

The New Science of Alfalfa



Phirst Extra Hybrid

Brought to alfalfa growers using

 **SUNSTRA**® Hybrid Alfalfa Technology.

Available from:

NAYLORSEED

16600 116th Ave, Scotch Grove, IA 52310

1-800-747-7333 or 1-319-465-3035

www.naylorseed.com



Phirst Extra Gen-2 Hybrid Alfalfa

Phirst Extra is a Generation 2 hybrid alfalfa developed from the patented msSunstra Hybrid Alfalfa Technology! It is characterized by the highest level of forage yield potential we've seen, all the while delivering dairy quality forage. Across diverse environments, it has delivered consistent yields. Its uniformity contributes to increased palatability and dry matter intake. It expresses fast re-growth of dense, distinct fine stemmed forage. This fine stem characteristic makes a dense attractive alfalfa bale. It also packs better in bunker silos. As the stands of Phirst Extra get older, the forage yield and persistence advantages become more pronounced.

Features

- Highest yielding alfalfa available
- Consistently superior performance
- Aggressive stand establishment and regrowth
- Hybrid uniformity
- Excellent disease resistance

Disease

Bacterial Wilt.....	HR
Fusarium Wilt.....	HR
Phytophthora Root Rot.....	HR
Verticillium Wilt.....	HR
Anthracnose (Race 1).....	HR
Aphanomyces Root Rot (Race 1).....	HR

Nematode

Stem Nematode.....	HR
Northern Root Knot-Nematode.....	HR
Southern Root Knot-Nematode.....	HR

Agronomic Traits

Winter Survival.....	1.8
Fall Dormancy.....	4.0
Early Seedling Growth.....	Excellent
Spring Vigor.....	Excellent
Summer Re-growth.....	Aggressive
Drought Stress.....	Excellent
Fineness of Stem.....	Very Fine



Forage Yield Index.....	Excellent
Forage Quality.....	Excellent
Traffic Tolerance.....	Very Good
Root Type.....	Tap
Crown Type.....	Average

Why Hybrid Alfalfa?

Alfalfa Forage yield trends

For the past 20 years, forage yield improvement has remained stagnant. This poor progress has been attributed to lack of pollen control of open pollinated varieties in seed production.

Historical corn yields

Historically corn yields showed no yield progress from the Civil War until the 1930s. Corn at that time included only open pollinated varieties. When hybrid technology was introduced, double- cross hybrids began to provide yield increases of about 1.0 bu/acre/year. During the 1960s, single-cross corn hybrids were introduced to farmers and increased yields by 1.8 bu/acre/year. Today, corn yields are three times greater than they were in 1930 largely due to the introduction of hybrid technology.

Reasons for yield gains in corn and not alfalfa

Alfalfa's lack of yield gain was caused by the same problem in non-hybridized corn – lack of pollen control. Hybrid technology allows for the control of pollen movement. Since the introduction of hybridization in corn, grain yield has consistently increased.

Present alfalfa varieties up to the release of hybrid alfalfa

Until the release of hybrid alfalfa, all alfalfas have been open pollinated varieties similar to corn varieties prior to the 1930's.

Hybrid alfalfa captures heterosis and eliminates inbreeding

Hybrid alfalfa seed is a first generation F1 cross, while conventional open pollinated varieties are two to four generations of seed increase beyond the original cross. During this seed increase with an open pollinated variety, inbreeding occurs, resulting in decreased forage yield potential. Seed of hybrid alfalfa is from the original cross, maximizing heterosis similar to hybrid corn.

Hybrid Parents

Hybrid alfalfa consists of three parents:

1. Female parent

Cytoplasmic male sterile
Female fertile, male sterile

Note the lack of pollen shed on the black knife.



2. Maintainer parent

When the maintainer parent is crossed to a female parent, the seed from the female parent is male sterile.

Female x Maintainer → All female seed

3. Restorer parent

Normal parent used to pollinate the female parent that restores fertility to the hybrid.

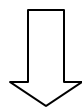
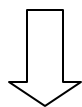
Note the pollen shed on the black knife



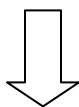
4. Hybrid seed production

Female x Maintainer Restorer Line

Selection



Female Seed x Restorer Line



F₁ Hybrid Alfalfa

Hybrid Alfalfa

Features and Benefits

Feature

Benefit

Quick emergence

Fast ground cover and stand establishment.



Increased spring vigor

Allows for earlier cutting for increased quality with less risk of stand loss.

Faster regrowth with more vigorous plants

Photosynthesis starts sooner, which increases yield due to better use of water and nutrient uptake.



More resilient plants

Provide greater forage yield production in years 3-4.

Plant uniformity

More plants have the highest yield growth stage at the same time. Manage forage quality.

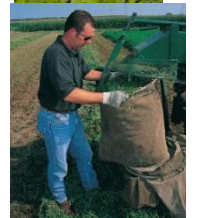
Fine stems

Excellent potential for high quality forage. Herbage tends to dry faster than large stemmed varieties.



Hybrid yield

Increase in forage yield capabilities.
Greater than 8% in state trials.
Greater than 14% in farmer strip plots.



Drought tolerance

Quick ground cover to reduce moisture loss.
Deep rooted to capture moisture.

Shade tolerant

Competes well with nurse crops.



Traffic tolerant

High forage yield production under equipment wheel traffic pressure.

Side-by-Side Forage Yield Summary in On-Farm Trials



(All locations in the HAY program)

Versus Americas Alfalfa	Adv	W – L	Win %
AMERISTAND407TQ	12.3%	8 – 0	1.000
Archer III (Coated)	18.9	4 – 0	1.000
	15.6%	12 – 0	1.000

Versus Croplan	Adv	W-L	Win %
Rebounds 5.0	8.3%	63-26	0.708
Rebounds 6.0	5.9%	6 – 2	0.750
	7.1%	69-28	0.711

Versus DeKalb	Adv	W- L	Win %
DKA43-13	9.8%	13-3	0.813
	9.8%	13-3	0.813

Versus Pioneer	Adv	W-L	Win%
53H92	10.5%	4-0	1.000
53Q30	2.5%	3-0	1.000
54V46	2.8%	32-15	0.681
55V48	7.0%	52-20	0.722
	5.7%	91-35	0.722

Versus Syngenta/Garst	Adv	W – L	Win %
6415	3.1%	5 – 1	0.833
64Q22	17.1%	20-2	0.909
GENOA	8.1%	61-19	0.763
GH717	2.5%	2-1	0.667
	7.7%	88-23	0.793

Versus WL	Adv	W-L	Win %
WL343HQ	8.8%	5-1	0.833
WL357HQ	3.7%	3-1	0.750
WL363HQ	10.0%	66-15	0.815
	7.5%	74-17	0.813

Versus OTHERS	ADV	W –L	Win %
Dynamic	2.6%	3-0	1.000
Gene Young	11.9%	4-2	0.667
NOTICE III	10.8%	7-3	0.700
PGI459	3.5%	6-2	0.750
Summergold	3.0%	4-4	0.500
XL401	18.1%	4-0	1.000
	8.3%	28-11	0.718

Hybrid Alfalfa

Fine Stems

Hybrid alfalfa is characterized by thick stands and fine stems. These fine stems are 4-5% drier in standing herbage which allows faster dry down and earlier harvest.



WL342



Somerset



Standfast



Minnesota

“Very good tonnage. Plant health excellent. It took one round of hybrid verses 1-1/2 rounds of competitor to get the same tonnage.”

“The hybrid yielded a half a ton more per year. The cows ate it better and there was no wasted forage with the hybrid.

“The hybrid is more uniform in height in our on-farm test plot showing a 14% yield increase versus our non-hybrid competitor’s varieties.”

Wisconsin

“Cows went up ten pounds per cow when we starting feeding hybrid alfalfa. 24% protein-RFV 196.”

“The hybrid yielded a half ton more per acre on the second and third cut. It re-grew a couple of days faster and had finer stems.”

“I harvested 74 high moisture baleage (55% moisture) round bales over 6.5 acres. The bales are about 1600# each.”

“The hybrid handled the traffic and the yields are just great. Plus quality! The best alfalfa.”

“The hybrid came back faster even during drought. On the fourth crop, I got two big square bales per acre (850 pound bales) while the non hybrid was one bale per acre.”

Illinois

“After our first year, we did get a yield increase while maintaining and even improving forage quality.”

South Dakota

“Handles drought better than non-hybrid alfalfas and has finer stems. I noticed healthier leaves. No problem calving since started feeding hybrid alfalfa.”

North Dakota

“The hybrid yielded 7.16 tons/acre. The relative feed value of the first cut was 168 with a forage yield of 3.5 tons/acre.”

Nebraska

“The bales were heavier because of the fine stems and leaves.”

Iowa

“I really like Phirst Hybrid alfalfa from Naylor Seed. I am impressed with the fast recovery and high tonnage of this alfalfa. The fact that Phirst Hybrid alfalfa is all fine stemmed and uniform in maturity allows me to harvest a superior quality product. I will be buying more Phirst this spring.”

Mark Knutson Host farm for Farm Progress hay expo 2008

“The Phirst Hybrid alfalfa from Naylor Seed is an excellent product and I highly recommend it. It has very fast recovery. This past season we harvested four high tonnage crops by September 9th even though we had a lot of cool wet weather.”

Ron Hartman, Dubuque 2009

“I planted Naylor Seed’s Phirst Hybrid Alfalfa last year and got 26 big bales off 7 acres and it wasn’t the best ground. It is just awesome stuff”

Bill Nulle, Springville

“I am very impressed with hybrid alfalfa from Naylor Seed. It is out yielding all other alfalfas that I have grown by 10-15%. When it was tested for crude protein it has been running around 20%, which makes it one of the best alfalfas I have ever planted.”

Lee Tonn, Independence