	9	7	1	4	4	3	3	1	6	6	4
HIGH-OLEIC																							
P63HE60	ExpressSun	37	8	6	6	7		8	8	6	7	6	7	7		5	6	6	6	1-4	8	4	5

NOTES

Trait ratings provide key information useful in selection and management of Pioneer[®] brand products in your area. Scores are based on period-of-years testing through 2018 harvest and were the latest available at time of printing. Some scores may change after 2019 harvest. Contact your Pioneer sales representative before planting for the latest trait rating information.

IMPORTANT: Information and ratings are based on comparisons with other Pioneer brand products, not competitive products. Information and ratings are assigned by Pioneer Agronomists and Research Managers, based on average performance across area of adaptation under normal conditions, over a wide range of both climate and soil types, and may not predict future results. Product responses are variable and subject to any number of environmental, disease and pest pressures. Please use this information as only part of your product positioning decision. Refer to www.pioneer.com/products or contact a Pioneer sales representative for the latest and most complete listing of traits and scores for each Pioneer brand product and for product placement and management suggestions specific to your operation and local conditions.

9 OUTSTANDING 1 POOR INSUFFICIENT DATA

*For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 49.

Pioneer® Brand Product	5 Forage Yield	Fall Dormancy	© Winterhardiness	Stand Persistence	Standability/Lodging Resistance	Relative Forage Quality	G Milk Yield per Acre	O Disease Resistance Index	Bacterial Wilt	Verticillium Wilt	Fusarium Wilt	Anthracnose (Race 1)	Phytophthora Root Rot	Aphanomyces Root Rot (Race 1)	Aphanomyces Root Rot (Race 2)	Spotted Aphid	Pea Aphid	Stem Nematode	Northern Root-Knot Nematode
RATINGS*																			
			FOR	AGE	E QU	ALI1	гү а	ND	LOD	GIN	IG R	ESI	STAI	NCE					
54014	8	4	VH	8	8	9	8	34	HR	HR	HR	HR	HR	HR	R	R	R	MR	R
	MUSCLE/HIGH YIELD VARIETIES																		
54Q29 ⁺	9	4	VH	9	7	8	9	34	HR	HR	HR	HR	HR	HR	R	R	HR	HR	
55027	9	5	VH	5	6	8	9	34	HR	HR	HR	HR	HR	HR	R	R	R	HR	
55V50	9	5	VH	9	6	6	8	35	HR	HR	HR	HR	HR	HR	HR	R	R	HR	
					PRI	ΕΜΙ	UM	DOF	RMA	NTE	BLEI	ND							
54B66 [™] brand	7	4	VH	7	7	7	7	30	HR	R	R	HR	HR	R	MR	R	R	MR	
NOTES																			

N

** All Pioneer products are varieties unless designated with brand, in which case it is comprised of more than one Pioneer® brand variety.

9 OUTSTANDING 1 POOR INSUFFICIENT DATA

DISEASE/PEST RESISTANCE KEY:

HR HIGHLY RESISTANT R RESISTANT MR MODERATELY RESISTANT LR LOW RESISTANCE S SUSCEPTIBLE

*For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 49.

† Registration Pending

ALFALFA



ALFALFA **45**

SILA-BAC[®] BRAND INOCULANTS

SILA-BAC[®] BRAND NUTRIVAIL[®] FEED TECHNOLOGY

Sila-Bac® brand inoculants can help provide increased dry matter intake, more stable silage and enhanced fibre digestibility - which helps you produce more milk or beef.

11CFT

Corn Fibre Technology

- Multi-strain with L. buchneri
- Improves fibre digestibility
- Enables higher corn silage inclusion rates
- Reduces shrink and improves bunklife of the silage face during feedout



11AFT

Alfalfa Fibre Technology

- Multi-strain with L. buchneri
- Improves alfalfa fermentation
- Improves fibre digestibility
- Improves forage energy density to help reduce supplemental feeding cost

NUTRIVAIL.

11GFT

Grass Fibre Technology

- Multi-strain with L. buchneri
- Improves forage energy density to help reduce supplemental feeding cost
- Improves grass/cereal fermentation
- Improves fibre digestibility

NUTRIVAIL.

11C33

Corn Silage

- Multi-strain with fast-acting* L. buchneri
- Reduces heating,
- increases bunklife
- Minimizes dry matter loss
- Provides improved bunklife and stable feed in 7 days

RAPID REACT.

11B91

High-Moisture Corn

- Multi-strain with fast-acting* L. buchneri
- Improves fermentation
- Retains nutrient content and enhances digestibility of ensiled high-moisture corn
- Provides improved bunklife and stable feed in 7 days

RAPID REACT.

	Sila-Ba Feed Te	c [®] Brand Nu chnology	utrivail®	Sila-Ba	Sila-Bac [®] Brand Inoculants																			
	CORN FIBRE TECHNOLOGY	ALFALFA FIBRE TECHNOLOGY	GRASS FIBRE TECHNOLOGY	CC SIL	DRN AGE	HIGH-MOIS	TURE CORN		GRASS / CEREAL		Multi-Crop • Reduces dry matter loss • Promotes faster silage													
	11CFT	11AFT	11GFT	11C33	1174	11B91	1189	11G22 11H50		1174	fermentation, retaining more energy • Improves forage quality for													
	Multi-strain with <i>L. buchneri</i>	Multi-strain with <i>L. buchneri</i>	Multi-strain with <i>L. buchneri</i>	Multi-strain with fast acting [†] <i>L. buchneri</i>	Unique blend of patented and/or proprietary strains of Lactobacillus plantarum and Enterococcus faecium	Multi-strain with fast acting† <i>L. buchneri</i>	Unique blend of patented and/or propri- etary strains of <i>Lacto- bacillus plantarum</i> and <i>Enterococcus faecium</i> for high moisture corn	Multi-strain with fast acting ⁺	A unique blend of patented and/or proprietary strains of <i>Lactobacillus plantarum</i> formulated to significantly reduce protein degradation	Unique blend of patented and/or proprietary strains of Lactobacillus planta- rum and Enterococcus faecium	sliage with higher energy													
mproves	**	**	**	**	**	***	***	**	***	***	11H50													
mentation											Alfalfa Silage													
nhances Bunklife	***	***	***	***	*	***	*	*	*	*	*	*	*	*	*	*	* ***		*** ** *		* *** **		*	 Improves dry matter diges Reduces dry matter loss Promotes faster, more effi
mproves Fibre gestibility	***	***	***	**	**			*	*	*	fermentation • Helps improve alfalfa silage nutritional quality													

11H50

Alfalfa Silage

• Improves dry matter digestibility

- Reduces dry matter loss
- Promotes faster, more efficient fermentation
- Helps improve alfalfa silage nutritional quality

Relative Ratings *** = Exceptional; ** = Very Good; * = Good

* Rapid React® aerobic stability technology. Improved aerobic stability and reduced heating is relative to untreated silage. Actual results may vary. The effect of any silage inoculant is dependent upon management at harvest, storage and feedout. Factors such as moisture, maturity, chop length and compaction will determine inoculant efficacy.

NOTES

*For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 49.

INOCULANTS

11G22

Grass/Cereal

- Multi-strain with fast-acting* L. buchneri
- Enhances fermentation in grass/cereal silage
- Minimizes aerobic dry matter loss
- Provides improved bunklife and stable feed in 7 days

1189

High-Moisture Corn

- Helps corn ferment faster to retain more energy
- Retains nutrient content and enhances digestibility of ensiled high-moisture corn



IMPORTANT: Trait rating scores provide key information useful in selection and management of Pioneer® brand products in your area Information and ratings are based on comparisons with other Pioneer brand products, not competitive products. Information and scores are assigned by Pioneer Research Managers. Scores are based on period-of-years testing through 2018 harvest and were the latest available at time of printing. Some scores may change after 2019 harvest. Scores represent an average of performance data across areas of adaptation, multiple growing conditions, and a wide range of both climate and soil types, and may not predict future results. Individual product responses are variable and subject to a variety of environmental, disease and pest pressures. Please use this information as only one component of your product positioning decision. Refer to www.pioneer.com/products or contact a Pioneer sales professional for the latest and most complete listing of traits and scores for each Pioneer brand product.

- 1 MATURITY: 5 = Medium-Early; 6 = Medium.
- 2 HERBICIDE TOLERANT TRAIT: Hybrids with the Genuity® Roundup Ready[®] gene (RR) are tolerant to labelled rates of Roundup® branded herbicides. This technology allows for post-emergent applications of Roundup without crop injury or stress (see herbicide label). Labelled Roundup herbicide should only be used over the top of those hybrids and varieties that carry the Roundup Ready designation. Hybrids with the CLEARFIELD® trait (CL) are tolerant to labelled rates of Beyond®, Odvssev® or Absolute® herbicides. This technology allows for post-emergent applications of these herbicides without crop iniury or stress (see herbicide label). Labelled herbicides should only be used over the top of those hybrids and varieties that contain the CLEARFIELD trait. Genuity® and Roundup Ready® are registered trademarks used with permission of the company Monsanto.®CLEARFIELD is a registered trademark of BASF. Hybrids and varieties with the LibertyLink® gene (LL) are resistant to Liberty® herbicide. Liberty®, LibertyLink® and the Water Droplet Design are trademarks of Bayer.



- 3 BLACKLEG: R = Resistant; MR = Moderately Resistant.
- 4 BLACKLEG: 9 = Resistant, 1 = Susceptible.
- 5 SCLEROTINIA: 9 = Highly Resistant; 5 = Moderately Resistant; 1 = Susceptible.
- 6 CLUBROOT RESISTANCE: R = Resistant.
- 7 CLUBROOT RESISTANCE: 9 = Highly Resistant, 1 = Susceptible.
- 8 FUSARIUM WILT: R = Resistant.
- 9 EARLY GROWTH: 9 = Excellent, 1 = Poor. Recorded when plants are at 4-6 leaf stage. Rating based on relative plant health and leaf size
- 10 GREEN SEED CONTENT: 9 = Very low count (desired); 1 = Very high count.
- 11 STANDABILITY: 9 = Upright (desired): 1 = Severely lodged.
- 12 STRAIGHT CUT: E = Excellent, V = Very Good, G = Good, A = Average.
- 13 PLANT HEIGHT: 9 = Tall; 1 = Short (desired).
- 14 OIL CONTENT: Oil content is compared to long-term check Pioneer® brand 46A65. A change of one score represents approximately one per cent difference in oil content.



IMPORTANT: Trait rating scores provide key information useful in selection and management of Pioneer® brand corn products in your area. Information and ratings are based on comparisons with other Pioneer brand products, not competitive hybrids. Information and scores are assigned by Pioneer Research Managers. Scores are based on period-of-years testing through 2018 harvest and were the latest available at time of printing. Some scores may change after 2019 harvest. Scores represent an average of performance data across areas of adaptation, multiple growing conditions, and a wide range of both climate and soil types, and may not predict future results All products within a hybrid family receive the same score unless observations indicate a significant difference. Individual product responses are variable and subject to a variety of environmental, disease and pest pressures. Please use this information as only one component of your product positioning decision. Refer to www.pioneer.com/Canada or contact a Pioneer sales representative for the latest and most complete listing of traits and scores for each Pioneer brand product.

1 TECHNOLOGY SEGMENT: AM - Optimum® AcreMax® Insect Protection system with YGCB, HX1, LL, RR2. Contains a single-bag integrated refuge solution for above-ground insects. AMXT (Optimum® AcreMax® XTreme) - Contains a single-bag integrated refuge solution for above- and below-ground insects. The major component contains the Agrisure® BW trait, the YieldGard® Corn Borer gene, and the Herculex® XTRA genes. Agrisure® technology incorporated into these seeds is commercialized under a license from Syngenta Crop Protection AG. AMX (Optimum® AcreMax® Xtra) - Contains a single-bag integrated refuge solution for above- and below-ground insects. HX1 - The Herculex® I insect protection trait offers a high level of resistance to European corn borer; very good resistance to black cutworm and moderate resistance to corn earworm. HXX - Herculex® XTRA contains the Herculex I and Herculex RW genes for resistance to the same pests as Herculex I as well as protection against larvae of western corn rootworm and northern corn rootworm. LL - Contains the LibertyLink® gene for resistance to Liberty® herbicide. RR2 Contains the Roundup Ready[®] Corn 2 trait that provides crop safety for over-the-top applications of labelled glyphosate herbicides when applied according to label directions. YGCB - The YieldGard® Corn Borer gene offers a high level of resistance to



AcreMax AcreMax AcreMax AgrisureRW

European corn borer: and moderate resistance to corn earworm.

Herculex® insect protection technology by Dow AgroSciences and Pioneer Hi-Bred.®, [™] Herculex and the HX logo are trademarks of Dow AgroSciences LLC. LIBERTY, LibertyLink and the Water Droplet are trademarks of Bayer, Roundup Ready[®], YieldGard[®] and the YieldGard Corn Borer design are registered trademarks used under license from Monsanto Company. Agrisure® is a registered trademark of and used under license from, a Syngenta Group Company. Agrisure® technology incorporated into these seeds is commercialized under a license from Syngenta Crop Protection AG.

- 2 CRM (Comparative Relative Maturity): There is not an industry standard for maturity ratings so comparing products maturity and harvest moisture ratings between companies is usually difficult. Use the CRM rating to compare Pioneer® brand products with competitive hybrids of a similar maturity and harvest moisture. CRM ratings, and harvest moistures, for products within a family may vary slightly, depending upon the level of insect (ECB and CRW) infestation. Conventional and straight RR2 hybrids within a family will usually be 1-2 CRMs earlier than indicated, when insect infestations are moderate to heavy. One CBM difference is about 1/2 point of moisture difference at harvest
- 3 PHYSIOLOGICAL CRM: Measures differences in maturity to zero milkline stage. To help decide if a new product fits your area's growing season, compare its physiological CRM to a corn product that you plant or one that is successfully used in your area.
- 4 MID-SEASON BRITTLE STALK: Ratings determined by frequency and severity of stalk snappage at lower to middle stalk internodes from conditions usually favoured by rapid or optimum growth. Relative response of products can be affected by planting date. stage of growth, rate of growth, wind severity and other variables. Scores derived from both natural observations and artificial evaluation immediately prior to tasseling. NOTE: Scores do not reflect snappage enhanced by or due to herbicide interaction. The use of growth regulator herbicides such as 2,4-D and dicamba can increase the brittle snap potential of corn products. Products with lower brittle stalk ratings will require more caution and have a higher risk associated with the use of growth regulator herbicides. Early application, proper rates and application methods, along with hoth hybrid and herbicide selection can belo reduce this risk BRITTLE STALK PRECAUTION: In areas with higher potential for brittle stalk breakage, growers must balance the risk of planting products with brittle stalk ratings of less than 4 against the overall performance of more resistant products with higher ratings. All products have a period of susceptibility to brittle stalk. Products with below average ratings may have a longer period of susceptibility, or may experience more severe breakage relative to hybrids with higher scores during period of susceptibility.
- 5 STRESS EMERGENCE: All corn products are expected to establish normal stands under average soil conditions. Stress emergence is a measure of the genetic ability or potential to emerge in the stressful environmental conditions of cold, wet soils or short periods of severe low temperatures, relative to other Pioneer hybrids. Ratings of 7-9 indicate very good potential to establish normal stands under such conditions: a rating of 5-6 indicates average potential to establish normal stands under moderate stress conditions: and ratings of 1-4 indicate the hybrid has below average potential to

establish normal stands under stress and should not be used if severe cold conditions are expected immediately after planting. Stress emergence is not a rating for seedling disease susceptibility, early growth or speed of emergence.

- 6 DROUGHT TOLERANCE: Drought tolerance is a complex trait, determined by a platform's ability to maintain yield in limited-moisture environments. A higher score indicates the potential for higher vields vs. other platforms of similar maturity in limited-moisture environments
- 7 GRAIN DRYDOWN: Compares corn products of a similar maturity for rate of kernel moisture loss after grain physiological maturity (zero kernel milkline). A lower score indicates slower drydown possibly offering a wider opportunity for high-moisture grain
- 8 TEST WEIGHT: Higher score indicates heavier test weight. 9 PLANT HEIGHT: 9 = Very Tall; 1 = Short.

DISEASE & PEST RESISTANCE FOOTNOTES:

DISEASE PRECAUTION: Growers should balance corn product yield potential, maturity and cultural practice selection against their anticipated risk of a specific disease and need for resistance. In high disease-risk conditions, consider planting products with at least moderate resistance ratings of 4 or higher to help reduce risk. When susceptible products with disease ratings of 1 to 3 are planted in conditions of high disease pressure, the grower assumes a higher level of risk. If conditions are severe, even products rated as resistant can be adversely affected. Independent of yield reduction, diseases can predispose plants to secondary diseases such as stalk rots. This requires individual field and product monitoring for stalk stability and timely harvest when warranted.

DISEASE & PEST RATINGS: 8-9 = Highly Resistant; 6-7 = Resistant; 4-5 = Moderately Resistant: 1-3 = Suscentible: Blank = Insufficient Data

- 11 NORTHERN LEAF BLIGHT CAUTION: In conditions where northern leaf blight (NLB) risk is high, growers should consider planting only products with at least moderate NLB resistance ratings of 4 or higher.
- 12 FOLIAR FUNGICIDE RESPONSE (NLB): Probability of positive yield response to foliar fungicide applications when significant levels of Northern leaf blight (NLB) leaf disease is present. HP - High Probability: MP – Moderate Probability: LP – Low Probability. Probabilities based upon product disease scores. Because of the unlimited number of growing environments, cropping practices, and foliar fungicide active ingredients combinations possible. Pioneer makes no warranty regarding this foliar fungicide crop response information
- 13 GIBBERELLA EAR ROT CAUTION: Ratings based upon visual symptoms at harvest. If Gibberella ear rot has caused significant damage in the past, growers should consider planting only products with at least moderate Gibberella ear rot ratings of 5 or higher.
- 14 GREY LEAF SPOT PRECAUTION: Avoid planting products with a lower grey leaf spot (GLS) rating in continuous corn fields that have a history of GLS infection, unless tillage operations that bury significant amounts of corn residue and inoculum are practiced.
- 15 SILAGE CRM (Comparative Relative Maturity): With no industry standard for silage maturity, comparing maturity and harvest moisture among corn-for- silage product is difficult. Pioneer silage CRM ratings provide a relative comparison among Pioneer product of rates at which product reach harvestable whole-plant moistures. It is on the same scale as the CRM rating provided for grain-corn product and does not represent actual days from planting or emergence to harvest moisture or half milkline.
- 16 SILAGE YIELD FOR MATURITY: Based on tons/acre (adjusted to 30% dry matter) from multi-year comparison of products within a maturity range not exceeding 5 silage CRM units.
- 17 STARCH AND SUGAR, %: Percent starch and soluble sugars (DM basis) in the whole-plant sample predicted by NIRS.
- 18 FIBRE DIGESTIBILITY: Enzymatic estimate of percent degradable neutral detergent fibre (NDF) as a percent of total NDF in whole-plant sample, predicted by NIRS.
- 19 WHOLE PLANT DIGESTIBILITY: Based on whole-plant digestibility measurements (in-vitro cellulase) and nutrient profiles (starch acid detergent fibre), as predicted by Near Infrared Reflectance Spectroscopy (NIRS).
- 20 SILAGE CRUDE PROTEIN: Based on the amount of crude protein in the whole plant, predicted by NIRS.
- 21 MILK OR BEEF PER ACRE: 9 = Outstanding; 1 = Poor. Based on University of Wisconsin MILK2006 utilizing silage, nutrient content and digestibility
- 22 MILK OR BEEF PER TON: 9 = Outstanding; 1 = Poor. Based on University of Wisconsin MILK2006 utilizing silage yield, nutrient content and digestibility

🞾 SOYBEANS FOOTNOTES

IMPORTANT: Trait rating scores provide key information useful inselection and management of Pioneer® brand products in your area. Information and ratings are based on comparisons with other Pioneer brand products, not competitive products. Information and scores are assigned by Pioneer Research Managers. Scores are based on period-of-years testing through 2017 harvest and were the latest available at time of printing. Some scores may change after 2018 harvest. Scores represent an average of performance data across areas of adaptation, multiple growing conditions, and a wide range of both climate and soil types, and may not predict future results. Individual product responses are variable and subject to a variety of environmental, disease and pest pressures. Please use this information as only one component of your product positioning decision. Refer to www.pioneer.com/Canada or contact a Pioneer sales representative for the latest and most complete listing of traits and scores for each Pioneer brand product.

- 1 RELATIVE MATURITY: Shows the relative maturity group rating, with the first digit representing the general maturity group, and the second digit showing relative maturity within the group on a scale of 0 to 9, with 0 early and 9 late. For example, a soybean variety with a relative maturity rating of 17 would be a mid-late variety in Group I maturity
- 2 TECHNOLOGY SEGMENT: Varieties with the glyphosate tolerant trait (including those designated by the letter "R" in the product number) contain genes that confer tolerance to glyphosate herbicides. Glyphosate herbicides will kill crops that are not tolerant to glyphosate. Always follow grain marketing, stewardship practices and pesticide label directions. Varieties with the Genuity® Roundup Ready 2 Yield® (RR2Y) trait 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. Varieties with Genuity® Roundup Ready 2 Xtend[™] (RR2X) technology contain genes that confer tolerance to dicamba and glyphosate. Dicamba will kill crops that are not tolerant to dicamba.Genuity®, Roundup®, Roundup Ready 2 Yield[®] and Roundup Ready 2 Xtend[™] are trademarks or registered trademarks of Monsanto Technology LLC used under license. 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. LL - Contains the LibertyLink® gene for resistance to Liberty® herbicide. Liberty®, LibertyLink® and the Water Droplet are trademarks of Bayer. (-) = Variety does not contain a herbicide resistant gene.



- 3 FIELD EMERGENCE: Rating based on speed and strength of emergence in sub-optimal temperatures. 7-9 = Excellent: 4-6 = Average: 1-3 = Below Average.
- 4 PHYTOPHTHORA RESISTANCE GENE: (-) = No specific gene for resistance.
- 1a = Provides resistance to races 1-2, 10-11, 13-18, 24 1c = Provides resistance to races 1-3, 6-11, 13, 15, 17, 21, 23, 24, 26, 28-30, 32, 34, 36
- 1k = Provides resistance to races 1-11, 13-15, 17, 18, 21-24, 26, 36, 37
- 3a = Resistant to races 1-5, 8-9, 11, 13-14, 16, 18, 23, 25, 28-29, 31-35, 39-41, 43-45, 47-52, 54
- 6 = Provides resistance to races 1-4, 10, 12, 14-16, 18-21, 25, 28, 33-35
- 5 PHYTOPHTHORA FIELD TOLERANCE: Varieties with high tolerance scores have demonstrated an ability to thrive in the presence of Phytophthora races to which they lack specific resistance. In some varieties, tolerance is expressed only after the early seedling growth stage, making such varieties susceptible to damping off during emergence and early seed growth
- 6 WHITE MOULD: Scores based on Pioneer research observations of comparative white mould tolerance among various soybean varieties across multiple locations and years. All varieties are capable of developing white mould symptoms under severe infestations. To our knowledge, there are no totally resistant varieties in the industry. However, differences exist in the ability of varieties to tolerate white mould (i.e. the rate at which the infection develops. and the extent of damage it causes). These scores reflect those differences
- 7 SCN RESISTANCE SOURCE: There are three sources of genetic resistance to SCN currently deployed in the marketplace: PI88788; PI548402 (also known as Peking); and PI437654 (also known as Hartwig); R = Resistant

- 8 CANOPY WIDTH: 9 = Extremely bushy; 1 = Very narrow.
- 9 ANTI-SHATTERING: 9 = Excellent tolerance to shattering; 1 = Poor tolerance to shattering.
- 10 PLANT HEIGHT FOR MATURITY: 9 = Tall; 1 = Short. 11 PER CENT PROTEIN AT 13% MOISTURE: Compare data within
- table only. Values can vary widely by growing season and region. 12 SEED SIZE RANGE: Expressed in seeds per pound under normal
- growing conditions. Range is calculated over multiple years and locations. Since seed size may vary by growing season and region. check the "seeds/nound" information printed on the bag 13 HILA COLOUR: BL = Black: BB = Brown: G = Grev:
- IB = Imperfect black; TN = Tan; BF = Buff; Y = Yellow (Clear).

RATINGS: 9 = Excellent; 1 = Poor; Blank = Insufficient Data. DISEASE PRECAUTION: Grower should balance hybrid yield potential, hybrid maturity and cultural practice against anticipated risk of a specific disease and need for resistance. In high disease risk conditions, consider planting hybrids with at least a rating of 6 or higher to help reduce risk. When hybrids with disease ratings of 1 to 5 are planted in conditions of high disease pressure, the grower assumes a higher level of risk. If conditions are severe, even hybrids rated as resistant can be adversely affected. Independent of vield reduction, diseases can predispose plants to secondary diseases such as stalk rots. This requires individual field and hybrid monitoring for stalk stability and timely harvest when warranted

DISEASE RATINGS: 9-8 = Highly Resistant; 7-6 = Resistant; 5-4 = Moderately Resistant: 3-1 = Susceptible: Blank = Insufficient Data.

- 1 HERBICIDE SYSTEM: Pioneer® brand sunflower hybrids with the DuPont[™] ExpressSun[®] trait for tolerance to DuPont[™] EXPRESS[®] herbicide with TotalSol® soluble granules and provides resistance to Tribenuron methyl WARNING: The DuPont™ ExpressSun® trait will safeguard this hybrid ONLY against applications of Tribenuron methyl, when applied at labeled rates. The DuPont[™] ExpressSun[®] trait WILL NOT safeguard this hybrid against applications of other herbicides which require a different herbicide resistance trait. Always read and follow herbicide label instructions prior to use. APPLICATIONS OF INCOMPATIBLE HERBICIDES TO THIS HYBRID COULD RESULT IN TOTAL CROP LOSS.
- RM (RELATIVE MATURITY): With no industry standard for maturity ratings, comparing hybrid maturity and harvest moisture ratings between companies is usually difficult. Use the RM rating to compare Pioneer brand hybrids of a similar maturity and harvest moisture.
- 3 EMERGENCE: Ratings taken when first true leaf is visible. 4 MID-OLEIC SCORE: 9 = Consistently meets oleic level
- specifications for NuSun® oil. 5 HIGH-OLEIC SCORE: 9 = Consistently meets high-oleic
- specifications for high-oleic oil profile of 85%. 6 PLANT HEIGHT: Short stature is desirable. 9 = Short; 1 = Tall.
- 7 STEM CURVATURE: 9 = Erect; 8 = Semi-Erect (preferred); 7 = Semi-Pendulous (preferred): 6 = Pendulous: 5 = Fully Pendulous.
- 8 MIDGE SCORE: To our knowledge, there are no fully resistant hybrids in this industry. However, differences exist in the ability to tolerate insect pressure. These scores reflect those differences. Heavy midge pressure can cause extensive damage to any hvbrid.
- 9 DOWNY MILDEW RACE RESISTANCE: Indicates downy mildew resistance to the races identified
- 10 HULL SCORE: A relative expression of hullability and kernel chipping. 9 = completely hulled, high percentage of whole kernels: 1 = poor hulling, many broken kernels.
- 11 PCT OVER 13: Using a 13/64th screen, oilseed types are divided by kernel size. 9 = high percentage over 13/64: 1 = low percentage.

Most Pioneer® brand sunflower seed is treated with Apron® to help protect against pythium and non-resistant strains of downy mildew. Apron[®] is a registered trademark of a Syngenta Group Company. NuSun® is a registered certification mark of the National Sunflower Association.



📭 ALFALFA FOOTNOTES

1 HERBICIDE RESISTANCE: Genuity® and Roundup Ready® are registered trademarks used under license from Monsanto Company HarvXtra® is a registered trademark of Forage Genetics International, LLC. HarvXtra® alfalfa with Roundup Ready® technology is enabled with technology from The Samuel Roberts Nobel Foundation, Inc. Do not export Pioneer® brand alfalfa seed or crops containing Genuity® Roundup Ready® technology including hav or hav products, to China pending import approval, Always Read and Follow Pesticide Label Directions Alfalfa with the Genuity® Roundup Ready[®] technology provides crop safety for over-the-top applications of labeled glyphosate herbicides when applied according to label directions. Glyphosate agricultural herbicides will kill crops that are not tolerant to glyphosate. ACCIDENTAL APPLICATION OF INCOMPATIBLE HERBICIDES TO THIS VARIETY COULD RESULT IN TOTAL CROP LOSS. Pioneer is a member of Excellence Through Stewardship® (ETS). Pioneer products are commercialized in accordance with FTS Product Launch Stewardship Guidance and in compliance with the Pioneer policies regarding stewardship of those products. Crops and materials containing biotech traits may only be exported to or used, processed, or sold in jurisdictions where all necessary regulatory approvals have been granted for those crops and materials. It is a violation of national and international laws to move materials containing biotech traits across borders into jurisdictions where their import is not permitted. Growers should discuss these issues with their purchaser or grain handler to confirm the purchaser or handler's position on products being purchased. For further information on the approval status of biotech traits, please visit www.biotradestatus.com. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

- 2 FORAGE YIELD: 9 = Outstanding; 1 = Poor. Rating based on 2013-2017 paired comparison data for trials located in the U.S. and Canada.
- 3 WINTERHARDINESS: VH = Very Hardy; H = Hardy
- 4 STANDABILITY/LODGING RESISTANCE:
- Scores based on plant lodging observations (% of stems >45% anale) averaged across numerous areas of adaptation
- 5 MILK YIELD PER ACRE: 9 = Outstanding; 1 = Poor. Estimated milk yield per acre is based on Wisconsin Milk 2006 formula representing the combined impact of forage yield, nutrient content and digestibility.
- DISEASE RESISTANCE INDEX: DRI is a disease index based on the following pests: Bacterial wilt, Verticillium wilt, Fusarium wilt, Anthracnose, Phytophthora and Aphanomyces (Race 1) and Aphanomyces (Bace 2), HB = 5 points; B = 4 points; MB = 3 points; LR = 2 points; S = 1 point. Highest possible DRI = 35 points.

🍪 INOCULANT FOOTNOTES

IMPORTANT: Information and ratings are based on relative comparisons with other Sila-Bac® brand inoculants within each specific crop, not competitive products. Information and ratings are assigned by Pioneer Forage Additive Research, based on average performance across area of use under normal conditions, over a wide range of both environment and management conditions, and may not predict future results. Product responses are variable and subject to any number of environmental and management conditions. Please use this information as only part of your product positioning decision. Refer to www.pioneer.com/products or contact a Pioneer sales representative for the latest and most complete listing of traits and scores for each Sila-Bac® brand product.

*Rapid React® aerobic stability technology. Improved aerobic stability and reduced heating is relative to untreated silage. Actual results may vary. The effect of any silage inoculant is dependent upon management at harvest, storage and feedout. Factors such as moisture, maturity, chop length and compaction will determine inoculant efficacy.a

FERMENTATION: Rate and extent of pH decline and the composition of fermentation acids occurring in silage.

BUNKLIFE: Relative heat development compared to ambient temperature. Bunklife considers both how quickly silage begins to heat and the amount of heat generated while remaining above ambient temperature.

FIBRE DIGESTIBILITY: The digestibility of neutral detergent fibre (NDF) by the ruminant animal expressed as a percentage of the total NDF

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