

PIONER® BRAND PRODUCTS



Innovation at Corteva Agriscience

OUR PURPOSE:

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

Our R&D organization strives to be the best at designing, discovering and developing innovations that create value for farmers and deliver consumer benefits in planet-friendly ways.

Key Sources of Differentiation

Germplasm

Developed through 90-plus years of expertise, our germplasm library is unparalleled in its breadth and depth and is focused squarely on helping farmers improve their performance and profitability.



Targeted Breeding

Targeted breeding tools such as CRISPR enable us to explore the development of improved crops in years instead of decades, both in our labs and by licensing our industry-leading intellectual property to other innovators.

Digital Tools

We combine the latest advances in technologies, artificial intelligence, data analytics and agronomic insights to give farmers timely, actionable data they can use to make more informed decisions and make their operations less complex.



Environmental Impact and Sustainability

Seed

Biotech

With more Green Chemistry Awards than any other company, we're building on our industry leadership in natural and naturally derived products by continuing to research new ways of helping farmers conserve the land that sustains them.



Integrated Solutions

Our industry-leading capabilities across seeds, crop protection and digital tools enable us to provide solutions that together create more value for farmers than any solution could on its own.

QUICK FACTS

Our open and aaile aariculture research organization brings together worldwide resources:

> 5.000 scientists and researchers

2 innovation hubs: • Johnston, Iowa Indianapolis, Indiana





INDUSTRY LEADING CAPABILITIES

· Genomics and breeding systems

Formulation and process chemistry

Advanced phenotyping

Predictive agriculture tools

· Farm management software

Crop Protection

Natural products

Diaital Tools

Data analytics

· Chemistry discovery

CLEAR INNOVATION PRINCIPLES



FOR US, **GROWTH IS MORE THAN** JUST A MINDSET.

Corteva Agriscience is modernizing the agriculture industry as we know it.

KEEP GROWING.



100+ crops







Enter for a Chance to Win!

One (1) of 29 trips for two (2) to the National Farm Machinery Show in Louisville, KY

February 10-13, 2021^{*}

The Pioneer Yield Hero contest is an opportunity to celebrate your high yields and success! #yieldhero20 Join our growing list of heroes who grow Pioneer® brand seed products.

NEW! FOR THE 2020 YIELD HERO CONTEST TWO (2) NEW SUB-CATEGORIES:

Innovator of the YearSustainable Farmer of the Year

For complete contest rules and details visit: yieldhero.pioneer.com OR follow us @PioneerSeedsCA #yieldhero20

2019 Pioneer Yield Hero Winners

NAME	TOWN	PROV	FARM	HYBRID	YIELD BU/AC
Kevin Woods	Moosomin	SK	Westwood Land & Cattle	45CM39	88.9
Nathan Reinhardt	Didsbury	AB	Nathan Reinhardt	45CS40	87.1
Jeff Keller	Melfort	SK	Red Army Farms	45CM39	85.3
Guy Cadrain	Leask	SK	Cadrain Farms Inc.	45CM39	82.5
Michael Hrabarchuk 🛩	Durban	MB	Hrabarchuk Farms	45CM39	81.5
Chett Wild	Acheson	AB	Wild Farms	45CM39	79.8
David Bosma	Fairview	AB	Bosma Farms	45CS40	78.3
Ian & Lisa Boxall 🛩	Tisdale	SK	Boxall Farms	45CM39	78.2
Wade Thorsteinson	Foothills	AB	Thorsteinson Land & Livestock	45CM39	73.9
Douglas Patterson	Nanton	AB	D&D Paterson Inc.	45M35	73.5
Bob Cornish 🕊	Rocky View County	AB	Bob Cornish	45M38	72.6
Sheldon Trenchuk	Smoky Lake	AB	Trenchuk & Sons	45H33	71.2
Vince Tetreault	Spiritwood	SK	CRV Ranch Ltd.	45CS40	68.3
Chad Skinner	Indian Head	SK	LakeView Farms	45M35	67.4

🛞 LIBERTYLINK[®] CANOLA

NAME	TOWN	PROV	FARM	HYBRID	YIELD BU/AC
Darcy Sarafinchan	Lavoy	AB	Sarafinchan Farms	P501L	88.3
Aaron Danvin	Spiritwood	SK	Northview Ventures	P501L	84.6
Dale Litke 🕊	Crossfield	AB	Dale C. Litke	P501L	82.5
Cortney Solonenko	Stornoway	SK	S+D Solonenko Farms Ltd.	P501L	76.9
Henry Dargis 🕊	St. Vincent	AB	Henry Dargis	P501L	76.66
Andrew Hofer 🕊	Grande Prairie	AB	GVC Colony Farming Co. Ltd.	P501L	76
Sean Eggie	Swan River	MB	4Eggie Farms	P501L	75.8
Mitchell Hudy 🛩	Melville	SK	Hudy Family Farm	P501L	73.34
Wade McNeil 🛩	Yorkton	SK	Wade & Kelly Farm Partnership	P501L	72
Craig Andres 🕊	Roblin	MB	Hillsburg Brokerage & Consulting	P501L	70.3
Cliff Seward 🛩	Manitou	MB	Seward Farms Inc.	P501L	69.59
Anthony Miller 🕊	Swan River	MB	A.C. Miller Farms Inc.	P501L	63.4
Lee Williams	Grand Coulee	SK	Sun Tan Farm Ltd.	P501L	62.3

GRAIN CORN

NAME	TOWN	PROV	FARM	HYBRID	YIELD BU/AC
Peter Waldner	MacGregor	MB	Baker Farms	P8387AM™	237.1
Marvin Dyck 🎔	Roseisle	MB	Oak Ridge Holdings	P7958AM™	221.8
Richard Heide	Winkler	MB	Hespler Farms Ltd.	P8234AM™	196.3
Arthur Bell	Boissevain	MB	Drumad Farms Ltd.	P7527AM™	171.2

SILAGE CORN

NAME	TOWN	PROV	FARM	HYBRID	YIELD TONS/AC
Stefan Signer	Kleefeld	MB	Signer Dairy Ltd	P8736AM™	22.28
Peter Sturkenboom	Westlock	AB	Hazel Bluff Dairy Ltd.	P6909R	14.84
	S				

NAME	TOWN	PROV	FARM	VARIETY	YIELD BU/AC
Wesley Mitrenga 🕊	Yorkton	SK	Wesley Mitrenga	P002A63R™	53.89
Trevor Mealy 🎔	Minto	MB	Mealy Farms Inc.	P005A27X™	51.7

* Location and dates of the 2020 Yield Hero trip subject to change due to unforeseen circumstances.

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 8/17/20 and ends 11:59 p.m. MT 11/20/20. 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 29 grand prizes available to be won. Grand prize winners will be awarded a trip for two (2) to the National Farm Machinery Show in Louisville, KY February 10-13, 2021. The approximate retail value ("ARV") is \$4256.50 (CAD) per grand prize winner).

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Pioneer Protector® brand canola is the leader in yield, harvest flexibility and built-in disease resistance, including clubroot. It all adds up to performance and profitability you can count on.



The proof is in the yield. Get the #YieldHero data at yieldhero.pioneer.com

PIONEER PROTECTOR® BRAND CANOLA

YIELD, PERFORMANCE & THE PROTECTION OF THE **PIONEER PROTECTOR® TRAITS. MADE TO GROW.**

Pioneer Protector[®] brand canola, brought to you by Corteva Agriscience, offers high-yielding, consistently-performing canola hybrids with the added benefit of the Pioneer Protector[®] traits. These traits help provide solutions to various agronomic and harvest management challenges on farmer's fields.



In the future, all Pioneer Protector® brand canola hybrids will include the Pioneer Protector[®] clubroot trait, a critical tool against a growing disease threat to Western Canadian farmers. Weed resistance management is also a strength of the Pioneer canola portfolio with high yields, consistent performance and Pioneer Protector® traits being available in all herbicide systems. You don't need to make trade-offs when you choose Pioneer Protector® brand canola.

The Pioneer Protector[®] brand canola hybrid portfolio has the most diverse canola portfolio available in the market today.



High yields and protection against multiple races of clubroot across Western Canada



High yields and the consistent performance of Pioneer Protector® canola hybrids with built-in resistance to the yield-robbing disease, sclerotinia.



A maximum yield management system that offers the benefit of choice - swath, late swath or straight cut. You choose.



Pioneer Protector[®] Plus hybrids bring all the benefits of Pioneer Protector[®] clubroot trait, and the power of the Pioneer Protector® sclerotinia trait. The ultimate package.



PIONEER PROTECTOR® HARVESTMAX IS A MAXIMUM YIELD MANAGEMENT SYSTEM

HarvestMax is about maximizing the yield potential in your field, while maximizing the efficiency of your farm. HarvestMax provides farmers with the flexibility to choose how and when to harvest the canola crop.

By observing the field and the workload across the farm operation, farmers have the flexibility to choose how and when HarvestMax canola is harvested, ensuring maximum yield opportunity on the farm. Normal swath, delayed swath, or straight cut - you decide.

Canola hybrids with the built-in Pioneer Protector[®] HarvestMax trait are for growers looking for:

- Maximum yield potential and maximum efficiency on your farm
- Improvements in the harvest process increase yield/easier harvest/more flexible harvest
- The opportunity to extend swathing window swath later or straight-cut
- Reduced risk associated with all harvest management reduced risk of infield loss/harvest management tool/extend harvest window





A powerhouse combination of clubroot protection and the maximum yield management options of the HarvestMax trait.

SWATH OR STRAIGHT CUT - YOU DECIDE!

THE PROOF IS IN THE YIELD. LOOK FOR THE PIONEER PROTECTOR® LOGO FOR HIGH-YIELDING CANOLA HYBRIDS WITH BUILT-IN DISEASE PROTECTION.





DEFENDING AGAINST CLUBROOT IN WESTERN CANADA

It's never too early to start protecting your crop from clubroot.



Clubroot can cause up to 100% yield loss.*

Caused by a fungal-like microorganism, clubroot is a soil-borne disease that results in distinctive club-like/gall symptoms forming on plant roots.

Clubroot is spread via infested soil moving ^{Zoospores encyst} from field to field. Infested soil can move as soil tags on farm equipment, or by wind and water erosion.



A proactive and integrated approach to protecting canola.

- 1. Practice a 1-in-3 year canola rotation.
- 2. Grow clubroot resistant canola hybrids if you are in an at-risk region, even if clubroot has not yet been identified in your fields.
- 3. Prevent and minimize moving soil between and within fields. Work on infested areas last, practice soil conservation, and clean equipment, vehicles and boots.
- 4. Control host weeds and volunteer canola early (<4 weeks). Serious gall formation and spore propagation starts happening at 5-6 weeks. Host weeds include stinkweed, wild mustard, shepherd's purse and flixweed.
- 5. Scout for signs of clubroot and look for virulence shift early and often. If incidence increases above 10-15% of plants infected in a resistant crop, there may be a virulence shift within the field.
- 6. Practice patch management. Consider grassing patches to further prevent soil movement.
- 7. Control pH (liming) strategically to help reduce clubroot infection, especially in dryer years.

Leading the industry in clubroot resistance

Corteva Agriscience developed and commercialized the first clubroot resistant (CR) hybrid in 2009 through Pioneer. Today, we offer a portfolio of CR hybrids with different sources of clubroot resistance and continue advancing new sources of clubroot resistance in our hybrids to help manage the growing threat. Our goal is for all canola product advancements from Corteva to be clubroot resistant so that you may apply a rotational strategy of hybrids with different sources of clubroot resistance for proactive management.

A GROWING THREAT IN WESTERN CANADA

Thousands of infested fields have been identified across canola growing regions.

Clubroot affected areas in 2011



How to spot clubroot

Scout fields throughout the season and pull up roots to look for characteristic galls.



Unhealthy canola roots with clubroot galls

If you find clubroot

Contact your local area agronomist and inform your provincial agriculture governing body. Alberta: Contact your local municipality/county by visiting aaaf.ab.ca/directory or call 310-FARM. Saskatchewan: Contact the Saskatchewan Ministry of Agriculture at 1-866-457-2377 or local regional office. Manitoba: Contact Manitoba Agriculture at 204-745-5660.

Maximize your yield. Protect your canola and your profits.

Pioneer offers a complete portfolio of clubroot resistant hybrids:



*In extreme cases Source: Canola Council of Canada



Clubroot affected areas in 2018-2019*





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 greyish 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.











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.

Pioneer Protector[®] brand canola hybrids that protect against blackleg disease on your farm:





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.

MANAGING SCLEROTINIA FOR HIGH-YIELDING CANOLA

The Sclerotinia Lifecyle



*Field results show that Pioneer Protector® Sclerotinia Resistance can reduce the incidence of sclerotinia in a canola crop by over 60%. Individual results may vary. Depending on environmental and agronomic conditions, growers planting Pioneer Protector® Sclerotinia Resistant hybrids may still require a fungicide application to manage sclerotinia in their crop.

Sclerotinia susceptible and non-susceptible



Non-resistant 55% infection

Benefits of Seeding Canola with the Pioneer Protector® Sclerotinia Trait

By seeding canola with Pioneer Protector[®] sclerotinia traits, you can gain up to 4 bu/ac and \$36/ac profit over canola hybrids without sclerotinia resistance traits.

Reduction in Incidence

Over 60% reduction in sclerotinia incidence*

Peace of Mind

Provides increased flexibility and insurance when timing fungicide applications

PROTECTOR

PROTECTOR

Convenience

Sclerotinia protection is planted with the seed

Season-Long Control

An in-plant trait that provides protection regardless of weather patterns throughout the entire growing season

Management Tool

Manage risk of sclerotinia infection over large acreages / geography



Sclerotinia resistant 13% infection

Photo, courtesy of Pioneer® Canada, showing infected stems ripened prematurely.

Pioneer Protector[®] brand canola hybrids that protect against sclerotinia on your farm:







45CS40



NOTES

For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, **see page 56**.

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9	OUTSTANDING	1	POOR	-	INSUFFICIENT DATA
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Source of Clubroot Resistance	Clubroot	Blackleg	Blackleg	Sclerotinia	Fusarium Wilt	Early Growth	Green Seed Content	Standability	Plant Height
4	5	6	7	8	9	10	11	12	13
ERISTIC RA	TING	S*							
-	_	MR	6	-	R	7	9	5	6
CR1	R	R	7	-	R	8	8	7	8
CR1	R	R	7	-	R	8	8	7	7
_	_	MR	7	_	R	8	8	8	8
-	_	R	8	_	R	8	8	7	7
CR2	R	R	7	_	R	8	8	7	7
CR1	R	R	7	6	R	8	7	7	8
CR1	R	R	8	-	R	9	8	8	7
CR1	R	R	7	-	R	8	8	7	7
CR1	R	R	7	-	R	8	8	7	7
CR1	R	R	7	-	R	8	8	7	8
CR1	R	R	7	6	R	8	8	7	8
CR1	R	R	8	-	R	8	8	7	8
-	-	R	7	-	R	8	8	7	8
-	_	R	7	-	R	7	8	7	7
_	_	R	7	_	R	8	8	8	8
-	-	R	8	-	R	8	8	7	8

CANOLA

FEATURED CANOLA HYBRIDS

NEW 45CM44

Excellent yield with the Pioneer Protector® Clubroot trait. Harvest flexibility with the HarvestMax trait. Plus strong adult blackleg resistance in one package - the new standard.

- Excellent yield potential
- Excellent early growth and emergence
- Very good lodging score
- "R" for Clubroot vs 2F. 3H. 5I. 6M and 8N
- "R" for Blacklea



Roundup Readi

45CM39

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

- Superior yield potential 102% of Pioneer® brand 45H33
- Excellent early growth
- Very good lodging score
- "R" for Clubroot (new source) 2F, 3H, 51, 6M, 8N and 3A, 3D, 2B and 5X
- "R" for Blackleg







NEW P506ML

A new, high-yielding Pioneer Protector® HarvestMaxCR (clubroot and harvest flexibility) hybrid with blackleg, and the LibertyLink® trait

- Superior yield potential (104.6% of P501L)
- Very good for lodging
- Excellent early growth and field emergence
- "R" for blackleg
- "R" for Clubroot vs 2F, 3H, 5I, 6M and 8N



P501L

Superior yielding, mid-late maturity canola with Pioneer Protector[®] and LibertyLink[®] traits.

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



NEW 45H42

New, high-yielding Pioneer Protector® Clubroot hybrid with 5 maturity.

- Superior yield potential
- Very good for lodging
- "R" for Clubroot vs 2F, 3H, 5I, 6M and 8N
- "R" for blackleg



110 -	110%		3.7 bu/ac increase
- 000	-	100%	80% wins vs
90 -	Pioneer® brand 45H42	DEKALB® 75-42 CR	DK 75-42 CR
	Yield	%	Source: 2018-2019 Corteva Agriscience field trials

NEW P505MSL

A new generation Pioneer Protector[®] Plus hybrid with yield, clubroot, sclerotinia, HarvestMax and blackleg resistance in one package.

- Superior yield potential, 104.6% of P501L
- Very good for lodging
- Excellent early growth and field emergence
- "R" for blackleg
- "R" for Clubroot vs 2F, 3H, 5I, 6M and 8N





110

0.7 bu/ac increase 63% wins vs Pioneer 45H33

Source: 2019 Corteva Agriscience field trials











CANOLA

FEATURED CANOLA HYBRIDS

45CS40

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
- "R" for Clubroot vs 2F, 3H, 5I, 6M and 8N



110			-
100	103%	100%	1.2 bu/ac increase 56% wins vs
90	Pioneer® brand 45CS40	BrettYoung ⁻ 6076 CR	BY 6076 CR
110			4.0 bu/ac increase
100	102%	100%	100% wins vs
,,,	Pioneer® brand 45CS40	DEKALB® 75-42 CR	DK 75-42 CR
	Yield	%	Source: 2018-2019 Corteva Agriscience field tria

FEATURED CANOLA HYBRIDS

NEW P508MCL

Pioneer Protector® HarvestMax protection and blackleg, now in the Clearfield® herbicide tolerant system.

- Excellent yield potential
- Excellent early growth and emergence
- Very good for lodging
- "R" for blackleg



45M35

Yield, standability and harvest flexibility in one package.

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





NEW P607CL

A Pioneer Protector[®] clubroot hybrid with blackleg in one package, now with the Clearfield® trait.

- Good yield potential
- Very good for lodging
- "R" for blackleg
- "R" for Clubroot vs 2F, 3H, 5I, 6M and 8N



45H37

Early-maturing Pioneer Protector® Clubroot hybrid with good yields and strong blackleg protection.

- Good yield potential
- Very good for lodging
- "R" for Clubroot vs 2F, 3H, 5I, 6M and 8N
- "R" for blackleg







A new high-yielding canola hybrid featuring the Clearfield® trait.

- Excellent yield potential
- Very good lodging score
- "R" for blackleg
- "R" for Fusarium wilt









0.1 bu/ac increase 50% wins vs Pioneer® brand 46H75

Source: 2019 Corteva Agriscience field trials



Source: 2019 Corteva Agriscience field trials





Source: 2018-2019 Corteva Agriscience field trials

Be the first stop on every crop tour.



HERBICIDE TOLERANCE

THERE IS SOMETHING BIG COMING IN CANOLA.

Coming soon – Optimum[®] GLY* from Corteva Agriscience. It's an innovative, advanced glyphosate-tolerant trait technology designed to optimize growth. Optimum® GLY canola gives you excellent yield potential, improved crop safety and enhanced weed control - everyone will want a look.

Optimum[®] GLY from Corteva Agriscience.

Talk to your local Pioneer sales representative.



CANOLA

CROP PROTECTION PRODUCTS FOR CANOLA

Prospect[™]

Arylex[™]active

HERBICIDE

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 hawksbeard, 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



Canada between 2016-2018.

Glyphosate

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

🐃 Trademarks of Dow AgroSciences, DuPont or Pioneer and affiliated companies or their respective owners. 🖻 2020 Corteva The Optimum® GLY herbicide tolerance trait will not be offered for sale or distribution until completion of field testing and applicable regulatory reviews





A NEW PRE-SEED HERBICIDE SOLUTION AHEAD OF CANOLA

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 glyphosate resistance.

Weed Control vs. Conquer Herbicide



Based on small plot field research trials conducted by Corteva Agriscience in Western

CHOOSE FROM A FULL LINE-UP OF HERBICIDE PRODUCTS TO HELP PROTECT YOUR PIONEER CANOLA



HERBICIDE

HERBICIDE

THE PERFORMANCE STANDARD IN WEED CONTROL FOR PIONEER® BRAND CANOLA WITH THE CLEARFIELD® TRAIT

- Consistent and reliable post-emergent weed control, including subsequent flushes
- Wide window of application on both crop and weeds
- Superior control of lamb's quarters, wild buckwheat, cleavers and volunteer canola

Amity[™]wDG

THE HERBICIDE OPTION FOR PIONEER® BRAND CANOLA WITH THE CLEARFIELD® TRAIT IN THE PEACE COUNTRY

- Rotational flexibility for farmers in the Peace Country of Alberta
- Broad-spectrum control for Clearfield canola
- Reliable control of tough grasses and targeted broadleaf weeds

Lontrel[™]xc

HERBICIDE

THE MOST EFFECTIVE IN-SEASON THISTLE CONTROL AVAILABLE - RIGHT DOWN TO THE ROOTS

- For use on a 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



HERBICIDE

BROAD-SPECTRUM WEED CONTROL FOR SUPERIOR CONTROL OF WILD BUCKWHEAT AND CANADA THISTLE

- 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
- Protects canola without negatively impacting yield or maturity, unlike elevated rates of glyphosate



A mark of assurance in seed treatments.

You choose a seed treatment package to help assure a successful season. In turn, you should feel assured that those seed treatments perform as expected, and work well with the genetics you're planting.

LumiGEN[™] seed treatments are designed, verified and proven to work with Pioneer® brand genetics, to help farmers establish healthy, uniform crops and maximize productivity.

LumiGEN seed treatments are exclusive to the seeds brands of Corteva Agriscience, and represents the value of the seed applied technologies that are available on Pioneer[®] brand genetics.







Designed for our genetics

You've invested in outstanding Pioneer genetics for your field. We've invested in protecting their performance potential.

LumiGEN seed treatments represent the best treatments for Pioneer genetics to meet the vital needs of emerging crops and add value to the seed you plant.



Verified on our genetics

LumiGEN[™] seed treatments capitalize on over 100 years of crop protection know-how, and an understanding of what growers need and

how they farm. Our seed treatment combinations are carefully evaluated at the Corteva Agriscience[™] **Center of Seed Applied Technologies** (CSAT), a first-of-its-kind, all-in-one facility that's part laboratory, testing center and seed treating plant. Here, seed treatments are reviewed using our exclusive six-step **PASSER process**.



Proven in the field with our genetics

LumiGEN seed treatments are tested in real fields on real farms. Through our Field Test Network, our treated seed is evaluated by

growers. It goes into the ground using real planters, under real conditions - and is observed and evaluated for real results.

Lumiderm[™]

INSECTICIDE SEED TREATMENT

Serious seed protection

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

See the Lumiderm[™] insecticide seed treatment 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 your loss due to cutworm damage.

Key Benefits

- Enhanced protection against crucifer and striped flea beetles.
- 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[™] insecticide seed treatment 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: Seven Persons, AB. 42 Days After Seeding.







Standard Treatment



Source: Lumsden, SK, 22 Days After Seeding,



See the Lumiderm[™] Yield results

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

- 35% less flea beetle damage
- 1.4 bu/ac higher yield^{**}

Lumiderm.corteva.ca



We think it's simply the world's best corn, trusted by more growers in Canada than any other brand. We offer a diverse lineup of hybrids bred for the West, that finish strong and dry down fast. So you can harvest earlier and maximize profit along the way.



The proof is in the yield. Get the #YieldHero data at yieldhero.pioneer.com

Hybrid/Brand"	Technology Segment	СНИ	CRM	Silk CRM	Phy. CRM	GDUs to Silk	GDUs to Phy. Maturity	Stalk Strength	Mid-Season Brittle Stalk	Root Strength	Stress Emergence	Drought Tolerance	Staygreen	Grain Drydown	Ear Flex(10)	Test Weight	Plant Height	Ear Height	Husk Cover	Goss's Wilt	Silage CRM	Silage Yield	Starch and Sugar, %	Fiber Digestibility	Silage Crude Protein	Milk Per Acre	Milk Per Ton	Beef Per Acre	Beef Per Ton
	2		3		4		5		6		7			9	10	11	12	13		14	15	16	17	18	19	20	21	22	23
	EAR	LY-MIC	D COF	RN CH	ARAC	TERIS	STICS	AND	SCOR	ES*					ľ														
P6909R	Angendar Ready	1950	73	70	77	890	1810	7	6	6	4	6	3	5	3	9	3	4	3	4	69	6	-	5	6	7	7	7	7
39F44	Render	2000	73	70	72	890	1680	4	6	4	7	5	3	6	2	7	3	4	3	3	80	5	8	9	8	7	8	5	8
P7005AM™	AcreMax LIBERTY	2000	70	74	77	940	1810	3	4	7	5	6	4	7	3	9	3	4	6	2	68	6	8	6	9	7	7	7	7
P7202AM™	AcreMax LIBERTY	2050	72	69	76	880	1790	5	7	6	4	6	-	8	2	8	3	4	5	3	71	5	9	9	8	7	8	7	8
P7211AM™	AcreMax LIBERTY	2050	72	70	74	890	1730	6	5	5	4	7	3	6	2	7	3	4	4	3	71	8	9	9	7	9	9	9	9
P7213R	Regarder	2050	72	75	74	950	1730	4	6	7	6	5	3	3	6	7	3	4	3	3	71	6	8	8	9	6	9	6	9
P7417R	Reporting Records	2100	74	76	-	960	-	5	5	5	4	6	5	4	6	5	3	5	-	5	74	8	7	9	9	7	7	7	7
P7455R	Regarding Recardy	2100	74	74	75	940	1760	8	7	8	5	6	4	5	5	7	3	4	-	5	74	8	9	8	8	7	8	7	8
P7417AM™	AcreMax LIBERTY	2125	74	76	-	960	-	5	5	5	4	6	5	4	6	5	3	5	-	3	74	8	7	9	9	7	7	7	7
P7527AM™	AcreMax LIBERTY	2150	75	78	77	980	1810	5	6	5	5	7	3	7	5	5	3	4	4	5	75	9	8	9	8	9	9	9	9
P7527AMXT [™]	Sprimum AcreMax	2150	75	78	77	980	1810	5	6	5	5	7	3	7	5	5	3	4	4	5	75	9	8	9	8	9	9	9	9
MID-LATE CORN CHARACTERISTICS AND SCORES*																													
P7861R	Reportage CONVER	2200	78	78	78	980	1840	7	5	6	4	7	5	3	5	5	6	5	-	6	80	7	9	8	9	7	8	7	8
P7861AM™	AcreMax LIBERTY	2250	78	78	78	980	1840	7	5	6	4	7	5	3	5	5	6	5	-	6	80	7	9	8	9	7	8	7	8
P7940AM™	AcreMax LIBERTY	2275	79	80	79	1010	1860	7	7	7	4	6	5	5	6	6	4	6	-	5	81	7	7	6	9	6	6	6	6
P7958AM™		2275	79	84	83	1060	1960	6	4	7	5	6	6	4	4	6	5	5	3	5	75	7	5	7	7	7	6	7	6
P8034	Conventional	2325	80	82	85	1030	2020	8	4	8	4	6	5	7	3	5	4	4	4	5	82	8	8	8	9	7	8	7	8
P8234AM™		2400	82	82	85	1030	2020	8	4	8	4	6	5	7	3	5	4	4	4	5	82	8	8	8	9	7	8	7	8
P8352AM™		2425	83	85	86	1070	2040	7	6	6	4	6	4	5	6	5	3	5	-	4	84	7	8	8	9	7	7	7	7
P8352AMXT [™]		2425	83	85	86	1070	2040	7	6	6	4	6	4	5	6	5	3	5	-	4	84	7	8	8	9	7	7	7	7
P8407AM™	AcreMax LIBERTY	2450	84	85	85	1100	2020	7	4	5	4	7	5	4	6	5	5	5	-	5	86	8	8	8	8	8	8	8	8
w P8407Q [™] *		2450	84	-	-	-	-	7	4	5	4	7	5	4	6	5	5	5	-	5	86	8	8	8	8	8	8	8	8
w P8537AM [™] *	AcreMax LIBERTY	2550	85	-	-	-	-	6	5	5	4	7	 5	5	-	6	5	6	-	7	86	8	9	7	7	8	7	8	7
w P8537Q™*		2550	85	-	-	-	-	6	5	5	4	7	5	5	-	6	5	6	-	7	86	8	9	7	7	8	7	8	7
P8/36AM**		2550	8/	88	86	1100	2040	4	5	4	4	/	5	5	5	4	/	/	-	6	8/	8	9	/	/	/	8	8	8
W P8588AM"*	AcreMax LINK V	2550	85	-	-	-	-	6	6	4	4	_	5	5	-	6	3	5	-	6	82	/	8	/	9	/	/	/	/
P8581R		25/5	85	94	89	1180	2120	8	5	/	5	/	5	/	/	5	/	/	4	5	89	8	6	5	8	/	/	/	/
EW P8820Q'''*		25/5	88	-	-	-	-	/	5	6	4	6	4	6	-	6	3	4	-	5	85	/	8	6	/	6	/	6	/
P8989AM**	AcreMax LINK W	2625	89	8/	88	1090	2090	5	/	5	5	6	4	4	5	5	4	6	-	5	90		8	/	8	/	/	/	/
P9188	Conventional splinary	2600	91	89	91	1120	21/0	6	5	8	4	/	4	4	5	6	4	4	6	5	85	6	8	/	6	/	/	/	/
		2650	89	8/	88	1090	2090	5		5	5	6	4	4	5	5	4	6	-	5	90		8	/	8	/	/	/	/
P9188AM	AcreMax LINK V	2650	91	89	91	1120	21/0	6	5	8	4	/	4	4	5	6	4	4	6	5	85	6	8	/	6	/	/	/	/
W P9233Q"*		2/00	92	-	-	-	-	5	5	6	4	6	5	5	-	6	5	6	-	6	89	8	8	8	6	8	8	8	8
		2/50	93	-	-	-	-	6	5	5	6	6	6	6	-		5	5	-	/	94	8	8	5		/	5	/	5
P937/AMX1	AcreMax	2750	96	95	94	1190	2240	4	4	8	6	/	8	5	5	5	6	8	-	5	93	9	/	/	9	6	6	6	6

NOTES

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For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, **see page 56**.

* All scores of integrated refuge products are based upon the

major component ** All Pioneer products are hybrids unless designated with AM1, AM, AML, AMT, AMX, AMXT and Q, in which case they are brands. † New product. Not available for sale until 2021 orders and investigation and point the sale instituted invoicing are available. Quantities may be limited.



CORN

FEATURED GRAIN CORN HYBRIDS

FEATURED GRAIN CORN HYBRIDS

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



20.5%	24.9%	Moisture Adv. = 4.4% drier
Moist	ure %	
120.6 bu/ac	111.2 bu/ac	9.9 bu/ac increase 92% wins vs
Pioneer® brand P7211 (AM, HR, YHR)	DEKALB® 26-40 RIB	DK 26-40 RIB
Yield I	bu/ac	Source: 12 large-scale grower managed trials across Western Canada - weighted yield average across HR, YHR and AM corn products.

P7527AM

2150 HEAT UNITS

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



P7202AM

2050 HEAT UNITS

- Large kernels
- Exceptional test weight score
- Short eared corn with good husk cover





P7861R

2200 HEAT UNITS

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



P7417AM

2125 HEAT UNITS

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





Yield bu/ac

Moisture Adv. = 6.6% drier



Source: 3 large-scale grower managed trials

P7861AM

2250 HEAT UNITS

- Excellent dual purpose corn product with a good Goss's Wilt resistance score
- High yielding corn product 6.3 bu/ac increase over Pioneer[®] brand 39V09AM









Moisture Adv. = 0.8% drier

10.4 bu/ac increase <u>84% wins</u> vs DK 26-40 RIB

Source: 31 large-scale grower managed trials



Moisture Adv. = 4.6% drier



Source: 25 large-scale grower managed trials



CORN

FEATURED SILAGE CORN HYBRIDS

20.1% 16.6%

FEATURED SILAGE CORN HYBRIDS

P6909R

1950 HEAT UNITS

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



Star	ch %	
14.30 Tons/ac (35% DM)	12.59 Tons/ac (35% DM)	Starch Increase = 3.5% vs
Pioneer® brand P6909R	Pioneer® brand 39F44	39F44
Yield t	ons/ac	Source: 9 large-scale grower managed trials

P7861R

2200 HEAT UNITS

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



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





P7958AM

2275 HEAT UNITS

P8234AM

2400 HEAT UNITS

AcreMax^{*}

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



· Consistent yielding silage corn product

• Very good root and stalk strength

P7527AM

2150 HEAT UNITS

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





Starch %

19.55 18.39 Tons/ac Tons/ac (35% DM) (35% DM) Maizex*

Pioneer® brand P7527AM MS 7420R Yield tons/ac

30.9% 28.5%



(35% DM) Pioneer® brand PRIDE® Seeds Starch Increase = 2.2% vs **MS 7420R**

Source: 2 large-scale grower managed trials



P7527AM A4415G2 RIB

Yield tons/ac

A4415G2 RIB

Starch Increase =

2.4% vs

Source: 3 large-scale grower managed trials

3-year (2017-2019) corn yield data summarized from large-scale, grower managed plots across Western Canada as of March 9, 2020

LIBERTY

LINK[®] 🖤





Yield tons/ac

Corn | 31

Source: 2 large-scale grower managed trials

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

Effects of Winter Grazing on Beef Cow Performance & Evaluation of Low Heat Unit Corn for **Backgrounding Beef Calves***

Some key takeaways from these two studies:

- Total feed costs average \$2.54/cow/day for Grazing standing corn compared to \$3.21/cow/day round bale barley hay fed in drylot pens (DL)**
- Total system costs were 21% lower for Grazing standing corn compared to DL
- Total system costs on grazing whole plant standing corn was 46% less than feeding hay in the drylot

Grazing whole plant corn is an effective alternative to traditional drylot herd management.

*Information from Western Beef Development Center - 2017.01 Fact Sheet - Jose, D. et al. Effect of Winter Grazing on Beef Cow Performance and System Costs. 2017.02 Fact Sheet -McMillan, S. et al. Evaluation for Low Heat Unit Corn Hybrids for Backgrounding Beef Calves **Includes feed, salt and mineral, bedding, labour, equipment and yardage costs

Approximate Economics of Swath

Grazing Barley vs. Corn Grazing

Grazing 100 – 1000 lb cows

for 30 days

Silage Yield

wet weight yield wet weight yield

Input Costs

Grazing Expenses (cost/cow/day)

Barlev

(Ton/ac)

8

Approx. Barley

Input Costs

\$188/ac

Barley Feed

\$1.21

Corn

(Ton/ac)

12

Approx. Corn

Input Costs

\$271/ac

Corn Feed

\$1.16

CORN IS AN IMPORTANT FEED SOURCE FOR ANIMALS

Our corn silage products provide excellent early starch production for high energy 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
- animal diet
- It is well known that corn produces more tons per acre of wet silage on average than barley
- Corn also has better water use efficiency compared to wheat, barley or oats (Teutsch, 2013)

Water Use In Forage Crops

CROP	WATER	RUSED	REFERENCE				
	kg H2O/ kg DM	% of Alfalfa	Bennett and Doss, 1963				
Alfalfa (C3)	844	100	Martin et al., 1973				
Bromegrass (C3)	828	98	Martin et al., 1973				
Crested Wheatgrass	678	80	Nielsen, 2011				
Soybean (C4)	584	69	Bennett and Doss, 1963				
Tall Fescue (C3)	583	69	Martin et al., 1976				
Wheat / Barley / Oats (C3)	505	60	Martin et al., 1976				
Corn (C4)	372	44	Martin et al., 1976				
Sorghum (C4)	271	32	Martin et al., 1976				

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 biomass and starch yield 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



feed and an early silage harvest. They also feature excellent stay-green characteristics for green

When considering the best silage option for your operation, look first at the importance of starch in the

Teutsch C. Using mixtures of summer forages for improved forage yields in dry conditions. J Anim Sci 2013;91(E-Suppl 2)/J Dairy Sci 96(E-Suppl 1):406. [abstract 358].

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, can be more cost effective than barley silage.

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

MYTH BUSTER

Corn Silage: Plants with Larger Leaves vs Larger Ears?

Strive for a larger and properly mature corn ear as it has more energy than the leaves and accounts for 50% of the silage yield



2X-3X higher starch

compared to barley

10% cell contents

25% NDF (fibre)

Energy sources in corn:

silage.

65% grain

ABOVE AND BELOW DFFFN ABOVE AND BEYOND **RESULTS**.

QROME CORN PRODUCTS DELIVER SUPERIOR INSECT PROTECTION AND AGRONOMIC PERFORMANCE TO HELP UNLOCK YIELD POTENTIAL.

Our next generation of seed corn products are here. Pioneer® brand Qrome® products feature proprietary technology compatible with a broad range of our elite germplasm, giving growers more high-performance product options. Qrome products provide proven above- and below-ground insect protection from pests like European corn borer and corn rootworm. Combined with industry leading seed treatments on high yielding hybrids, Qrome is designed to help you get more out of each acre.

ADVANCED ABOVE AND BELOW GROUND TRAIT TECHNOLOGY

Proprietary molecular stack technology in Qrome products offers improved integration across a broad range of elite Corteva Agriscience germplasm. Along with a more efficient breeding process, this means more high-performance above and below ground insect control product options.

ENHANCED YIELD RESULT

In extensive research testing across a broad range of Pioneer's genetic platforms, Qrome delivered a significant yield improvement. In 2018 and 2019 on-farm trials, Qrome products averaged an 11.7 bu/ac¹ advantage over all competitive products tested.

TRUSTED PERFORMANCE AND PROTECTION

Qrome products include a unique molecular stack of proven Bt proteins from the Herculex[®] I and Herculex[®] RW traits, providing enhanced overall agronomic performance.

Along with Pioneer's most advanced technology for above- and below-ground insect protection, Qrome products deliver outstanding control with two modes of action against corn rootworm.

Talk to your local Pioneer sales representative to learn more about Qrome products or visit: ca.pioneer.com

2018 and 2019 Qrome® product performance data is based on the average of 489 locations in the United States and Canada through Nov. 13, 2019 for applicable products with Canadian maturity. Comparisons are against all competitors within a +/- 3 CRM with a minimum of 5 comparisons. 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 are a better predictors of future performance. DO NOT USE THIS OR ANY OTHER DATA FROM A LIMITED NUMBER OF TRIALS AS A SIGNIFICANT FACTOR IN PRODUCT SELECTION. Refer to ca pioneer.com or contact a Pioneer sales representative for the latest and complete listing of traits and scores for each Pioneer® brand product





on-farm research trials since 2015 under a variety of conditions and environments have confirmed

900+



Corteva corn rootworm research trial: Johnston, Iowa

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PIONEER® BRAND OPTIMUM® ACREMAX® AND QROME® PRODUCTS

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). The Pioneer® brand integrated refuge product lineup brings multiple modes-of-action for insect protection, to help increase overall farm yields by reducing refuge and extending the durability of important traits.

	Sptimum [.] AcreMax [.]	Sptimum [®] AcreMax [®] XTreme	
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	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	Single bag product with integrated corn borer and corn rootworm refuge
Benefits	Ultimate simplicity Maximized farm yields Technology preservation	Maximum yields Technology preservation Proven performance Multiple modes of insect protection	Maximum yields Technology preservation Proven performance Multiple modes of insect protection
Refuge	Integrated refuge; no separate refuge required	Integrated refuge; no separate refuge required	Integrated refuge; no separate refuge required
Refuge Examples	AcreMax AcreMax Merstar Mers	Contraction of Activity of Act	Commer Acreditar: XTreme Refinide: Rolenett (LL, Re2) with Procher 1220

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 Corn Borer #	Corn Earworm #	Western Bean Cutworm *	Fall Armyworm #	Black Cutworm	Southwestern Corn Borer #	Lesser Cornstalk Borer	Sugarcane Borer	Southern Cornstalk Borer	Stalk Borer (Common)	Western Corn Rootworm #	Northern Corn Rootworm	Mexican Corn Rootworm
Technology Segment Identifiers	Corn Technology Traits				Ir	nsec	t Ef	fica	cy L	eve	ls			
RR2	Roundup Ready® Corn 2													
ш	LibertyLink®													
AM, LL, RR2	Optimum [®] AcreMax [®] , LibertyLink [®] , Roundup Ready [®] Corn 2 (Corn Borer)	С	S		С	С	С	С	С	С	S			
AMXT, LL, RR2	Optimum [®] AcreMax [®] XTreme, LibertyLink [®] , Roundup Ready [®] Corn 2 (Corn Borer/Rootworm)	С	S		С	С	С	С	С	С	S	С	С	С
Q	Qrome [®] , LibertyLink [®] , Roundup Ready [®] Corn 2 (Corn Borer / Rootworm)	С	S		С	С	С	С	С	С	S	С	С	С

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 fieldevolved resistance to CryIF in most geographies.



CROP PROTECTION PRODUCTS FOR CORN

CHOOSE FROM A FULL LINE-UP OF HERBICIDE PRODUCTS TO HELP PROTECT YOUR PIONEER CORN



HERBICIDE

THE MOST EFFECTIVE IN-SEASON THISTLE CONTROL **AVAILABLE - RIGHT DOWN TO THE ROOTS**

- 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

HERBICIDE

BROAD-SPECTRUM WEED CONTROL FOR SUPERIOR CONTROL OF WILD BUCKWHEAT AND CANADA THISTLE

- Broad-spectrum weed control in both glyphosate-tolerant corn and canola for superior control of wild buckwheat and Canada thistle
- Convenient all-in-one control with 2 modes of action
- Protects canola without negatively impacting yield or maturity, unlike elevated rates of glyphosate

Sortan[™]IS

HERBICIDE

CLEANER FIELD, HIGHER YIELD POTENTIAL

- Provides moisture-activated extended control throughout the Critical Weed Free Period (VE to V4 stage)
- · Removes early season weed competition with excellent control of Volunteer RR canola and wild buckwheat
- Tank mix with glyphosate for an additional mode of action, providing a great tool for resistance management



Our high-performing portfolio of soybean varieties has always delivered results you can count on. And now, with the addition of even more maturity options for Pioneer[®] brand soybeans with Roundup Ready 2 Xtend[®] technology, growers can continue to enjoy high performing products in all areas of Western Canada.





The proof is in the yield. Get the #YieldHero data at yieldhero.pioneer.com

SOYBEAN

DEVELOPED & TESTED TO DELIVER PERFORMANCE



Pioneer[®] brand A-Series soybeans are products of research innovations powered by AYT 4.0, our proprietary tool for more rapidly developing products with the highest yield potential. Our extensive localized breeding and testing program helps ensure your A-Series soybeans deliver superior yield potential in your fields.

Highest Soybean Yield Potential

With soybean products that are developed across growing areas, Pioneer® brand A-Series soybean have outperformed other soybean varieties across multiple years and locations.

Backed by Unparalelled Research and Development

Pioneer has the industry's most extensive localized soybean breeding and product testing program to deliver leading yield-potential soybeans customized for your acres. Choose the best fit for your farm from the largest selection of herbicide-tolerant, high oleic and conventional soybeans.

Leading Defensive Traits to Beat Local Challenges

Our molecular breeding hones the native defensive traits you need to fight SCN, SDS, white mould, Phytophthora and many other yield-robbing diseases. Pioneer rigorously tests its products for disease resistance under the toughest conditions to help ensure peak performance in your local growing conditions.

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 wild buckwheat) are present.



Variety/Brand**	Relative Maturity	Canadian Heat Units	Technology Segment	Harvest Standability	Field Emergence	Phytophthora Gene	Phytophthora Field Tolerance	Iron Chlorosis	Downy Mildew	White Mold	Sudden Death Syndrome	SCN Source	Cyst Nematode Race 1	Cyst Nematode Race 2	Cyst Nematode Race 3	Cyst Nematode Race 5	Cyst Nematode Race 14	Canopy Width	Shattering	Plant Height for Maturity	Seed Size Range	Pubescence Color	Hila Color	Pod Color
	1		2	3	4	5	6	7		8		8	9	9	9	9	9	10	11	12	13	14	15	16
								R	ATI	NG	S*													
P0007A73X™	000.7	2175	ROUNDUP READY 2	8*	7	1a	4	6	4	4	-	-	-	-	2	-	2	4*	7*	5	2450- 3050	Т	BR	BR
P001A48X™	00.1	2300	ROUNDUP READY 2	7	8	1c	5	5	6*	4	-	-	-	-	3	-	2	6	7**	5	2500- 3100	Т	ΤN	ΤN
P003A97X™	00.3	2350	ROUNDUP READY 2	6	7	1k	4	6		4	-	PI88788	-	-	8	-	6	5*	-	4	2600- 3200	L	G	BR
P005A83X™	00.5	2375	ROUNDUP READY 2 TEND SOYBEANS	7	8	1c	5	6	5'	5'	-	Peking	3	-	9	4	2	5*	8*	6	2700- 3300	Т	ΒL	BR
P005A27X™	00.5	2400	ROUNDUP READY 2 TEND SOYBEANS	6	8	1c	4	6	8*	5'	4*	-	-	-	3	-	-	6	7*	4	2350- 2950	L	BR	ΤN
P006A37X™	00.6	2425	ROUNDUP READY 2	7	7	1c	5	6	7*	4	3*	-	-	-	1	-	1	5	7**	5	2400- 3000	Т	BR	BR
P007A08X™	00.7	2450	ROUNDUP READY 2 TEND SOYBEANS	6	7	1c	4	5		5'	-	-	-	-	4	-	4	4**	-	7	2750- 3350	Т	G	BR
P00A49X™	0.0	2525	ROUNDUP READY 2	6	7	1c	5	7		5"	-	PI88788	-	-	8	-	8	4	5*	6	2600- 3200	L	BR	BR
P00A75X™	0.0	2525	ROUNDUP READY 2 TEND SOYBEANS	6	7	1k	5	6		4	-	-	-	-	2	-	3	6	6*	5	2300- 2900	G	IB	BR

NOTES

For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 57.

 9
 OUTSTANDING
 1
 POOR
 INSUFFICIENT DATA



* Reflects preliminary data subject to change when additional data becomes available

** All Pioneer products denoted with ™ are brand names.

SOYBEAN

FEATURED SOYBEAN VARIETIES

FEATURED SOYBEAN VARIETIES

P001A48X

2300 HEAT UNITS

- Excellent harvest standability and early growth scores
- Very good anti-shatter score
- 4 bu/ac higher yielding than Pioneer[®] variety P000A87R



29.9 bu/ac	26.9 bu/ac	3.0 bu/ac increase 81% wins vs
ioneer® brand P001A48X	Pioneer® brand P000A52R	P000A52R
Yield	bu/ac	Source: 26 large-scale grower managed trials
29.6 bu/ac	27.9 bu/ac	1.7 bu/ac increase 79% wins vs
Pioneer® brand P001A48X	Pioneer® brand P002A19X	P002A19X
Yield	bu/ac	Source: 19 Iarae-scale arower managed trials

P005A27X

2400 HEAT UNITS

- Great yield for maturity
- Taller plant with average canopy width
- Excellent field emergence and anti-shattering



P003A97X

2350 HEAT UNITS

- Early maturity Xtend soybean with excellent yield potential
- Very good harvest standability



32.2 bu/ac	Equal yield 50% wins vs
DEKALB® B005-52	DK B005-52
ou/ac	Source: 12 large-scale grower managed trials
27.3 bu/ac	4.9 bu/ac increase 92% wins vs
Pioneer® brand P002A19X	P002A19X
ou/ac	Source: 12 large-scale grower managed trials
	32.2 bu/ac DEKALB* B005-52 bu/ac 27.3 bu/ac

P006A37X

2425 HEAT UNITS

- High-yielding mid-maturity variety
- Very good harvest standability
- Performs well on heavy soils



P005A83X

2375 HEAT UNITS

- New mid maturity soybean with SCN resistance
- Good canopy width soybean with very good yield potential
- Performs well on heavy soils





Yield bu/ac



Source: 12 large-scale grower managed trials

P007A08X

2450 HEAT UNITS

- New Xtend soybean variety with very good plant height for maturity
- Very good field emergence and good harvest standability scores







Yield bu/ac

0.9 bu/ac increase 58% wins vs S006-W5

Source: 12 large-scale grower managed trials





CROP PROTECTION PRODUCTS FOR SOYBEANS

A HERBICIDE PRODUCT TO HELP PROTECT YOUR PIONEER SOYBEANS

FeXapan

Plus VaporGrip® Technology

HERBICIDE

A TOOL FOR WEED CONTROL IN ROUNDUP READY 2 XTEND® SOYBEANS

- A new, low-volatile dicamba formulation featuring VaporGrip™ technology.
- Early pre-seed or pre-emergent applications provide short term residual activity at the high rate (0.69 L/ ac) on broadleaf weeds such as wild buckwheat, lamb's-quarters and redroot pigweed.
- A new herbicide group for soybean growers to manage against weed resistance including glyphosate resistant biotypes.

FeXapan at 0.69 L/acre provides excellent short term residual control



Untreated check



Low rate (0.33 L/acre) FeXapan + Glyphosate



High rate (0.69 L/acre) FeXapan + Glyphosate





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





SOYBEAN





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.

Why use the Enlist weed control system?

- · A new system built for Canadian farmers starting with new traits providing herbicide tolerance in soybeans and corn
- Herbicide solutions built on 2,4-D Choline, an improved form of 2,4-D with new Colex-D™ technology
- Includes a stewardship initiative that supports the use of multiple modes of action to address resistant weeds, provides training, and promotes responsible and sustainable use

Enlist E3[™] Soybeans

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

Why use Enlist E3 soybeans?

- Enlist E3 soybeans are tolerant to 2,4-D, glyphosate and glufosinate herbicides
- Crop tolerance to Enlist herbicides with Colex-D technology is robust, enabling applications up to the R2 growth stage
- With tolerance to 3 different herbicide modes of action, Enlist E3 soybeans are part of a strong resistance management strategy
- A program approach including other herbicide modes of action and residual herbicides provides an even more sustainable

Enlist Duo[™] herbicides with Colex-D technology

The Enlist weed control system gives you the choice of Enlist herbicides with Colex-D technology.

Enlist Duo[™]



Convenience of both 2,4-D choline and glyphosate in one formulation - controls more than 90 weeds including grasses and many hard-to-control and resistant weeds.

New Enlist[™] 1



New Enlist 1 is a stand-alone Colex-D formulation that controls over 40 broadleaf weeds. It gives you the flexibility to tank-mix with and adjust rates of glyphosate or glufosinate to control a wide range of hard to control and resistant weeds.

COLEX•D [™] technology										
		WHAT GO	ES INTO IT							
2,4-D choling with Colex-E Technology	e	Lat formu scie	est lation nce	Proprietary anufacturing process						
		WHAT IT	DELIVERS							
Near zero volatility	Mi po for	nimized otential physical drift	Low odour		Improved handling characteristics					

Enlist[™] Duo and Enlist[™] 1 are powerful tools for you to use as part of the Enlist[™] Weed Control System:

- With Colex-D technology, both herbicides are designed to land and stay on target.
- 2,4-D choline adds a Group 4 herbicide technology adding a new tool for managing hard-to-control and resistant weeds.
- Both have a wide window of application from pre-plant burndowns up to the R2 stage of Enlist[™] E3 sovbeans.
- Both are designed to be used as part of a Program Approach to manage a wide range of hard-tocontrol weeds like
 - » Annual sow thistle
 - Cleavers
 - Dandelion
 - Kochia
 - Volunteer canola
 - » Wild buckwheat

Program approach





Always read and follow the product label and consult the Product Use Guide for additional application information. [®], [™] Trademarks of Dow AgroSciences, DuPont or Pioneer and affiliated companies or their respective owners. © 2020 Corteva. The transgenic soybean event in Enlist E3" soybeans is jointly developed and owned by Dow AgroSciences LLC and M.S. Technologies, L.L.C. The Enlist weed control system is owned and developed by Dow AgroSciences LLC.





Visit us at enlistcanada.ca

SOYBEA



SUNFLOWER



A mark of assurance in seed treatments.

You choose a seed treatment package to help assure a successful season. In turn, you should feel assured that those seed treatments perform as expected, and work well with the genetics you're planting.

LumiGEN[™] seed treatments are designed, verified and proven to work with Pioneer® brand genetics, to help farmers establish healthy, uniform crops and maximize productivity.

LumiGEN seed treatments are exclusive to the seeds brands of Corteva Agriscience, and represents the value of the seed applied technologies that are available on Pioneer® brand genetics.

T	

Designed for our genetics

You've invested in outstanding Pioneer genetics for your field. We've invested in protecting their performance potential. LumiGEN seed treatments represent the best treatments

for Pioneer genetics to meet the vital needs of emerging crops and add value to the seed you plant.

Verified on our genetics



LumiGEN[™] seed treatments capitalize on over 100 years of crop protection know-how, and

an understanding of what growers need and how they farm. Our seed treatment combinations are carefully evaluated at the Corteva Agriscience[™] Center of Seed Applied Technologies (CSAT), a first-of-its-kind, all-in-one facility that's part laboratory, testing center and seed treating plant. Here, seed treatments are reviewed using our exclusive six-step PASSER process.



Proven in the field with our genetics

LumiGEN seed treatments are tested in real fields on real farms. Through our Field Test Network, our treated seed is evaluated by growers. It goes into the ground using real planters, under real conditions - and is observed and evaluated for real results.

Product	Herbicide System	Relative Maturity	Yield	Emergence	Drydown	Percent Oil	Mid-Oleic Score	High-Oleic Score
	1	2		3			4	5
						MI	D-(OLE
P63ME70	ExpressSun	37	8	6	6	7	8	-
P63ME80	ExpressSun	38	8	6	6	7	8	-
					LIN	101	.EIC	C (C
63A21		29	7	8	7	4	7	-
								HI
P63HE60	ExpressSun	37	8	6	6	7	-	8

NOTES

For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 58.

9 OUTSTANDING 1 POOR - INSUFFICIENT DATA

Lumisena

FUNGICIDE SEED TREATMENT

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
- 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

Lumisena.corteva.ca



ielf Fertility	lant Height	stem Curvature	leck Strength	stalk Strength	toot Strength	tust Field Tolerance	toot Sclerotinia	lead Sclerotinia	(erticillium	homopsis	1idge Score	Jowny Mildew Race Resistance	est Weight	Iull Score	CT013
	6	7	2	0		ш	ш	±	>	ш	8	9	-	10	11
RAT	INC	GS													
IC	(NL	JSU	JN®	Oll	L)										
9	6	8	8	7	7	-	7	6	-	6	-	1-4	5	5	5
8	6	7	6	7	7	-	5	6	-	6	6	1-4	7	4	5
0	IVE	NTI		IAL	OI	L)									
8	8	7	8	9	7	1	4	4	-	3	3	1	6	6	4
ЭH	-0	LEI	С												
8	6	7	6	7	7	-	5	6	-	6	6	1-4	8	4	5

		1				,		1	1												
Variety or Brand [*]	Herbicide Resistance	Forage Yield	Fall Dormancy	Winterhardiness	Stand Persistence	Standability or Lodging Resistance	Relative Forage Quality (RFQ)	Milk Yield per Acre	Disease Resistance Index	Anthracnose (Race 1)	Aphanomyces Root Rot (Race 1)	Aphanomyces Root Rot (Race 2)	Bacterial Wilt	Fusarium Wilt	Phytophthora Root Rot	Verticillium Wilt	Pea Aphid	Spotted Aphid	Stem Nematode	Northern Root-Knot Nematode	Potato leafhopper
	1	2	3	4	5	6	7	8	9												
									RA	ING	S										
		1		1		MU	SCL	E/H	IGH	YIE	LD \	/ARI	ETIE	S							
1-9 scores	-	6	-	8	8	8	7	6	7	8	7	4	8	8	8	8	5	-	-	-	-
54Q29	-	9	4	Н	9	7	8	9	34	HR	HR	R	HR	HR	HR	HR	HR	R	HR	-	-
1-9 scores	-	9	_	7	9	7	8	9	9	8	9	7	8	8	9	8	8	7	9	-	-
55Q27	-	9	5	VH	8	6	8	9	34	HR	HR	R	HR	HR	HR	HR	R	R	HR	-	-
1-9 scores	-	9	-	8	8	6	8	9	9	8	8	9	8	7	9	8	8	7	8	-	-
55V50	-	9	5	VH	8	6	7	8	34	HR	HR	HR	HR	R	HR	HR	R	R	R	HR	-
1-9 scores	-	9	_	8	8	6	7	8	9	8	9	9	8	7	9	8	6	6	7	8	-
54VQ52	-	9	4	VH	8	6	8	9	34	HR	HR	HR	HR	R	HR	HR	HR	R	HR	-	-
1-9 scores	-	9	-	8	8	6	8	9	9	8	8	9	8	7	9	8	8	7	8	-	-
						FC	ORA	GE	QUA	LIT	Y VA		TIES								
1-9 scores	-	7	-	8	7	6	8	7	7	8	7	4	8	8	8	7	7	6	5	-	-
54Q14 ⁺	_	8	4	VH	8	8	9	8	34	HR	HR	R	HR	HR	HR	HR	R	R	R	R	-
1-9 scores	-	8	-	8	8	8	9	8	9	8	9	6	8	9	9	8	6	7	7	7	-
	PREMIUM DORMANT BLEND																				
54B66™	-	7	4	VH	7	7	7	7	30	HR	R	MR	HR	R	HR	R	R	R	MR	-	-
1-9 scores	_	7	-	8	7	7	7	7	7	8	7	5	8	7	8	7	7	7	5	-	_

NOTES

For complete definitions and disclaimers related to product descriptions, characteristics ratings and disease ratings, and all other information contained herein, see page 58.

9 OUTSTANDING 1 P	OR - INSUFFICIENT DATA	
HR HIGHLY RESISTANT		ISTANT
LR LOW RESISTANCE	S SUSCEPTIBLE - INSUFFICIENT	DATA

* All Pioneer products denoted with ™ are brand names, in which case it is comprised of more than one Pioneer brand variety ^ Forage yield scores based on trials experiencing moderate to heavy leafhopper infestation, with no insecticide applied. + Varieties with HarvXtra® technology will have significantly higher RFQ values than any other variety due to the reduced lignin content. † Forage yield scores reflect the yield increase compared to

conventional alfalfa types under one or more lodging events at harvest.

SILAGE INOCULANTS

SILA-BAC[®] BRAND FORAGE ADDITIVES CROP-SPECIFIC OPTIONS USING PATENTED AND/OR PROPRIETARY BACTERIAL STRAINS

SILA-BAC® BRAND 1174 11H50 11C33 Multi-Corn Alfalfa Silage Crop Unique blend Unique blend of patented of patented and/or and/or Contair proprietary proprietary strains of strains of fast-actir Lactobacillus Lactobacillus L. buchne plantarum and plantarum and Enterococcus Enterococcus faecium faecium Improves fermentation Χ Χ X and reduces dry matter loss Improves nutrient Χ Χ Χ conservation Significantly reduces heating X on bunker/pile Helps reduce heating in entire X TMR Improves fibre digestibility

RAPID REACT AEROBIC STABILITY

Rapid React aerobic stability technology contains a proprietary bacterial strain that quickly goes into action, making feed ready in just 7 days. Benefits include:

- Faster access to your most valuable input
- A consistently cool bunker face
- Extended bunklife



INOCULANTS			SILA-BAC BRAND NUTRIVAIL® FEED TECHNOLOGY		
	11891	11G22	11CFT"	11AFT	11GFT
)	HMC	Alfalfa/ Grass/ Cereals	Corn Silage	Alfalfa	Grass/ Cereals
s Igʻ	Contains fast-acting L. buchneri [†]	Contains fast-acting" L. buchneri [†]	Contains L. buchneri [†]	Contains L. buchneri [†]	Contains L. buchneri [*]
	x	x	Х	x	X
	x	x	X	x	x
	x	x	X	x	x
	x	x	x	x	x
			x	x	x

* Rapid React® aerobic stability[†] technology

** Patented, proprietary and unique L. buchneri strain found only in Nutrivail® Feed Technology products proven to improve rate of fiber digestibility.

† 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 58.

SILAGE INOCULANTS

FEATURED SILA-BAC® BRAND **INOCULANTS**

11CFT

CORN FIBRE TECHNOLOGY

Multi-strain with L. buchneri

GRASS FIBRE TECHNOLOGY

Multi-strain with L. buchneri

Improves fibre digestibility

supplemental feeding cost

Improves grass/cereal fermentation

- Improves fibre digestibility
- Enables higher corn silage inclusion rates
- Reduces shrink and improves bunklife of the silage face during feedout

Improves forage energy density to help reduce

NUTRIVAIL. 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. 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

11B91

11GFT

HIGH-MOISTURE CORN

- Multi-strain with L. buchneri
- Improves fermentation
- Retains nutrient content and enhances digestibility of ensiled high-moisture corn
- 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

RAPID REACT 1174 MULTI-CROP

- Reduces dry matter loss
- Promotes faster silage fermentation, retaining more energy
- Improves forage quality for silage with higher energy

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

Sila-Bac® brand inoculants 11C33, 11G22 and 11B91 – now with Rapid React aerobic stability technology – provide you with earlier aerobic stability for silage consistency and faster access to new crop feed, allowing maximum flexibility when managing feed inventory.

Granular

Streamline your scouting efforts with Granular Insights.

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



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.

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

 Promotes faster, more efficient fermentation Helps improve alfalfa silage nutritional quality

11H50

ALFALFA SILAGE

Improves dry matter digestibility

Reduces dry matter loss

NUTRIVAIL.

RAPID REACT.

RAPID REACT.

Catch Problems Faster

A grower spotted an area of unusually high vegetation early in the season using Granular Insights Vegetation Index, powered by WDRVI, which identifies crop anomalies 3x more accurately than other tools that use NDVI. Upon scouting, the dark spot turned out to be stubborn weed pressure.

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

Notes & Photos



Easily capture and share geolocated photos and notes with your advisors and team.

Satellite Imagery



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



OUR 2020 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





Visit us at corteva.ca

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IMPORTANT: 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 2019 harvest and were the latest available at time of printing. Some scores may change after 2020 harvest. Contact vour Pionee sales professional before planting for the latest trait rating information. 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 ca.pioneer.com or contact a Pioneer sales professional 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. RATINGS: 9 = Excellent: 1 = Poor: [-] = Insufficient Data, G= Good, VG = Very Good

MATURITY: 9 = Late; 6 = Medium; 5 = Medium-Early; 3 = Early; 1 = Very Farly

2. HERBICIDE TOLERANT TRAIT: Hybrids and varieties with the Roundup Ready[®] gene (RR) are tolerant to labeled rates of Roundup® branded herbicides. This technology allows for post-emergent applications of Roundup without crop injury or stress (see herbicide label). Labeled Roundup herbicide should only be used over the top of those hybrids and varieties that carry the Roundup Ready designation. Roundup Ready[®] and Roundup[®] are registered trademarks used under license from Monsanto Company.

Hybrids and varieties with the CLEARFIELD® trait (CL) are tolerant to labeled rates of Ares[™] SN and Amity[™] WDG herbicides. This technology allows for postemergent applications of these herbicides without crop injury or stress (see herbicide label). Labeled herbicides should only be used over the top of those hybrids and varieties that contain the CLEARFIELD trait. Liberty®

LibertyLink[®] and the Water Droplet 2. Design are trademarks of BASE



3. STRAIGHT CUT: E = Excellent, VG = Very Good, G = Good, A = Average.

- CLUBROOT RESISTANCE: Shows different source of Cluroot resistance. CR1 is different from CR2: CR2 is different from CR3 etc.
- CLUBROOT: R = Resistant, S = Susceptible

5.

- BLACKLEG: R = Resistant; MR = Moderately Resistant; MŚ = Moderately Susceptible; S = Susceptible
- 7 BLACKLEG: 9 = Resistant; 1 = Susceptible
- SCLEROTINIA: 9 = Highly Tolerant; 5 = Moderately Tolerant; 1 = Susceptible.
- FUSARIUM WILT: R = Resistant; S = 9 Susceptible. Current Fusarium rating is provisional and based on limited
- EARLY GROWTH: 9 = Excellent, 1 = Poor. Early growth is recorded when plants are at 4-6 leaf stage. It is a subjective evaluation of healthiness

of plants and the soil area covered by their leaves

11. **GREEN SEED CONTENT:** 9 = Very low count (desired); 1 = Very high count. STANDABILITY: 9 = upright (desired)

while 1 = Severely lodged. PLANT HEIGHT: 9 = Tall; 1 = Short (desired)

Pioneer[®] brand canola products are treated with Helix® Vibrance® seed treatment. Helix® and Vibrance® are registered trademarks of a Syngenta Group Company.



13.

IMPORTANT: Product performance in water-limited environments is variable and depends on many factors such as the severity and timing of moisture deficiency, heat stress, soil type, management practices and environmental stress as well as disease and pest pressures. All products may exhibit reduced yield under water and heat stress. Individual results

may vary. 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. nformation and scores are assigned by Pioneer Research Managers. Scores are based on period-of-years testing through 2019 harvest and were the latest available at time of printing. Some scores may change after 2020 harvest. Scores represent an average of performance data across areas of adaptation, multiple arowing 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 hless 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 ca.pioneer com or contact a Pioneer sales

professional 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.

RATINGS: 9 = Outstanding; 1 = Poor; Blank = Insufficient Data.

HYBRID FAMILY: Hybrid family identifies products that have the 1 same base genetics. Manage products within the same family similarly.

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® RW trait, the YieldGard® Corn Borer gene, and the Herculex® XTRA genes. Always follow and adhere to the Corteva Agriscience Product Use Guide ("PŬG"), which requires that you take all affirmative steps within your control to appropriately manage and confirm your grain buver's acceptance of the grain being sold and only deliver grain to a purchaser or grain handler that agrees grain and by-products will be marketed in domestic food and feed and export markets where such 4. products are authorized for the specific use. For additional information about the status of regulatory authorizations for these products, including the individual components as well as the trait stacks, please visit biotradestatus

com or visit seedinnovation.ca/ hybrid to review the EU approval status for specific hybrids marketed in Canada.

Q (Qrome®) - Contains a single-bag integrated refuge solution for above- and below-ground insects The major component contains the Agrisure® RW trait, the YieldGard® Corn Borer gene, and the Herculex XTRA genes

Always follow and adhere to the Corteva Agriscience Product Use Guide ("PUG"), which requires that you take all affirmative steps within your control to appropriately manage and confirm your grain buver's acceptance of the grain being sold and only deliver grain to a purchaser or arain handler that agrees argin and by-products will be marketed in domestic food and feed and export markets where such products are authorized for the specific use. For additional information about the status of regulatory authorizations for these products, including the individual components as well as the trait stacks, please visit biotradestatus. com or visit seedinnovation.ca/ hybrid to review the FU approval status for specific hybrids marketed in Canada.

Pioneer® brand products are provided subject to the terms and conditions of purchase which are part of the labelling and purchase documents.



AcreMax 🗡 AgrisureRW

Herculex[®] Insect Protection technology by Dow AgroSciences and Pioneer Hi-Bred. Herculex® and the HX logo are registered trademarks of Dow AgroSciences LLC. YieldGard[®], the YieldGard Corn **7**. Borer Design and Roundup Ready® are registered trademarks used under license from Monsanto Company. Liberty[®], LibertyLink[®] and the Water Droplet Design are trademarks of BASF. Agrisure® and Agrisure Viptera® are registered trademarks 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.

CRM (Comparative Relative Maturity): There is not an industry standard for maturity ratings so comparing product maturity and harvest moisture ratings between companies is usually difficult. Use the CRM rating to compare Pioneer® brand products with competitive products 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 products with the RR2 gene within a family will usually be 1-2 CRMs earlier than indicated, when insect infestations are moderate to heavy. One CRM difference is about 1/2 point of moisture difference at harvest.

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 product that you plant or one that is successfully used in your area

GDUs TO PHYSIOLOGICAL

5.

6

MATURITY: Measures differences in arowing degree units (GDUs) equired to zero milkline stage. To help decide if a new product fits vour area's arowing season. compare its GDUs to physiological maturity to a product that you plant or one that is successfully used in vour area.

MID-SEASON BRITTLE STALK: Ratings determined by frequency and severity of stalk snappage at lower to middle stalk internodes from conditions usually favored 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 both product and herbicide selection can help 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 products with higher scores during period of susceptibility

- STRESS EMERGENCE: All products are expected to establish norma 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 brand products. 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 product 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 arowth or speed of emergence
- 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 yields vs. other platforms of similar maturity in limited-moisture environments.
- GRAIN DRYDOWN: Compares products of similar maturity for rate of moisture loss during grain drydown. A higher score indicates faster drydown. A lower score indicates slower drydown, or a wider opportunity for silage and high-moisture corn harvest.
- EAR FLEX: Score reflects the ability of 10. a product to flex ear size as plant density is reduced, or as growing conditions improve.

- TEST WEIGHT: Higher score 11. indicates heavier test weight
- 12. PLANT HEIGHT: 9 = Very Tall; 1 = Short.
- 13. EAR HEIGHT: 9 = High; 1 = Low.
- GOSS WILT RESISTANCE 8-9 = 14. Highly Resistant; 6-7 = Resistant; 4-5 = Moderately Resistant; 1-3 = Susceptible
- 15. SILAGE CRM (Silage Comparative Relative Maturity): With no industry standard for silage maturity, comparing maturity and harvest moisture across various companies' corn-for-silage hybrids can be difficult. Pioneer silage CRM ratings provide a relative comparison among Pioneer® brand products of rates at which products reach harvestable whole plant moistures It is on the same scale as the CRM rating provided for grain corn products and does not represent actual days from planting or emergence to harvest moisture or half milkline
- SILAGE YIELD: Based on whole-16. plant vield per acre (adjusted to 35% drv matter) from multi-vea comparison with other products within a maturity range not exceeding 5 silage CRM units.
- STARCH AND SUGAR, %: Percent 17. starch and soluble sugars (DM basis) in the whole-plant sample predicted by NIRS
- FIBER DIGESTIBILITY: Based on 18. 24-hour enzymatic estimate of percent dearadable neutral detergent fiber (NDF) as a percent of total NDF in whole-plant sample, predicted by NIRS
- SILAGE CRUDE PROTEIN: Based on 19 the amount of crude protein in the whole plant, predicted by NIRS.
- 20. MILK PER ACRE: 9 = Outstanding; 1 = Poor, based on University of Wisconsin MILK2006 utilizing silage yield, nutrient content and diaestibility.
- 21. MILK PER TON: 9 = Outstanding; 1 = Poor, based on University of Wisconsin MILK2006 utilizing silage nutrient content and diaestibility.
- 22. BEEF PER ACRE: 9 = Outstanding; 1 = Poor, based on University of Wisconsin MILK2006 utilizing silage yield, nutrient content and diaestibility.
- BEEF PER TON: 9 = Outstanding; 1 = 23. Poor, based on University of Wisconsin MILK2006 utilizing silage nutrient content and diaestibility.



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 201 harvest and were the latest available at time of printing. Some scores may change after 2020 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 diait representing the aeneral maturity aroup, 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.
- TECHNOLOGY SEGMENT: Varieties 2. 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 garicultural 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. Varieties with BOLT® technology provide excellent plant-back flexibility for soybeans following application of SU (sulfonvlurea) herbicides Enlist É3[™] sovbeans contain the Enlist E3 trait that provides crop safety for use of labelled over-the-top applications of glyphosate, alufosinate and 2,4-D herbicides featuring Colex-D[®] technology when applied according to label directions. Following burndown, the only 2,4-D containing herbicide products that may be used with Enlist™ crops are products that feature Colex-D technology and are expressly labelled for use on Enlist crops. 2,4-D products that do not

contain Colex-D technology are not authorized for use in conjunction with Enlist E3 soybeans. WARNING: Enlist E3 soybeans are tolerant of over-the top applications of alyphosate, alufosinate, and 2,4-D. Accidental application of incompatible herbicides to this variety could result in total crop loss. When using 2,4-D herbicides, grower garees to only use 2.4-D products that contain Colex-D technology authorized for use in conjunction with Enlist E3 soybeans. Always read and follow herbicide label directions prior to use. Enlist Duo™ is the only 2,4-D product authorized for use with Enlist crops. Consult Enlist herbicide labels for weed species controlled. Additional product-specific stewardship requirements for Enlist crops, including the Enlist™ Product Use Guide, can be found at www.EnlistCanada.ca Always read and follow label directions.

The transgenic soybean event in the Enlist E3™ soybean was jointly developed and owned by Dow AgroSciences LLC and M.S. Technologies, L.L.C. [®] [™] Enlist, Enlist E3, the Enlist E3 logo, and Colex-D are trademarks of The Dow Chemical Company ("Dow") or an affiliated company of Dow. Excellence Through Stewardship is a registered trademark of Excellence Through Stewardship. (-) = Variety does not contain a herbicide resistant gene.

Glyphosate

6.

- HARVEST STANDABILITY: 9 = Upright (Desired), 1 = Severely lodaed
- FIELD EMERGENCE: Rating based on 4. speed and strength of emergence in sub-optimal temperatures. 7-9 = Excellent; 4-6 = Average; 1-3 = Below Average
- PHYTOPHTHORA RESISTANCE 5. 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

- 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. IRON CHLOROSIS 7.
- SCN RESISTANCE SOURCE: There 8. 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
- SOYBEAN CYST NEMATODE [SCN]: esistance to each of the major SCN races is scored on a 1-9 scale, 9 =

Excellent resistance; 8-7 = Very good resistance; 6 = Good resistance; 5 = Average resistance; 4 = Below average resistance; 3-2 = Susceptible; 1 = Highly susceptible; to the specific race indicated. 10. CANOPY WIDTH: 9 = Extremely bushy; 1 = Very narrow.

- ANTI-SHATTERING: 9 = Excellent tolerance to shattering; 1 = Poor tolerance to shattering. PLANT HEIGHT FOR MATURITY: 9 = 12.
- Tall: **1** = Short. 13. PUBESCENCE COLOR: T = Tawny; G =
- Gray; L = Light tawny; M = Mixed. HILA COLOR: BL = Black; BR = Brown; 14. TN = Tan; G = Gray; IB = Imperfect black; BF = Buff; Y = Yellow (Clear); M
- POD COLOR: BR = Brown; TN = Tan PER CENT PROTEIN AT 13% 16.
 - MOISTURE: Compare data within table only. Values can vary widely by growing season and region.



IMPORTANT: 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 2019 harvest and were the latest available at time of printing. Some scores may change after 2020 harvest. Contact vour Pioneer sales professional before planting for the latest trait rating information. Information and ratings are based on comparisons with othe 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 ca pioneer com or contact a Pioneer sales professional 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. 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 yield 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 esistant; 7-6 = Resistant; 5 Moderately Resistant; 3-1 = Susceptible; Blank = Insufficient Data.

- HERBICIDE SYSTEM: Pioneer brand sunflower hybrids with the ExpressSun[®] trait for resistance to tribenuron-methyl herbicides labeled for use with the ExpressSun trait. This unique sunflower system is designed to maximize weed control in sunflower crops, enhancing ease of production and yield. This system provides improved weed control over conventional hybrids with traditional herbicides
- 2. 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 MID-OLEIC SCORE: 9 = 4.
- Consistently meets oleic leve specifications for NuSun® oil HIGH-OLEIC SCORE: 9 = 5 Consistently meets high-oleid
- specifications for high-oleic oi profile of 85%. PLANT HEIGHT: Short stature is 6.
- desirable. 9 = Short; 1 = Tall. 7. STEM CURVATURE: 9 = Erect; 8 = Semi-Frect (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 hybrid.

- DOWNY MILDEW RACE **RESISTANCE:** Indicates downy mildew resistance to the races identified.
- HULL SCORE: A relative expression 10. of hullability and kernel chipping. 9 = completely hulled, high percentage of whole kernels: 1= poor hulling, many broken kernels.
- PCT OVER 13: Using a 13/64th 11. screen, oilseed types are divided by kernel size. 9 = high percentage over 13/64; 1 = low percentage.

NuSun® is a registered certification mark of the National Sunflower Association.



Trait Scores (9=Outstanding; 1=Poor; Blank = Insufficient Data, unless otherwise noted) are based upon period-of-years testing against other Pioneer® brand products through 2019. Pest resistance, dormancy and winterhardiness ratings based on standard test protocols prescribed by the North American Alfalfa Improvement Conference (NAAIC). Ratings may change over additional years of data collection, or if NAAIC protocols change. Scores are assigned by Pioneer Agronomists and Research Managers from research data across a range of climates and growing conditions and may not predict future results. Variety response's 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 ca.pioneer com or contact a Pioneer sales professional for the latest and most complete listing of traits and scores for each Pioneer brand product.

Disease, Insect, and Nematode Pest **Resistance Scores: NAAIC standardized**

test score: HR = Highly Resistant; R = Resistant; MR = Moderately Resistant; LR = Low Resistance; S = Susceptible; Blank Insufficient Data. Pioneer 1-9 score: 9=>70% 8=51-69% 7=41-50% 6=31-40% 5=23-30%, 4=16-22%, 3=11-15%, 2=6-10%, and 1=1-5% resistant plants in standardized tests.

1.

HERBICIDE RESISTANCE: Always Read and Follow Pesticide Label Directions. Roundup Ready® Alfalfa (RRA) products and/or HarvXtra Alfalfa with Roundup Ready Technology (HVX) contain genes that confer tolerance to alvphosate. Glvphosate agricultural herbicides will kill crops that are not tolerant to glyphosate. Accidental application of incompatible herbicides to these alfalfa varieties could result in total crop loss. HVX alfalfa products contain the biotechnology-derived trait developed to maximize alfalfa auality compared to commercially available alfalfa products harvested at the same growth stage, by reducing the amount of

lignin in the plant. Do not export Pioneer® brand Alfalfa seed or crops containing Roundup Ready® and/or Pioneer® brand Alfalfa with HarvXtra® Technology, including hay or hay products, to China pending import approval. In addition, due to the unique cropping practices, do not plant this product in Imperial County, California. Crops and materials containing biotech traits

may only be exported to, 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 law to move materials containing biotech traits 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 purchased. For further information on the approval status of biotech traits, please visit www.biotradestatus. com.

Roundup Ready® and Roundup® are registered trademarks of Monsanto Technology LLC, used under license by Forage Genetics International, LLC. HarvXtra® is a trademark of Forage Genetics International, LLC. HarvXtra® Alfalfa with Roundup Ready® Technology is enabled with technology from The Samuel Roberts Noble Foundation, Inc.

FORAGE YIELD: Rating based on 2. paired comparison data through 2018 for trials located in the U.S. Ratings for Pioneer® varieties 55H94 and 55H96 from trials with moderate to heavy potato leafhopper infestation, with no insecticide applied.

FALL DORMANCY: Fall dormancy 3 ratings based on standard test protocols of the NAAIC. 1=Very fall dormant 11=Non-dormant

WINTERHARDINESS: EH = Extremely Hardy; VH = Very Hardy; H = Hardy; MH = Moderately Hardy: NH = Non-hardy; VNH = Very Non-hardy. Ratings based on research observations over life of stand.

5. STAND PERSISTENCE: Rating based on observations taken at end of stand life representing plant appearance and stand integrity after at least 3 harvest years.

STANDABILITY OR LODGING 6. **RESISTANCE:** Score based on plant lodging observations (% of stems >45% angle) averaged across numerous areas of adaptation including Midwest and Western environments. 7

RELATIVE FORAGE QUALITY: Score based on forage analysis results and the Wisconsin Milk2006 formulas representina the impact of nutrient content and fiber digestibility.

MILK YIELD PER ACRE: Score based 8. on forage analysis results and the Wisconsin Milk2006 formulas representing the impact of forage yield, nutrient content and fiber diaestibility.

DISEASE RESISTANCE INDEX (DRI): Index based on the following pests: Bacterial wilt Verticillium wilt, Fusarium wilt, Anthracnose, Phytophthora and Aphanomyces (Race 1) and Aphanomyces (Race 2). HR = 5 points; R = 4 points; MR = 3 points; LR = 2 points; S = 1 point. Highest possible DRI = 35 points.



1000 INOCULANT FOOTNOTES

IMPORTANT: Information and ratings are based on relative comparisons wi other Sila-Bac[®] brand forage additives 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 unde 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

ca.pioneer.com or contact a Pioneer sales professional 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.

Fermentation - Rate and extent of pH decline and the composition of fermentation acids occurring in silage

Nutrient Conservation – Retaining more sugar/starch and reducing protein degradation by rapidly reducing silage

Fiber Digestibility – The digestibility of neutral detergent fiber (NDF) by the ruminant animal expressed as a percentage of the total NDF.

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