

CORN*

PIONEER.COM/CORN

HYBRID/BRAND**	Hybrid Family ¹	Market Segment ²	CRM ³	Silk CRM	CHARACTERISTIC RATINGS										DISEASE RATINGS				
					Stalk Strength	Root Strength	Stress Emergence ⁴	Staygreen	Drought Tolerance ⁵	Ear Flex ⁶	Test Weight ⁷	Plant Height ⁸	Ear Height ⁹	Mid-Season Brittle Stalk ¹⁰	Gray Leaf Spot ¹¹	Northern Leaf Blight ¹²	Goss's Wilt	Anthracnose Stalk Rot	Gibberella Ear Rot ¹³
P9492AM™ NEW	P9492		94	97	7	7	7	7	8		5	6	5	7	5	5	6		
P9621AMXT™	P9621		96	99	4	5	6	4	8		4	5	6	7	5	4	5		6
P9870AM™	P9870	HTF,HES	98	98	5	5	5	4	7	5	5	5	6	7	3	5	6		5
P9929AMXT™, P9929AM™	P9929	HTF,HES	99	95	5	7	5	4	8	3	5	3	4	7	4	4	7		4
P9998AMXT™, P9998AM™, P9998R	P9998	AQ,HAE,HTF	99	99	6	6	4	4	9	5	6	4	4	5	4	5	6		4
P0157AMXT™, P0157AM™, P0157R	P0157	AQ,HAE,HTF	101	102	5	7	5	4	9	6	6	4	4	5	4	5	8	4	4
P0306AMXT™, P0306AM™	P0306	AQ,HAE,HTF	103	101	6	8	5	6	9	5	6	3	4	5	4	5	7		4
P0339AMXT™	P0339	AQ,HES,HTF	103	101	6	8	6	6	9	5	5	3	4	5	4	6	8	5	4
P0574AMXT™, P0574AM™	P0574	AQ,HAE,HTF	105	104	6	7	6	7	9	6	5	3	4	5	4	5	5	4	4
P0589AMXT™, P0589AM™, P0589R	P0589	AQ,HAE,HTF	105	105	5	8	7	6	9	6	5	4	5	6	5	4	6	4	3
P0688AM™ NEW	P0688	HAE,HTF	106	103	7	7	5	6	8		5	4	4	6	5	5	5		4
P0707AMXT™, P0707AM™	P0707	YFC,HAE,HTF,HES	107	103	5	8	5	5	8	4	6	5	4	5	4	5	6	4	4
P0825AMXT™	P0825	HTF,HES	108	111	6	4	5	8	6	6	5	6	6	7	6	6	7	5	5
P0919AM™	P0919	HTF,HES	109	107	6	7	5	7	7	6	6	6	6	5	3	6	5	4	5
P0937AM™	P0937	HTF,HES	109	108	6	6	6	7	6	7	5	5	4	7	5	6	7	6	4
P0977AM™ NEW	P0977	HAE	109	110	6	6	5	6	8		6	7	7	7	5	5	5	4	
P1093AMXT™ NEW	P1093	YFC,HAE	110	113	6	8	5	7	8		8	5	4	5	4	6	6	5	
P1138AM™	P1138	HTF,HES	111	111	5	8	5	5	8	4	6	7	7	6	4	5	6	4	
P1151AMXT™, P1151AM™, P1151R	P1151	AQ,HAE,HTF	111	106	5	7	4	6	9	6	6	5	4	7	4	5	6	5	3
P1197AMXT™, P1197AM™	P1197	WX,HTF,HES	111	113	7	5	5	8	7	6	5	6	6	5	5	6	6	6	5
P1244AM™ NEW	P1244	AQ,HAE	112	108	6	7	5	6	9		7	5	5	6	4	5	6	4	4
P1311AMXT™	P1311	HTF	113	116	5	6	5	8	6	8	5	7	7	6	5	6	6	5	
P1353AM™	P1353	HAE	113	115	6	8	5	7	7	6	6	7	5	5	4	5	6	5	
P1365AMXT™	P1365	HAE,HTF	113	111	8	8	5	8	8	7	8	6	7	5	6	6	7	5	4
P1366AMXT™, P1366AM™	P1366	HTF,HES	113	111	5	7	5	7	7	6	5	5	7	7	4	6	6	5	
P1498AM™	P1498	AQ,YFC,HAE	114	110	6	5	6	7	9	7	6	6	7	6	6	5	5	4	4
P1563AM™ NEW	P1563	HTF,HES	115	117	6	7	5	7	7		6	5	8	7	4	6	7	4	
P2089AM™	P2088	HTF	120	117	8	4	4	8	7	8	6	8	6	7	6	5	7	5	
CONVENTIONAL																			
P9608	P9608	YFC,HAE	96	95	7	7	6	5	8	6	7	5	4	4	5	5	7		5
P9998†	P9998	AQ,HAE,HTF	99	99	6	6	4	4	9	5	6	4	4	5	4	5	6		4
P0157	P0157	AQ,HAE,HTF	101	102	5	7	5	4	9	6	6	4	4	5	4	5	8	4	4
P0574	P0574	AQ,HAE,HTF	105	104	6	7	6	7	9	6	5	3	4	5	4	5	5	4	4
P0589	P0589	AQ,HAE,HTF	105	105	5	8	7	6	9	6	5	4	5	6	5	4	6	4	3
P1093†	P1093	YFC,HAE	110	113	6	8	5	7	8		8	5	4	5	4	6	6	5	
P1151	P1151	AQ,HAE,HTF	111	106	5	7	4	6	9	6	6	5	4	7	4	5	6	5	3
P1197	P1197	WX,HTF,HES	111	113	7	5	5	8	7	6	5	6	6	5	5	6	6	6	5
WAXY																			
P0157E	P0157	WX,AQ,HAE,HTF	101	102	5	7	5	4	9	6	6	4	4	5	4	5	8	4	4
P0533EXR	P0533	WX,HTF,HES	105	97	4	5	5	3	8	5	6	3	4	7	4	5	5	2	4
P0589EHR NEW	P0589	WX,AQ,HAE,HTF	105	105	5	8	7	6	9	6	5	4	5	6	5	4	6	4	3
P0905EXR	P0905	WX,HTF,HES	109	111	8	6	7	8	8		6	7	4	5	3	4	6		
P1018EHR, P1018E	P1018	WX,HTF,HES	110	109	6	4	5	8	7	7	4	6	8	4	6	5	6	7	3
P1162EXR	P1162	WX	111	104	5	7	5	5	8	5	4	3	4	5	5	5	4	4	3
P1197E NEW	P1197	WX,HTF,HES	111	113	7	5	5	8	7	6	5	6	6	5	5	6	6	6	5
P1498E	P1498	WX,AQ,YFC,HAE	114	110	6	5	6	7	9	7	6	6	7	6	5	5	4	4	4

P0157AMXT™

- Leader product across multiple environments.
- Top-end yield potential with stability for many acres.
- Excellent disease package and outstanding drought tolerance.

P0306AM™

- Leader product with top-end yield potential and stability for many acres.
- Solid disease package and outstanding drought tolerance.
- Attractive plant stature.

P0574AMXT™

- Leader product with top-end yield potential and stability for many acres.
- Solid disease package and outstanding drought tolerance.
- Attractive plant stature.

P0589AMXT™

- Leader product across multiple environments.
- Excellent agronomics and nice plant stature.
- Very good stress emergence.

P0688AM™

- New leader product across multiple environments.
- Top-end yield potential with stability for many acres.
- Above average disease package and excellent drought tolerance.


P1197AM™

- Best-in-industry yield potential for maturity.
- Solid disease package.
- Excellent late-season plant health.

For complete definitions and disclaimers related to characteristics ratings, and all other information contained herein, see page 15. Not all products are available in all areas.

CORN SILAGE*

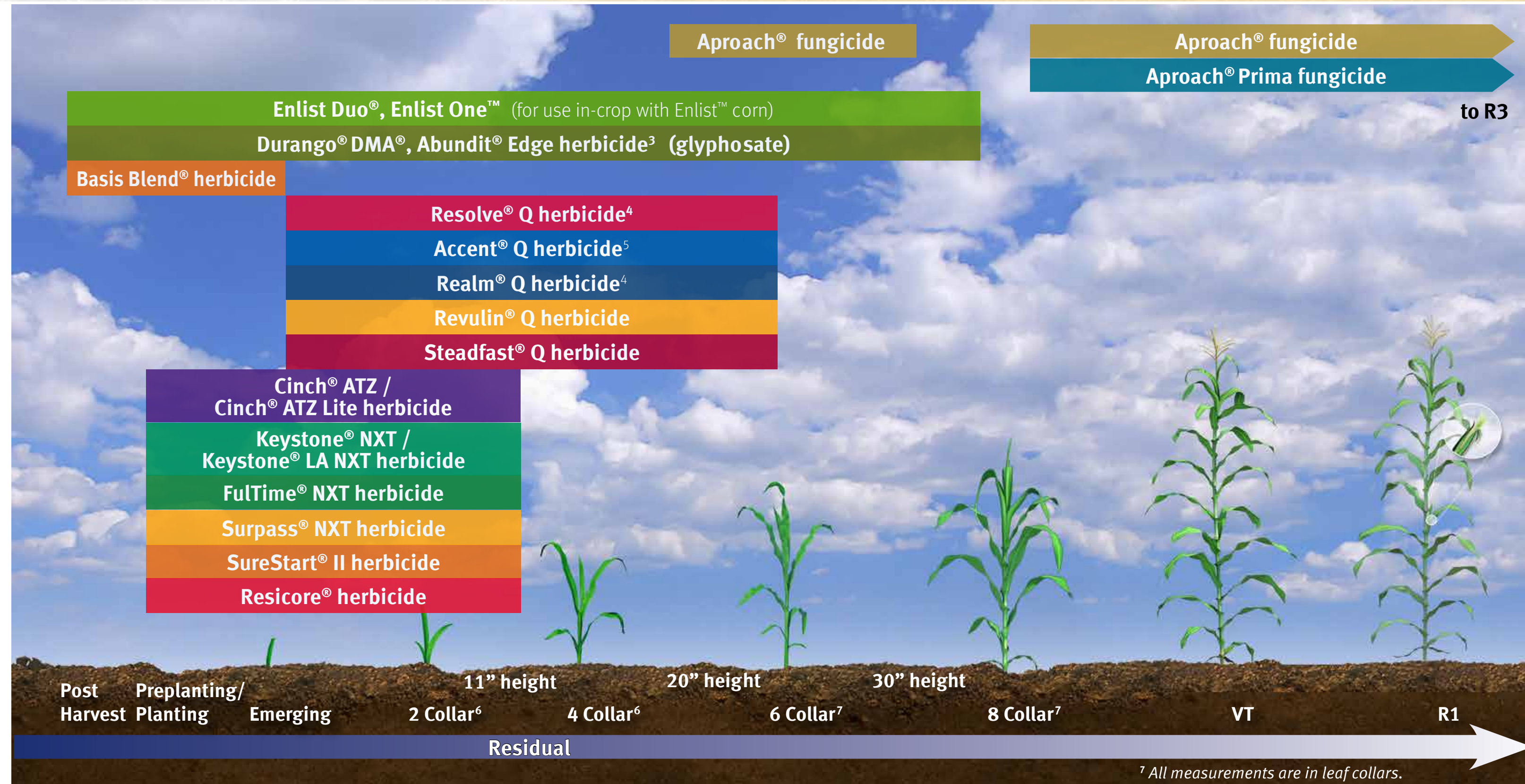
PIONEER.COM/SILAGE

 HYBRID/BRAND**	Hybrid Family ¹	Silage CRM ¹⁴	CHARACTERISTIC RATINGS											
			Silage Yield ¹⁵	Fiber Digestibility ¹⁶	Whole-Plant Digestibility ¹⁷	Milk Per Acre ¹⁸	Milk Per Ton ¹⁹	Beef Per Acre ²⁰	Beef Per Ton ²¹	Stalk Strength	Root Strength	Stress Emergence ⁴	Drought Tolerance ⁵	Mid-Season Brittle Stalk ¹⁰
P9998AMXT™	P9998	103	8	7	7	8	7	8	7	6	6	4	9	5
P0157AMXT™, P0157AMX™, P0157AM™	P0157	107	8	7	8	8	7	8	7	5	7	5	9	5
P0306AM™	P0306	108	8	8	9	8	9	8	9	6	8	5	9	5
P0574AMXT™, P0574AM™	P0574	110	7	7	8	8	8	8	8	6	7	6	9	5
P0589AMXT™, P0589AM™	P0589	109	6	9	8	7	8	7	8	5	8	7	9	6
P0707AMXT™, P0707AM™	P0707	108	5	8	8	6	9	6	9	5	8	5	8	5
P0919AM™	P0919	106	7	7	8	7	7	7	7	6	7	5	7	5
P0977AM™ NEW	P0977	110	7	8	8	7	8	7	8	6	6	5	8	7
P1093AMXT™ NEW	P1093	111	5	8	8	7	8	7	8	6	8	5	8	5
P1138AM™	P1138	112	8	9	8	8	8	8	8	5	8	5	8	6
P1151AMXT™, P1151AM™	P1151	109	7	6	9	7	9	7	9	5	7	4	9	7
P1197AMXT™, P1197AM™	P1197	114	8	8	8	7	8	7	8	7	5	5	7	5
P1244AM™ NEW	P1244	108	7	9	8	7	8	7	8	6	7	5	9	6
P1257AMXT™	P1257	115	8	7	7	8	7	8	7	5	5	6	7	7
P1353AM™	P1353	113	7	8	8	7	8	8	8	6	8	5	7	5
P1365AMXT™	P1365	112	8	8	8	8	8	8	8	8	8	5	8	5
P1366AMXT™, P1366AM™	P1366	114	7	8	9	7	9	7	9	5	7	5	7	7
BMR														
P0238XR	P0238	102	5	9	9	5	9	5	9	5	7	5		6
P0956AMXT™~	P0956	109	5	9	8	6	9	6	9	3	4	5	6	6
P1180XR	P1180	111	5	9	9	5	9	5	9	4	7	5		6
P1449AMXT™~	P1449	114	7	9	9	7	9	7	9	3	5	5	6	6

For complete definitions and disclaimers related to characteristics ratings, and all other information contained herein, see page 15. Not all products are available in all areas.

CORN

APPLICATION TIMING WINDOW¹



Do not use adjuvants or crop oil with Approach[®] or Approach[®] Prima on corn between V8 and VT stages.

¹ This document shows application timing only for specific Dow AgroSciences and DuPont products. Please refer to the individual product labels for complete directions for use.

² Do not expose consecutive generations of the same insect pest to the same mode of action to avoid pest resistance.

Please refer to the individual product labels for best practices to support your Insect Resistance Management strategy.

³ Abundit[®] Edge (glyphosate) may be applied preemergence to all corn fields, and is for use on glyphosate-tolerant crops after crop emergence.

⁴ Do not apply to corn taller than 20 inches or exhibiting 7 or more leaf collars, whichever is more restrictive.

⁵ Applications can be made to emerged corn up through 2 collars.

^{®/™} Trademark of The Dow Chemical Company ("Dow") or E. I. du Pont de Nemours and Company ("DuPont") or affiliated companies of Dow or DuPont.

Cinch ATZ, Cinch ATZ Lite, FulTime NXT, Keystone NXT and Keystone LA NXT are federally Restricted Use Pesticides.

This reference guide is not intended as a substitute for the product label for the product(s) referenced herein. Product labels for the above product(s) contain important precautions, directions for use, and product warranty and liability limitations, which must be read before using the product(s). Applicators must be in possession of the product label(s) at the time of application. Always read and follow all label direction and precautions for use when using any pesticide alone or in tank-mix combinations. Some products may not be available for sale or use in all states. FulTime NXT, Keystone LA NXT, Keystone NXT, Resicore, SureStart II and Surpass NXT are not available for sale, distribution or use in Nassau and Suffolk counties in the state of New York. Consult the label before purchase or use for full details. Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your state. Always read and follow all label directions and precautions for use.

SOYBEANS

PIONEER.COM/SOYBEANS

VARIETY/BRAND*	Technology Segment ¹	Relative Maturity ²	CHARACTERISTIC RATINGS												
			Harvest Standability	Field Emergence ³	Phytophthora Resistance Gene ⁴	Phytophthora Field Tolerance ⁵	Iron Chlorosis	White Mold ⁶	Sudden Death Syndrome	SCN Resistance Source ⁷	Charcoal Rot ⁸	Frogeye Leaf Spot	Plant Height for Maturity ⁹	Canopy Width ¹⁰	Seed Size Range ¹¹
ROUNDUP READY 2 XTEND® TECHNOLOGY															
P16A49x NEW	RR2X	16	7	7	1k	4	4	4	5**	PI88788	3	8	5	6	2400-2800
P18A98x NEW	RR2X	18	7	7	1c	6	5	6	5**	PI88788	5	4**	6	5**	2150-2550
P19A14x	RR2X	19	7	8	1k	4	4	4	6**	Peking	3	8	5	5	2800-3200
P21A28x	RR2X	21	7	8	1k	5	5	6	7	Peking	2	8	5	6	2450-2850
P22T24x	RR2X	22	7	7**	1k	4	4	5	4	PI88788	3	4	5	6	2400-2800
P23A15x NEW	RR2X	23	7	7	1c	4	4	5	6	PI88788	3	5	5	5**	2300-2700
P23A32x NEW	RR2X	23	7	7	1k	5	6**	3	5	PI88788	4	5**	5	6**	2500-2900
P24A80x	RR2X	24	8	7	1k	5	5	6	6	PI88788	3	9	5	5	3000-3400
P24A99x	RR2X	24	6	8	1k	5	5	4	7	PI88788	4	8	6	5	2400-2800
P25A27x NEW	RR2X	25	8	7	1k	4	5	5	6	PI88788	3	9	6	5**	2400-2800
P27A17x NEW	RR2X	27	7	6	1k	3	4	3	5	Peking	2	8	5	6	2500-2900
P29A25x NEW	RR2X	29	7	7	1k	5	5	6	6	PI88788	3	6	6	5**	2300-2700
P31A22x	RR2X	31	6	7	1k	6	4	4	8	PI88788	5	5	5	5	2350-2750
GLYPHOSATE TOLERANT															
P14T70R2	RR2Y	14	6	7**	1c	6	5	3	5**	PI88788	2		6	6	2400-2800
P20T79R2	RR2Y	20	6		1c	5	7	2	2	PI88788	3	1	6	6	2700-3100
P22T69R	R	22	8	8	1k	4	5	6	7	Peking	4	9	5	6	2700-3100
P22T73R	R	22	7	7	1c	5	5	4	6	PI88788	4	5	6	5	2350-2750
P25A70R	R	25	8	8	1k	4	5	5	7	Peking	3	8	5	6	2450-2850
P27T03R	R	27	8	7	1k	5	5	7	5	PI88788	5	4	6	5	2350-2750
P27T47R	R	27	8	7	1k	4	4	5	6	PI88788	3	5	4	5	2400-2800
P27T59R	R	27	7	7	1k	3	5	3	5	Peking	1	8	6	6	2500-2900
P28T08R	R	28	7	8	1k	4	4	4	5	PI88788	4	3	5	6	2250-2650
P31T11R	R	31	7	7	1k	6	4	4	7	PI88788	3	5	5	4	2600-3000
CONVENTIONAL															
P21A20	-	21	6	7	1c	5	4**	4**	7**	PI88788	3	5	5	5**	2100-2500
P25T01s™ brand	STS	25	7		-	9	5	4**		R	5		5	6	2400-2800
P29T50	-	29	6	7	1k	5	4	4	6	PI88788	4	4	5	6	2150-2550
LIBERTYLINK®															
P14A23L NEW	LL	14	7	7	1c	4	5	4**	7**	Peking	4	7	5	6	2400-2800
P21A81L NEW	LL	21	6	8	1c	6	5**	4**	6**	PI88788	4	5	5	5**	2250-2650
P25A82L NEW	LL	25	8	8	1k	4	4	4**	7**	PI88788	2	9	5	3	2200-2600
P26T07L™ brand	LL	26	7	7	1k	5	5	4**	6**	PI88788	4	3**	5	7	2200-2600
P29A85L NEW	LL	29	6	7	1k	4	4	4**	5**	PI88788	4	4	5	6	2000-2400

P21A28x

- Strong agronomics and the ability to be placed across multiple environments.
- Peking source SCN resistance.

P22T73R

- Industry-leading yield potential.
- Solid agronomics and disease package for Iowa.

P23A15x

- Industry-leading yield potential.
- Solid agronomics and acceptable disease package for Iowa.

P24A80x

- Leader mid-Group II variety with good yield potential.
- Excellent defensive traits including above average standability, SDS, and white mold tolerance.

P24A99x

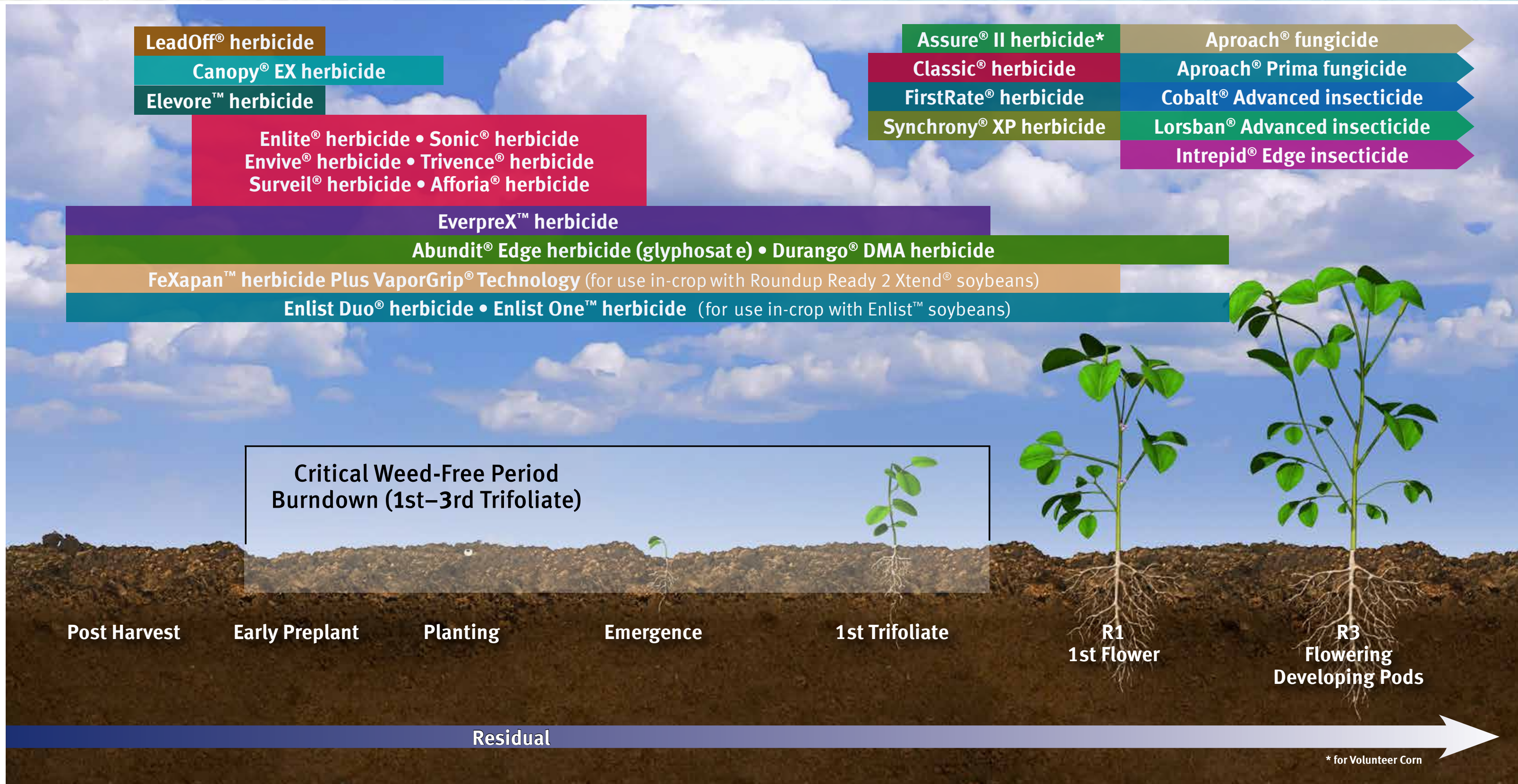
- Leader mid-Group II with good yield potential.
- Excellent defensive traits including above average SDS tolerance and respectable Phytophthora resistance.

P25A70R

- Leader product with excellent performance across multiple environments.
- Excellent disease package with respectable sudden death syndrome and white mold tolerance.

SOYBEANS

APPLICATION TIMING WINDOW



[®]™ Trademark of The Dow Chemical Company ("Dow") or E. I. du Pont de Nemours and Company ("DuPont") or affiliated companies of Dow or DuPont. VaporGrip[®] Technology is used under license from Monsanto Technology LLC.

DuPont[™] FeXapan[™] herbicide Plus VaporGrip[®] Technology, Lorsban Advanced insecticide and Cobalt Advanced insecticide are restricted-use pesticides.

This reference guide is not intended as a substitute for the product label for the product(s) referenced herein. Product labels for the above product(s) contain important precautions, directions for use, and product warranty and liability limitations, which must be read before using the product(s). Applicators must be in possession of the product label(s) at the time of application. Enlist herbicides are the only 2,4-D products authorized for use on Enlist crops. DuPont[™] FeXapan[™] herbicide plus VaporGrip[®] Technology is not registered for sale or use in all states. Contact your DuPont retailer or representative for details and availability in your state. IT IS A VIOLATION OF FEDERAL AND STATE LAW TO MAKE AN IN-CROP APPLICATION OF ANY DICAMBA HERBICIDE PRODUCT ON SOYBEANS WITH Roundup Ready 2 Xtend[®] technology, OR ANY OTHER PESTICIDE APPLICATION, UNLESS THE PRODUCT LABELING SPECIFICALLY AUTHORIZES THE USE. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with soybeans with Roundup Ready 2 Xtend[®] technology and follow all pesticide product labeling. Glyphosate herbicides will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Always read and follow all label directions and precautions for use when using any pesticide alone or in tank-mix combinations. Some products may not be available for sale or use in all states. Consult the label before purchase or use for full details. Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your state. ©2018 Dow AgroSciences LLC

ALFALFA

PIONEER.COM/ALFALFA

FORAGE ADDITIVES

PIONEER.COM/INOCULANTS

VARIETY/ BRAND*	Herbicide Resistance ¹	Forage Yield ²	Relative Forage Quality ³	Milk Yield Per Acre ⁴	Fall Dormancy	Winterhardness ⁵	Disease Resistance Index ⁶	Bacterial Wilt	Verticillium Wilt	Fusarium Wilt	Anthracnose (Race 1)	Phytophthora Root Rot	Aphanomyces (Race 1)	Aphanomyces (Race 2)	Spotted Aphid	Pea Aphid	Stem Nematode	Northern Root-knot Nematode	Stability/Lodging Resistance ⁷
55V50		9	6	8	5	VH	35	HR	HR	HR	HR	HR	HR	HR	R	R	R	HR	6
54Q14 [†]		8	9	9	4	VH	34	HR	HR	HR	HR	HR	HR	R	R	R	MR	R	9
55Q27		9	8	9	5	VH	34	HR	HR	HR	HR	HR	HR	R	R	R	HR		6
54Q29 NEW		9	8	9	4	VH	34	HR	HR	HR	HR	HR	HR	R	R	HR	HR		7
55H94 [^]		9 [^]	6	7	5	H	34	HR	HR	HR	HR	HR	HR	R	HR	R	R	HR	8
54B66 [™] brand		7	7	7	4	VH	30	HR	R	R	HR	HR	R	MR	R	R	R	R	7
55VR08	RR	9	7	9	5	VH	35	HR	HR	HR	HR	HR	HR	R	HR	R			7
54HVX42	RR	8	9 [†]	9	4	VH	33	HR	HR	HR	HR	HR	HR	MR	HR	R	R		8
54VR10 NEW	RR	9	7	9	4	H	34	HR	HR	R	HR	HR	HR	HR	R	HR	R		7
54HVX41	RR	8	9 [†]	9	4	H	32	HR	HR	HR	HR	HR	HR	LR		R			7

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

[^] Scores taken in 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.

[†] Scores reflect the yield increase compared to conventional alfalfa types under one or more lodging events at harvest.

Agronomic ratings based on period-of-years testing through 2017 harvest. Pest resistance, dormancy and winterhardness 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. Contact your Pioneer sales professional before planting for the latest trait rating information.

IMPORTANT: Information and ratings are based on comparisons with other Pioneer[®] brand products, not competitive varieties. Information and ratings are assigned by DuPont Pioneer Agronomists and Research Managers, based on average performance across area of adaptation under normal conditions, over a wide range of both climate and soil types, and may not predict future results. Product responses are variable and subject to any number of environmental, disease and pest pressures. Please use this information as only part of your product positioning decision. Refer to www.pioneer.com/products or contact a Pioneer sales 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.

DISEASE/PEST RESISTANCE KEY: HR = Highly Resistant; R = Resistant; MR = Moderately Resistant; LR = Low Resistance; S = Susceptible; Blank = Insufficient Data.

HERBICIDE RESISTANCE: Do not export Pioneer[®] brand alfalfa seed or crops containing Genuity[®] Roundup Ready[®] 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. Always Read and Follow Pesticide Label Directions. Alfalfa with the Genuity[®] Roundup Ready[®] technology provides crop safety for over-the-top applications of labeled glyphosate herbicides when applied according to label directions. Glyphosate agricultural herbicides will kill crops that are not tolerant to glyphosate. **ACCIDENTAL APPLICATION OF INCOMPATIBLE HERBICIDES TO THIS VARIETY COULD RESULT IN TOTAL CROP LOSS.** Genuity[®] and Roundup Ready[®] are registered trademarks used under license from Monsanto Company.

HarvXtra[®] is a registered trademark of Forage Genetics International, LLC. HarvXtra[®] alfalfa with Roundup Ready[®] technology is enabled with technology from The Samuel Roberts Nobel Foundation, Inc. Roundup Ready[®] is a registered trademark used under license from Monsanto Company.

Do not export Pioneer[®] brand alfalfa seed or crops containing Genuity[®] Roundup Ready[®] 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. Always Read and Follow Pesticide Label Directions. Alfalfa with the Genuity[®] Roundup Ready[®] technology provides crop safety for over-the-top applications of labeled glyphosate herbicides when applied according to label directions. Glyphosate agricultural herbicides will kill crops that are not tolerant to glyphosate. **ACCIDENTAL APPLICATION OF INCOMPATIBLE HERBICIDES TO THIS VARIETY COULD RESULT IN TOTAL CROP LOSS.**

² **FORAGE YIELD:** Rating based on 2013-2017 paired comparison data for trials located in the U.S. and Canada. For Pioneer[®] variety 55H94, scores taken in moderate to heavy leafhopper infestation, with no insecticide applied.

³ **RELATIVE FORAGE QUALITY (RFQ):** Relative Feed Quality (RFQ) based on measurements of fiber digestibility.

⁴ **MILK YIELD PER ACRE:** Estimate based on Wisconsin Milk2000 formula representing the combined impact of forage yield, nutrient content and digestibility.

⁵ **WINTERHARDINESS:** EH = Extremely Hardy; VH = Very Hardy; H = Hardy; MH = Moderately Hardy; NH = Non-hardy; VNH = Very Non-hardy.

⁶ **DISEASE RESISTANCE INDEX:** DRI is a disease index based on the following pests: Bacterial wilt, Verticillium wilt, Fusarium wilt, Anthracnose, Phytophthora and Aphanomyces (Race 1) and Aphanomyces (Race 2). HR = 5 points; R = 4 points; MR = 3 points; LR = 2 points; S = 1 point. Highest possible DRI = 35 points.

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

CROP-SPECIFIC OPTIONS USING PATENTED, PROPRIETARY BACTERIAL STRAINS	INOCULANTS						NUTRIVAIL [®] FEED TECHNOLOGY		
	1174	1189	11H50	11C33	11B91	11G22	11CFT	11AFT	11GFT
	Multi-Crop	High-Moisture Corn	Alfalfa	Corn Silage	High-Moisture Corn	Alfalfa/Grass/Cereals	Corn Silage	Alfalfa	Grass/Cereals
				Contains fast-acting* <i>L. buchneri</i> [†]	Contains fast-acting* <i>L. buchneri</i> [†]	Contains fast-acting* <i>L. buchneri</i> [†]	Contains <i>L. buchneri</i> [†]	Contains <i>L. buchneri</i> [†]	Contains <i>L. buchneri</i> [†]
Improves fermentation and reduces dry matter loss	X	X	X	X	X	X	X	X	X
Improves nutrient conservation	X	X	X	X	X	X	X	X	X
Significantly reduces heating on bunker/pile face				X	X	X	X	X	X
Helps reduce heating in entire TMR				X	X	X	X	X	X
Improves fiber digestibility							X	X	X

* Rapid React[®] aerobic stability[†] technology

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

IMPORTANT: Information and ratings are based on relative comparisons with other Pioneer[®] brand forage additives within each specific crop, not competitive products. Information and ratings are assigned by DuPont Pioneer Forage Additive Research, based on average performance across area of use under normal conditions, over a wide range of both environment and management conditions, and may not predict future results. Product responses are variable and subject to any number of environmental and management conditions. Please use this information as only part of your product positioning decision. Refer to www.pioneer.com/products or contact a Pioneer sales 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 pH.

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

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

SORGHUM

PIONEER.COM/SORGHUM



FORAGE SORGHUM

HYBRID	Relative Maturity ¹	Yield for Silage	Yield for Hay	Plant Height [Feet]	Stem Sweetness ²	Stem Juiciness ³	Percent Grain in Forage	Head Type	Grain Color	Regrowth Score	Stalk Strength	Root Strength
	849F	71	7	5	7-10	6	7	30-35%	Semi-Open	Red-Brown	5	8

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 2017 harvest and were the latest available at time of printing. Some scores may change after 2018 harvest. Contact your Pioneer sales professional before planting for the latest trait rating information.

IMPORTANT: Information and ratings are based on comparisons with other Pioneer® brand products, not competitive products. Information and ratings are assigned by DuPont Pioneer Agronomists and Research Managers, based on average performance across area of adaptation under normal conditions, over a wide range of both climate and soil types, and may not predict future results. Product responses are variable and subject to any number of environmental, disease and pest pressures. Please use this information as only part of your product positioning decision. Refer to www.pioneer.com/products or contact a Pioneer sales 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.
¹ RM (RELATIVE MATURITY): Approximate length of time in days until flowering.
² STEM SWEETNESS: 1 = Bitter; 9 = Sweet.
³ STEM JUICINESS: 1 = Dry; 9 = Wet.
Pioneer® hybrid 849F is available with Concep® safened seed. Concep® is a registered trademark of a Syngenta Group Company.

SORGHUM-SUDANGRASS

HYBRID	Relative Maturity ¹	Yield for Maturity	Yield Under Stress	Yield for Hay	Yield for Green Chop	Yield for Pasture	Yield for Regrowth	Plant Height in Feet	Stem Sweetness ²	Stem Juiciness ³	Head Type	Regrowth Score	Charcoal Rot	Fusarium Rot
	877F	72	9	9	7	9	8	7-9	7	7	9	5	5	

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 2017 harvest and were the latest available at time of printing. Some scores may change after 2018 harvest. Contact your Pioneer sales professional before planting for the latest trait rating information.

IMPORTANT: Information and ratings are based on comparisons with other Pioneer® brand products, not competitive products. Information and ratings are assigned by DuPont Pioneer Agronomists and Research Managers, based on average performance across area of adaptation under normal conditions, over a wide range of both climate and soil types, and may not predict future results. Product responses are variable and subject to any number of environmental, disease and pest pressures. Please use this information as only part of your product positioning decision. Refer to www.pioneer.com/products or contact a Pioneer sales 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.
¹ RM (RELATIVE MATURITY): Approximate length of time in days until flowering.
² STEM SWEETNESS: 1 = Bitter; 9 = Sweet.
³ STEM JUICINESS: 1 = Dry; 9 = Wet.

GRAIN CORN FOOTNOTES:

- * All scores of integrated refuge products are based upon the major component
- ** All Pioneer products are hybrids unless designated with AM1, AM, AMRW, AML, AMT, AMX, AMXT and Q, in which case they are brands.
- † New Product. Not Available for sale until 2019 orders and invoicing are available. Quantities may be limited.

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.

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 ratings are assigned by DuPont Pioneer Research Managers. Scores are based on period-of-years testing through 2017 harvest and were the latest available at time of printing. Some scores may change after 2018 harvest. Scores represent an average of performance data across areas of adaptation, multiple growing conditions, and a wide range of both climate and soil types, and may not predict future results. All products within a hybrid family receive the same score unless observations indicate a significant difference. Individual product responses are variable and subject to a variety of environmental, disease and pest pressures. Please use this information as only one component of your product positioning decision. Refer to www.pioneer.com/products 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.

WHITE AND WAXY CORN RATINGS: Based on comparisons with other Pioneer brand products, not competitive products. Trait ratings for white and waxy products reflect comparison with non-modified yellow products of a similar maturity.

TECHNOLOGY SEGMENT: AM - Optimum® AcreMax® Insect Protection system with YGCB, HX1, LL, RR2. Contains a single-bag integrated refuge solution for above-ground insects. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax products. **AMX -** Optimum® AcreMax® Xtra Insect Protection system with YGCB, HXK, LL, RR2. Contains a single-bag integrated refuge solution for above- and below-ground insects. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax Xtra products. **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. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax XTreme products. **HX1 -** Contains the Herculex® I Insect Protection gene which provides protection against European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, and sugarcane borer; and suppresses corn earworm. **HXX -** Herculex® XTRA contains the Herculex I and Herculex RW genes. **YGCB -** The YieldGard® Corn Borer gene offers a high level of resistance to European corn borer, southwestern corn borer and southern cornstalk borer, moderate resistance to corn earworm and common stalk borer; and above average resistance to fall armyworm. **LL -** Contains the LibertyLink® gene for resistance to Liberty® herbicide. **RR2 -** Contains the Roundup Ready® Corn 2 trait that provides crop safety for over-the-top applications of labeled glyphosate herbicides when applied according to label directions. 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 Borer Design and Roundup Ready® are registered trademarks used under license from Monsanto Company.

SOYBEAN FOOTNOTES:

- * All Pioneer products are varieties unless designated with LL, in which case some are brands.
 - ** Ratings denoted with a double asterisk (**) reflect preliminary data subject to change when additional data becomes available.
- IMPORTANT:** 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. Individual results may vary.

Trait ratings provide key information useful in selection and management of Pioneer® brand products in your area. Scores are based on testing through 2017 harvest and were the latest available at time of printing. Some scores may change after 2018 harvest. Information and ratings are 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. Refer to www.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.

NUMERIC RATINGS: 9 = Excellent; 1 = Poor; Blank = Insufficient Data or variety not tested for that particular trait.

¹ TECHNOLOGY SEGMENT:

Always follow grain marketing, stewardship practices and pesticide label directions. **Varieties with the Glyphosate Tolerant trait** (including those designated by the letter "R" in the product number) contain genes that confer tolerance to glyphosate herbicides. Glyphosate herbicides will kill crops that are not tolerant to glyphosate.

Always follow grain marketing, stewardship practices and pesticide label directions. **Varieties with the Genuity® Roundup Ready 2 Yield® (RR2Y) trait** contain genes that confer tolerance to glyphosate, the active ingredient in Roundup® brand agricultural herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Genuity®, Roundup® and Roundup Ready 2 Yield® are 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 the DuPont® STS® gene (STS) are tolerant to certain SU (sulfonylurea) herbicides. This technology allows post-emergent applications of DuPont® Synchrony® XP and DuPont® Classic® herbicides without crop injury or stress (see herbicide product labels). NOTE: A soybean variety with a herbicide tolerant trait does not confer tolerance to all herbicides. Spraying herbicides not

labeled for a specific soybean variety will result in severe plant injury or plant death. Always read and follow herbicide label directions and precautions for use.

Varieties with the LibertyLink® gene (LL) are resistant to Liberty® herbicide. Liberty®, LibertyLink® and the Water Droplet Design are trademarks of Bayer.

DO NOT APPLY DICAMBA HERBICIDE IN-CROP TO SOYBEANS WITH Roundup Ready 2 Xtend® technology unless you use a dicamba herbicide product that is specifically labeled for that use in the location where you intend to make the application. IT IS A VIOLATION OF FEDERAL AND STATE LAW TO MAKE AN IN-CROP APPLICATION OF ANY DICAMBA HERBICIDE PRODUCT ON SOYBEANS WITH Roundup Ready 2 Xtend® technology, OR ANY OTHER PESTICIDE APPLICATION, UNLESS THE PRODUCT LABELING SPECIFICALLY AUTHORIZES THE USE. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with soybeans with Roundup Ready 2 Xtend® technology. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Soybeans with Roundup Ready 2 Xtend® technology contain genes that confer tolerance to glyphosate and dicamba. Glyphosate herbicides will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Roundup Ready 2 Xtend® is a registered trademark of Monsanto Technology LLC used under license.

MARKET SEGMENT: Designations indicate product is also suitable for the following market: **HAE** – High Available Energy (Pork & Poultry Feed); **HTF** – High Total Fermentables (Dry-Grind Ethanol); **HES** – High Extractable Starch (Wet Milling); **WX** – Waxy; **WH** – White food corn; **YFC** – Yellow food corn; **AD** – Optimum® AQUAmax® product; **BMR** – Brown MidRib Corn.

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 moisture, 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 ½ point of moisture difference at harvest.

STRESS EMERGENCE: All products are expected to establish normal stands under average soil conditions. Stress emergence is a measure of the genetic ability or potential to emerge in the stressful environmental conditions of cold, wet soils or short periods of severe low temperatures, relative to other Pioneer 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 growth 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.

EAR FLEX: Score reflects the ability of a product to flex ear size as plant density is reduced, or as growing conditions improve.

TEST WEIGHT: Higher score indicates heavier test weight.

PLANT HEIGHT: 9 = Very Tall; 1 = Short.

EAR HEIGHT: 9 = High; 1 = Low.

MID-SEASON BRITTLE STALK: Ratings determined by frequency and severity of stalk snapage 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 tasselings. NOTE: Scores do not reflect snapage 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.



labeled for a specific soybean variety will result in severe plant injury or plant death. Always read and follow herbicide label directions and precautions for use.

Varieties with the LibertyLink® gene (LL) are resistant to Liberty® herbicide. Liberty®, LibertyLink® and the Water Droplet Design are trademarks of Bayer.

DO NOT APPLY DICAMBA HERBICIDE IN-CROP TO SOYBEANS WITH Roundup Ready 2 Xtend® technology unless you use a dicamba herbicide product that is specifically labeled for that use in the location where you intend to make the application. IT IS A VIOLATION OF FEDERAL AND STATE LAW TO MAKE AN IN-CROP APPLICATION OF ANY DICAMBA HERBICIDE PRODUCT ON SOYBEANS WITH Roundup Ready 2 Xtend® technology, OR ANY OTHER PESTICIDE APPLICATION, UNLESS THE PRODUCT LABELING SPECIFICALLY AUTHORIZES THE USE. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with soybeans with Roundup Ready 2 Xtend® technology. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Soybeans with Roundup Ready 2 Xtend® technology contain genes that confer tolerance to glyphosate and dicamba. Glyphosate herbicides will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Roundup Ready 2 Xtend® is a registered trademark of Monsanto Technology LLC used under license.

PHYTOPHTHORA FIELD TOLERANCE: Products with high tolerance scores have demonstrated an ability to thrive in the presence of Phytophthora races to which they lack specific resistance. In some products, tolerance is expressed only after the early seedling growth stage, making such products susceptible to damping off during emergence and early seed growth.

WHITE MOLD: Scores based on DuPont Pioneer research observations of comparative white mold tolerance among various soybean products across multiple locations and years. All products are capable of developing white mold symptoms under severe infestations. To our knowledge, there are no totally resistant products in the industry. However, differences exist in the ability of products to tolerate white mold (i.e., the rate at which the infection develops and the extent of damage it causes). These scores reflect those differences.

SCN RESISTANCE SOURCE: There are three sources of genetic resistance to SCN currently deployed in the marketplace: PI88788; PI548402 (also known as Peking); PI437654 (also known as Hartwig); **R** = Resistant to SCN but the source of that resistance is not yet identified.

CHARCOAL ROT: A fungal disease that is enhanced by hot and dry conditions, especially during reproductive growth stages. Scores based on DuPont Pioneer research observations of the comparative ability to tolerate infection from the charcoal rot pathogen among various soybean products.

PLANT HEIGHT FOR MATURITY: 9 = Tall; 1 = Short.

CANOPY WIDTH: 9 = Extremely bushy; 1 = Very narrow.

SEED SIZE RANGE: Expressed in seeds per pound under normal growing conditions. Range is calculated over multiple years and locations. Since seed size may vary by growing season and region, check the "seeds/pound" information printed on the bag.

Note: U.S. patents. Plant Variety Protection Act (PVPA) applications and certificates, or other limitations on use may be used to protect Pioneer brand soybean products from unauthorized growing, selling or use of the seed. These protections help assure that growers will continue to have access to new and improved products through the research efforts of plant scientists in the years ahead.

Rps1™ = Contains Rps1c or Rps1k Phytophthora resistance.
Rps 1a = Provides resistance to races 1, 2, 10, 11, 13-18, 24, 26, 27, 31, 32 & 36.
Rps 1c = Provides resistance to races 1-3, 6-11, 13, 15, 17, 21, 23, 24, 26, 28-30, 32, 34, 36.
Rps 1k = Provides resistance to races 1-11, 13-15, 17, 18, 21-24, 26, 36, 37.
Rps 6 = Provides resistance to races 1-4, 10, 12, 14-16, 18-21, 25, 28, 33-35.
Rps 3a = Resistant to races 1-5, 6-9, 11, 13-14, 16, 18, 23, 25, 28-29, 31-35, 39-41, 43-45, 47-52, 54. . .

Rps 3c = Resistant to races 1-4, 10-16, 18-36, 38-54. . .

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

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

GRAY LEAF SPOT PRECAUTION: Avoid planting products with a lower gray leaf spot (GLS) rating in continuous corn fields that have a history of GLS infection, unless tillage operations that bury significant amounts of corn residue and inoculum are practiced.

NORTHERN LEAF BLIGHT CAUTION: In conditions where northern leaf blight (NLB) risk is high, growers should consider planting only products with at least moderate NLB resistance ratings of 4 or higher.

GIBBERELLA EAR ROT CAUTION: Ratings based upon visual symptoms at harvest. If Gibberella ear rot has caused significant damage in the past, growers should consider planting only products with at least moderate Gibberella ear rot ratings of 5 or higher.

SILAGE CORN FOOTNOTES:

The minor component of this blend product is not a Brown MidRib Corn hybrid.

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 milking.

SILAGE YIELD: Based on whole-plant yield per acre (adjusted to 35% dry matter) from multi-year comparison with other products within a maturity range not exceeding 5 silage CRM units.

FIBER DIGESTIBILITY: Based on 24-hour enzymatic estimate of percent degradable neutral detergent fiber (NDF) as a percent of total NDF in whole-plant sample, predicted by NIRS.

WHOLE-PLANT DIGESTIBILITY: Based on estimated 24-hour *in vitro* whole-plant digestibility percentage (dry matter basis), as predicted by Near Infrared Reflectance Spectroscopy (NIRS).

MILK PER ACRE: 9 = Outstanding; 1 = Poor, based on University of Wisconsin MILK2006 utilizing silage yield, nutrient content and digestibility.

MILK PER TON: 9 = Outstanding; 1 = Poor, based on University of Wisconsin MILK2006 utilizing silage nutrient content and digestibility.

BEEF PER ACRE: 9 = Outstanding; 1 = Poor, based on University of Wisconsin MILK2006 utilizing silage yield, nutrient content and digestibility.

BEEF PER TON: 9 = Outstanding; 1 = Poor, based on University of Wisconsin MILK2006 utilizing silage nutrient content and digestibility.