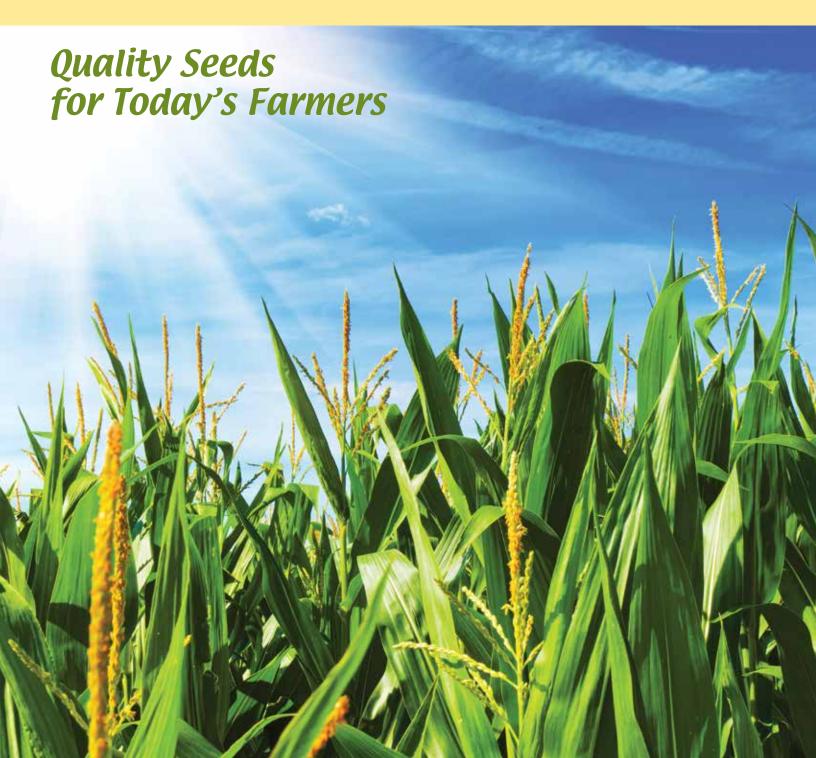


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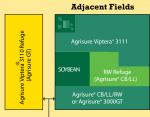




Refuge Configuration Options

1. ADJACENT FIELDS

- Agrisure®CB/LL is planted as the refuge for corn rootworm. It is required (as shown) to be within or adjacent to the RW corn.
- · The refuge field for the Agrisure Viptera 3110 is planted within 1/2 mile of the fields with CB/LL/RW.



SEPARATED BY A ROAD

• The refuge field is planted to only refuge hybrids and does not contain any corn hybrids with the Agrisure CB/LL/RW stack, the Agrisure Viptera® trait, or other trait products for controlling corn borers, corn rootworms or broad lepidopteran pests. In this pattern, the refuge must be planted in either an adjacent field or in fields separated by a road, path or ditch.

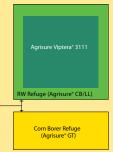


3. BLOCKS

 Refuge corn and corn hybrids with Agrisure RW trait or the Agrisure CB/LL stack are planted in large blocks in the same field. In this illustration each block serves as a refuge for the other.

Blocks Agrisure Viptera 3110

Perimeter



4. PERIMETER

· Refuge is planted around the sides of the field. Requires planting a minimum of 4 rows wide for refuge corn. In this example a CB refuge is needed (within 1/2 mile) as well since CB is in the refuge rows for Agrisure Viptera® 3111.

Within or adjacent or up to 1/2 mile away

Product	Size Requirement (Corn Belt)	Size Requirement (Cotton-growing Region)	Distance Requirements
Agrisure®CB/LL	20%	50%	Up to 1/2 mile away
Agrisure RW	20%	20%	Within or adjacent
Agrisure CB/LL/RW/ Agrisure 3000GT	20%	50%¹	Within or adjacent ¹
Agrisure Viptera®3110*	20%	20%	Up to 1/2 mile away
Agrisure Viptera 3111**	20%	20%	Within or adjacent ²

¹ Assumes a common corn borer and rootworm refuge. Alternatively, a separate 20% rootworm refuge within or adjacent to the Bt field and a 50% corn borer refuge up to ½ mile away could be planted.

Agrisure® and Agrisure Viptera® are trademarks of a Syngenta Group A Company.

5. PERIMETER

· Refuge is planted around the sides of the field. Requires planting a minimum of 4 rows wide of refuge corn. In this illustration each trait combination serves as a refuge for the other



Adjacent Fields

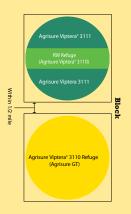


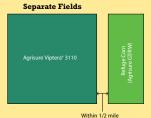
6. ADJACENT FIELDS

• The refuge field is planted to only refuge hybrids and does not contain any corn hybrids with Agrisure Viptera® 3111 or any other trait products controlling corn borers, rootworms or broad lepidopteron pests. In this pattern the refuge must be planted within the field, adjacent or in a field separated by a road or ditch.

7. PIVOT BLOCK

· Refuge corn for RW planted in a large block in the same field. Since that refuge corn is Agrisure® CB/LL a separate refuge will be required for the Agrisure Viptera® 3110.





8. SEPARATE FIELDS

· The refuge field is planted to only refuge hybrids and does not contain any corn hybrids with Agrisure Viptera® 3110. In this pattern as well as others, the refuge must account for at least 20 percent of the total corn acres and must be planted within 1/2 mile of the corn hybrids of Agrisure Viptera® 3110.



AgrisureGT = GT

Agrisure CB/LL = CB/LL

AgrisureCB/LL/RW = CB/LL/RW

AgrisureGT/CB/LL = GT/CB/LL

★ Agrisure3000GT = 3000GT

✓ Agrisur∈Viptera ✓ Agrisur∈Viptera

Agrisure Artesian



Seed products with the LibertyLink® (LL) trait are resistant to the herbicide glufosinate

ammonium, an alternative to glyphosate in corn, and combine high-yielding genetics with the powerful, non-selective, post emergent weed control of Liberty® herbicide for optimum yield and excellent weed control. Liberty®, LibertyLink®, and the Water Droplet logo are registered trademarks of Bayer.

² Assumes a common corn borer and rootworm refuge. Alternatively, a separate 20% rootworm refuge within or adjacent to the Bt field and a 20% corn borer refuge up to ½ mile away could be planted.

^{*}Agrisure Viptera® 3110 (Agrisure Viptera® + Agrisure GT/CB/LL)

^{**} Agrisure Viptera* 3111 (Agrisure Viptera* + Agrisure 3000GT)



2800 NEW	76 days
Available As: GT, Conv	
Early Growth	3
Stalk Rating	3
Root Rating	3
Test Weight	2
Stress Tolerance	2
Farly emergence	

2883 NEW	84 days
Available As: 3010A, GTA, 5222A	
Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance	2 2 2 2 2 1
Very consistent ear development18 around, semi-flex ear	



• Excellent, consistent yields



4390	90 days
Available As: GT/CB/LL, 3000GT, Co	onv
Early Growth	3
Stalk Rating	2
Root Rating	3
Test Weight	2
Stress Tolerance	2
Top yielderGood grain quality	

4391	91 days
Available As: 3000GT, GT, Conv	
Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance	3 2 2 3 2
Strong standibilityVery stable hybrid	



4292 NEW	92 days
Available As: 3110A, 3010A, Conv	
Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance	2 2 2 2 1
Excellent yield potentialGood grain quality	

4393 NEW	93 days
Available As: 3000GT, GT	
Early Growth	2
Stalk Rating	2
Root Rating	2
Test Weight	1
Stress Tolerance	1
Strong early season growth Girthy ears	



4394	94 days
Available As: 3110A, GT, Conv	
Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance • Excellent stalk strength & stress tolerance • Very good overall health	2 2 2 2 2 2

5899 NEW	99 days
Available As: 3010A, 3011A, GTA, C	onv
Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance	2 2 2 2 2
Vield leader good speed emergence	

5450	101 days
Available As: 3010A, 3011A, GTA	., Conv
Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance	2 2 2 1 1

- Yield leader, good speed emergence
- Excellent drought tolerance

Strong heat and stress toleranceGreat dual purpose choice



5802	102 days
Available As: GTCBLL, Di	ıracade 3122
Early Growth	1
Stalk Rating	4
Root Rating	2
Test Weight	1
Stress Tolerance	2

- Excellent stalk and root strength
- Very good overall plant health



STAN STAN
North Table
Second .
8

7206	106 days
Available As: 3000GT, GT, GTC	CBLL, VIP3111
Early Growth	3
Stalk Rating	2
Root Rating	2
Test Weight	2
Stress Tolerance	2

• Shorter plant, great for grain

6694	104 days
Available As: 3000GT, GT, Conv	
Early Growth	2
Stalk Rating	2
Root Rating	3
Test Weight	2
Stress Tolerance	2

- Excellent grain or silage choice
- Outstanding stalk and root strength
- Excellent stress tolerance

6695	105 days
Available As: 3000GT, GT, Conv	
Early Growth	2
Stalk Rating	2
Root Rating	2
Test Weight	2
Stress Tolerance	1

- Excellent grain or silage choice
- Outstanding stalk and root strength
- Excellent stress tolerance





· Consistent, girthy ears

CORN PRODUCTS

7337	107 dares	7/11	
	107 days	7410	109 days
Available As: 3000GT, GT/CB/LL, C	Conv	Available As: 3000GT, GT/CB/LL, G	GT, Conv
5 1 0 "	•	- I O "	0
Early Growth	2	Early Growth	2
Stalk Rating	2	Stalk Rating	2
Root Rating	2	Root Rating	2
		· · · · · · · · · · · · · · · · · · ·	
Stress Tolerance	2	Stress Tolerance	2
Excellent grain or silage choiceVery good plant health and early vigorExcellent yield potential		 Great emergence, good stress tolerance Super yielder)
7510	109 days	8210 NEW	110 days
Available As: 3000GT, GT, Conv		Available As: 3000GT, GTCBLL, Vipte	-
Early Growth	2	Early Growth	1
Stalk Rating	2	Stalk Rating	
Root Rating	2	Root Rating	2
Test Weight	2	Test Weight	
Stress Tolerance	2	Stress Tolerance	2
 Great emergence, good stress tolerance Super yielder)	 Great com-on-com, high population tolerance Complete package of health and yield 	e
8412 NEW	112 days	8413 NEW	112 days
Available As: 3000GT, GT, Conv		Available As: 3000GT, GT, Conv	
Farly Growth	2	Farly Growth	3
			3
			2
	2		
Test Weight Stress Tolerance • Excellent grain or silage choice • Very good plant health and early vigor • Excellent yield potential 7510 Available As: 3000GT, GT, Conv Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance • Great emergence, good stress tolerance • Super yielder	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Test Weight Stress Tolerance Great emergence, good stress tolerance Super yielder 8210 NEW Available As: 3000GT, GTCBLL, Vipto Early Growth Stalk Rating Root Rating Test Weight Stress Tolerance Great corn-on-com, high population tolerance Complete package of health and yield	3 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

· Consistent, girthy ears





8614	114 days
Available As: 3000GT, GT, Conv	
Early Growth	2
Stalk Rating	2
Root Rating	1
Test Weight	2
Stress Tolerance	1
 High population tolerance, great corn-on-on-on-on-on-on-on-on-on-on-on-on-on	corn

8515	115 days
Available As: GTA, Conv	
Early Growth	1
Stalk Rating	2
Root Rating	1
Test Weight	2
Stress Tolerance	2
 High population tolerance, great corn- Very healthy, strong and stable plants 	

0010	16 days
Available As: 3000GT, Conv	
Early Growth	3
Stalk Rating	2
Root Rating	3
Test Weight	3
Stress Tolerance	2
High population tolerance, great corn-on-col	rn

Q516

8716	117 days

Available As:	<i>3000GT</i> ,	GT,	GTCBLL, Conv

Early Growth	2
Stalk Rating	2
Root Rating	2
Test Weight	2
Stress Tolerance	2

- Excellent stress tolerance
- Good ear flex, strong stalks and roots

8717	117 days
Available As: GT, Conv	
Early Growth	2

Early Growth	2
Stalk Rating	2
Root Rating	1
Test Weight	2
Stress Tolerance	1

- Excellent stress tolerance
- Good ear flex, strong stalks and roots

Very healthy, strong and stable plants



CORN CHARACTERISTICS

PRODUCT	RELATIVE MATURITY	EAR FLEX	PLANT HEIGHT	EAR HEIGHT	EARLY GROWTH	STALK RATING	ROOT RATING	TEST WEIGHT	HIGH POPULATION TOLERANCE	STRESS TOLERANCE	GRAY LEAF SPOT	GOSS' WILT	DRYDOWN	SILAGE	LATE SEASON INTACTNESS	CORN-ON-CORN	IRRIGATION/PRODUCTIVE FIELDS	DRYLAND/VARIABLE FIELDS	NO-TILL/COLD SOILS	PRODUCT
PRC	펉	EAR	PLA	EAR	EAR	STA	ROC	TES	E	STR	GR/	309	DRY	SIL	LAT	9	IRR	DRY	휭	PRC
2800	76	Semi-Flex	MT	M	3	3	3	2	2	2	G	VG	2	3	2	3	2	2	3	2800
2883	84	Semi-Flex	MT	M	2	2	2	2	2	2	G	VG	2	3	2	3	2	3	3	2883
2885	86	Semi-Flex	MT	M	3	3	2	2	2	1	G	VG	3	2	2	3	2	2	2	2885
4390	90	Semi-Flex	MT	MT	3	2	3	2	2	2	G	VG	2	3	3	3	2	3	2	4390
4391	91	Semi-Flex	MT	MT	3	2	2	3	3	3	G	VG	2	3	3	3	2	3	2	4391
4292	92	Semi-Flex	MT	MT	2	2	2	2	2	1	G	EXC	3	2	3	2	2	2	3	4292
4393	93	Semi-Flex	MT	T	2	2	2	1	2	1	G	VG	2	3	3	2	3	2	2	4393
4394	93	Semi-Flex	MT	MT	2	2	2	2	2	2	G	VG	2	1	1	2	2	1	2	4394
5899	99	Semi-Flex	M	M	2	3	2	2	3	1	G	EXC	2	2	3	2	2	2	3	5899
5450	101	Semi-Flex	MT	M	2	2	1	2	2	1	G	EXC	2	2	2	2	2	2	2	5450
5802	102	Fixed	MT	M	1	4	2	1	2	2	VG	VG	2	2	2	3	1	2	2	5802
6694	104	Semi-Flex	T	T	2	2	3	2	3	2	G	VG	2	1	1	2	1	1	1	6694
6695	105	Semi-Flex	MT	MT	1	1	2	2	2	2	G	VG	2	2	2	2	2	1	2	6695
7206	106	Semi-Flex	M	M	3	2	2	2	2	4	VG	G	2	6	2	2	2	3	2	7206
7337	107	Semi-Flex	T	MT	3	3	2	2	3	2	G	VG	3	1	2	3	2	2	2	7337
7410	109	Semi-Flex	MT	M	2	2	2	3	2	2	VG	EXC	3	2	1	3	1	1	3	7410
7510	109	Semi-Flex	T	M	2	2	2	2	2	2	G	VG	1	2	3	2	2	3	3	7510
8210	110	Semi-Flex	M	M	1	2	2	2	3	2	VG	VG	3	3	2	2	2	2	1	8210
8412	112	Semi-Flex	MT	M	2	2	2	2	2	2	G	VG	2	3	2	2	1	1	2	8412
8413	113	Semi-Flex	MT	M	3	3	3	2	2	2	VG	VG	3	3	3	3	1	1	3	8413
8614	114	Semi-Flex	MT	M	2	2	1	2	2	1	G	EXC	2	1	2	2	2	2	2	8614
8515	115	Semi-Flex	MT	M	1	2	1	2	1	2	VG	VG	3	1	1	1	1	1	3	8515
8516	116	Semi-Flex	T	M	3	2	3	3	2	3	G	VG	2	1	2	2	2	3	2	8516
8716	116	Semi-Flex	MT	MT	2	3	1	2	2	1	G	EXC	3	2	3	2	1	1	2	8716
8717	117	Semi-Flex	MT	MT	2	2	1	2	1	1	G	EXC	2	2	2	2	2	2	2	8717

 $SCALE: 1-7, 1=BEST. \ M=Medium, MT=MEDIUM\ TALL, T=TALL, EXC=EXCELLENT, VG=VERY\ GOOD, G=GOOD, A=AVERAGE, F=FAIRAGE, F=$

SILAGE PRODUCTS



8088	85 days
Available As: 3000GT, GT, Conv	
Seedling Vigor	1
Root Strength	2
Stalk Strength	2
Drought Tolerance	2
Earlage	2
Outstanding seedling vigorHigh grain contentWhite cob	

8090	90 days
Available As: 3000GT, GT, Conv	
Seedling Vigor	1
Root Strength	2
Stalk Strength	2
Drought Tolerance	2
Earlage	2
Outstanding seedling vigorHigh grain contentWhite cob	

8095	95 days
Available As: 3000, GT, Conv	
Seedling Vigor	1
Root Strength	2
Stalk Strength	2
Drought Tolerance	1
Earlage	1
Flexible and digestible stalks	

Available As: 3000, GT, Conv	
Seedling Vigor Root Strength Stalk Strength Drought Tolerance Earlage	1 2 2 1 1
 Flexible and digestible stalks Rapid digestibility and high grain conte Excellent seedling vigor Strong roots 	ent
8107	110 days
Available As: 3000GT, GT, Conv	

8107	110 days
Available As: 3000GT, GT, Conv	
Seedling Vigor	2
Root Strength	2
Stalk Strength	2
Drought Tolerance	2
Earlage	3
• Everylant eilage vield netential	

- Excellent silage yield potential
- Very good emergence and seedling growth
- Very good drought tolerance
- Strong roots

8106			105 days
1	1 2111	CT UID2111	Com

Seedling Vigor **Root Strength** Stalk Strength 2 **Drought Tolerance** Earlage

- Outstanding seedling vigor that pushes top yield production
- Excellent fiber digestibility and elevated sugars
- Good agronomics for consistent production performance



Silage analysis available upon request

SILAGE PRODUCTS

8112	112 days
Available As: GT, Conv	
Coodling Visco	0
Seedling Vigor	2
Root Strength	2
Stalk Strength	2
Drought Tolerance	2
Earlage	3

- Excellent silage yields and milk per acre
- Balanced plant maturity to give a wider harvest window
- Excellent silage quality

0110

Exceptional whole plant digestibility

8116	116 days
Available As: Conv	
Seedling Vigor	2
Root Strength	2
Stalk Strength	2
Drought Tolerance	3
Earlage	2

- Soft kernel texture giving optimum feed utilization
- Dependable and high yielding
- Very tall and robust plant
- Exceptional whole plant digestibility

8115	115 days
Available As: Conv	
Seedling Vigor	2
Root Strength	2
Stalk Strength	2
Drought Tolerance	3
Earlage	2

- Soft kernel texture giving optimum feed utilization
- Dependable and high yielding
- Very tall and robust plant
- Exceptional whole plant digestibility

8117	117 days
Available As: Conv	
Seedling Vigor	2
Root Strength	2
Stalk Strength	2
Drought Tolerance	3
Earlage	2

- Soft kernel texture giving optimum feed utilization
- Dependable and high yielding
- Very tall and robust plant
- Exceptional whole plant digestibility

PRODUCT	RELATIVE MATURITY	HARVEST Population	PLANT HEIGHT	LEAVES Above Ear	SEEDLING VIGOR	ROOT STRENGTH	STALK STRENGTH	DROUGHT TOLERANCE	EARLAGE	HIGH MOISTURE CORN	SILAGE YIELD For maturity	MILK PER TON	MILK PER ACRE	SILAGE QUALITY	% PROTEIN	% STARCH	FIBER Digestibility
8088	85	28-38	MT	10	1	2	2	2	2	3	1	1	1	2	2	2	2
8090	95	28-38	T	10	1	2	2	1	1	1	1	1	1	1	2	1	2
8095	95	28-38	T	10	1	2	2	1	1	1	1	1	1	1	2	1	2
8106	105	28-38	T	10	2	2	2	2	2	3	1	1	1	2	2	2	2
8107	110	28-38	T	10	2	2	2	2	2	3	1	1	1	2	2	2	2
8112	112	28-38	T	10-12	2	2	2	2	3	3	1	2	1	1	2	2	2
8115	115	28-38	T	11	2	2	2	2	3	3	1	2	2	2	2	2	2
8116	116	28-38	T	11	2	2	2	3	2	3	1	2	2	2	2	2	2
8117	117	28-38	Т	11	2	2	2	2	3	3	1	2	2	2	2	2	2

SCALE: 1-5, 1=BEST. MT=MEDIUM TALL, T=T

Avalon

82 days

An excellent white for local and roadside markets where eating quality is paramount.

Approx. maturity (days)82
Avg. ear I x d (in)
Kernel color White
Husk appearance Medium green
Disease resistance IR: Bm / Et / Pst

BC0822

81 days

Ideal for roadside and local markets, BC0822 boasts great eating qualityand Attribute trait stack protection.

Approx. maturity (days)	81
Avg. ear I x d (in)	7.8 x 1.9
Kernel color	Bicolor
Husk appearance	Medium green
Disease resistance	HR: Bm
	IR: Pst / Ps

Primus

81 days

Primus features exceptional quality and tenderness with even more supersweet kernels on every ear.

Approx. maturity (da	ays)	81
Avg. ear I x d (in)		7.8 x 1.9
Kernel color		Bicolor
Husk appearance.		Medium green
Disease resistance		HR: Bm
		IR· Pst

Serendipity

82 days

The first TripleSweet variety, Serendipity has superb eating characteristics for the local market.

Approx. maturity (days)	82
Avg. ear I x d (in)	8 x 1.5
Kernel color	Bicolor
Husk appearance Mediun	n green
Disease resistance	IR: Bm

BC 0805

82 days

Well-suited to the Midwest and Northeast, this Attribute-protected variety has outstanding eating quality, with tender, sweet kernels.

Approx. maturity (days)	82
Avg. ear I x d (in)	8 x 1.75
Kernel color	Bicolor
Husk appearance	Medium green
Disease resistance	HR: Ps: (Rp1-d)
	ID: Dm / Do

IR: Bm / Ps
TOL: Gluf

Peaches & Cream 83 days

When consumers think of bi-colors, they'll think of Peaches & Cream. Good for home freezing.

Approx. maturity (days)	83
Avg. ear I x d (in)	8.5 x 1.8
Kernel color	Bicolor
Husk appearance Me	dium green
Disease resistance	IR: Pst

Honey Select

79 days

This AAS winner boasts outstanding flavor for local markets demanding yellow hybrids, Honey Select is the first yellow to offer TripleSweet quality.

Approx. maturity (days)79	
Avg. ear I x d (in)8.5 x 1.9	
Kernel color	
Husk appearance Medium green	
Disease resistance IR: Pst	

GSS 0966

78 days

High quality and for main season production, GSS 0966 features well-filled ears, glossy kernels and excellent husk cover.

Approx. maturity (days)
Avg. ear I x d (in)
Kernel colorYellov
Husk appearance Dark green, good flags
Disease resistance IR: Ps
HR: Ps: (Rp1-i), Ps

lR: Ps: (Rp1-i), Ps IR: Et / Pst

T: Gluf

WHITE GRAIN HYBRIDS

PGS 91W16

116-117 days

- Flex ears with 14-16 rows
- Excellent husk cover and ear retention
- Very good tolerance to GLS, Kernel Red Streak, Gibberella, and Diploida Ear Rot
- Very good late season intactness
- Planting Populations
 - Good Moisture Conditions: 28,000 32,000
 - Marginal Conditions: 20,000 26,000
- Management practices that enhance late nitrogen availability promotes optimum yield potential
- Optimum Soil Calcium Base Saturation: 68-71%
- Large Kernel Size: 40-43g/100K
- Excellent Grit Yield
- Low 5 of Thins
- Excellent Resistance to Breakage
- Excellent Kernel Depth

PGS 91W15

115-116 days

- Flex ears with 14-16 rows
- Excellent husk cover and ear retention
- Very good tolerance to GLS, NLB and Diploida Ear Rot
- Very good late season intactness
- Planting Populations
 - Good Moisture Conditions: 28,000 34,000
- Management practices that enhance late nitrogen availability promotes optimum yield potential
- Alkaline Cooking:

100 Kernel Wt: 37.38

Hard Endosperm: 91%

Protein: 9.6% Oil: 4.0%

Pericarp Removal: 1.0

Moisture after Cooking: 45.4%

Color: 6.1

 Potential Areas: North Mexico, West Coast Mexico, IL, IN, NE, SWIA, Ohio, CA, TX

ALFALFA PRODUCTS



Winterhardiness	Very High
Yield Ability	High
Forage Quality	High
Standibility	Good

- Excellent yield potential and very economical
- A fall dormancy 4.3 that is adapted to a wide range of growing conditions
- Winterhardiness 1.8
- Great for those imperfectly drained soils

Lynx

Winterhardiness	Exceptionally High
Yield Ability	Exceptional
Forage Quality	Very High
Standibility	Very Good

- Fall dormancy 5.0 great for a 4-6 cutting system
- Superior forage quality
- Winterhardiness 2
- A perfect 30/30 Disease Rating Index (DRI)
- High yielding for its maturity
- Rapid recovery after harvest
- Extremely high winderhardiness for the coldest climates



Puma ST

Winterhardiness	High
Yield Ability	Very High
Forage Quality	Very High
Standibility	Very High

- Excellent yield potential and very economical
- A fall dormancy 6 that is adapted to a wide range of growing conditions
- Winterhardiness 2
- Great for those imperfectly drained soils
- A perfect 30/30 Disease Rating Index (DRI)
- A great salt tolerant rating

Power Point ST

Winterhardiness	Very High
Yield Ability	Very High
Forage Quality	Very High
Standibility	Very Good

- Fall dormancy 4.5 great for a 3-5 cutting system
- Higher digestibility and yields equal more milk
- Winterhardiness 1.8
- Works well in multi-cutting schedules
- Adapts to all soil types
- Extremely high disease resistance to Phytophthora Root Rot and Aphanomyces Root Rot

Twin Peaks

Winterhardiness	Very High
Yield Ability	Very High
Forage Quality	Very High
Standibility	Good

- Great forage yield potential
- High yielding for it's maturity
- Adapts in all soil types

SILAGE INOCULANTS





5 WAY SUPPRESSION OF DETRIMENTAL BACTERIA

- 1) Low pH keeps non-acidophilic bacteria from growing. Acidophilic means "acid loving" This class of bacteria produces a beneficial carboxylic acid called lactic acid. Other acids can achieve the same low pH, but can impart an off odor and even cause digestive problems. Acid loving bacteria are capable of reproducing and surviving lower pH ranges than most types of bacteria. This organic acid is the primary metabolite produced from the bacteria to suppress the growth of other bacteria and preserve the silage pit much the same way that vinegar preserves pickles. Our bacteria are specifically grown up to low pH ranges which allows them to evolve and adapt to a lower pH range than bacteria which were never stressed.
- 2) Natural metabolites such as lactoferrin's and other pore forming antibiotic proteins are produced and excreted into our broth. These proteins are natural and harmless to the animal upon consumption but play an important role in suppressing the growth of other wild types of bacteria. The inclusion of these metabolites distinguishes our product over other freeze dried bacterial inoculants.
- 3) Natural enzymes found in the broth also play an important role in starting growth of our inoculant. Rapid growth upon application translates to higher bacterial counts in the pit and lower pH levels in shorter periods of time.
- 4) This is a conservative number. We have tested this into the trillions, but choose to publish numbers which are consistently achievable. Comparisons with our competitor claiming higher numbers shows that our product is up to 3 orders of magnitude higher in CFU. Colony forming units. Studies have shown that these classes of bacteria not only help preserve the silage but that the overall health of the animal improves by reducing pathogenic organisms in the gut and improving overall nutrient uptake. See scientific references provided.

- Applied to silage, green chop or baled hay
- Comes Pre-mixed in a tote with food source (bacteria won't die off in 24 hours like freeze dried competitors)
- Supports rapid fermentation and lowers pH in pit
- Lactic acid producing bacteria preserves silage pit and keeps hay from burning up
- Helps retain valuable nutrients
- Improves palatability, weight gain, and milk production
- ~ Ask PGS salesperson about application rate

SMALL GRAINS AND FORAGES



Dryland Pasture Mix

- 30% slender wheat grass
- 25% smooth brome
- 20% orchard grass
- 10% intermediate wheat grass
- 15% forage perennial rye grass
- Seeding rate drilled: (Dryland 20 lbs per acre Irrigated 30 lbs per acre)

Economy Irrigated Pasture Mix

- 40% tall fescue
- 25% forage perennial rye grass
- 20% smooth brome
- 15% orchard grass
- Seeding rate drilled: (Dryland 20 lbs per acre Irrigated 30 lbs per acre)

Premium Irrigated Pasture Mix

- 25% smooth brome
- 25% meadow brome
- 15% orchard grass
- 15% orchard grass, crown royal
- 20% forage perennial rye grass
- Seeding rate drilled: (Dryland 20 lbs per acre Irrigated 30 lbs per acre)

Oats

- Monidas
- Otana
- Titan
- Seeding rate: (Dryland 50 lbs per acre Irrigated 100-150 lbs per acre)

Barley

- · Bearded and Beardless
- V.N.S.
- Baldwin
- We carry both 2 and 6 row barley
- Hays
- Haybet
- Seeding rate: (Dryland 50 lbs per acre Irrigated 100 lbs per acre)

Triticale

- Spring and Winter
- Bearded and beardless
- Trical 103
- Forerunner
- Trical 718
- Fridge
- Seeding rate: (Dryland 50 lbs per acre Irrigated 100-150 lbs per acre)

Wheat

- Spring and Winter
- Bearded and beardless
- Willow Creek
- Brundage
- Denali
- Brawl
- Seeding rate: (Dryland 50 lbs per acre Irrigated 100 lbs per acre)

Millets

- Golden German
- Hybrid Pearl
- Siberian
- White Proso
- Seeding rate: (Dryland 15 lbs per acre Irrigated 25 lbs per acre)



SORGHUM PRODUCTS

PGS 1211 Grain Sorghum

- Early maturing hybrid has excellent yield potential
- Excellent for double crop situation in most areas
- Great for a late planted dry land or irrigated crop
- Days to 1/2 bloom; 50-55
- Days to Maturity: 90-95
- Plant Height: 40-45
- Head Type: Semi-Comp
- Grain Color: Red

Sweet Sorghum - DM

- Head Type Semi Comp
- Delayed maturity gives you a 25-30 day longer harvest window.
- Irrigated planting rate 35-40#/AC Dryland 15-20#/AC

Sweet Sorghum Sudangrass -BMR

- Excellent for direct grazing, hay or haylage
- This hybrid is completely "Brown Mid-Rib"
- Brown Mid-Rib has increased digestibility in its stem and leaves
- Less indigestibility lignin 40% 60%
- Outstanding regrowth, 6' 10' high and juicy
- Irrigated planting rate 15#/AC Dryland 8-10#/AC

Sweet Sorghum Sudangrass

- Excellent for direct grazing, hay or haylage
- Has a fine, thin stem with excellent standibility and re-growth capability
- Superior drought performance
- Grows 6'-10' high, extra sweet and juicy
- Irrigated planting rate 35-40#/AC Dryland 15-20#/AC

Sweet Silage Maker

- Produces an 8' 10' tall plant with large heads of grain on a sweet and leafy stock
- Yields very big tonnages of high energy feed
- Under irrigation and proper fertilization 25-30 tons per acre is possible



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