



MISSOURI SOUTHERN SEED

2050 OLD ST. JAMES ROAD • P.O. BOX 699 • ROLLA, MISSOURI 65402

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www.missourisouthernseed.com

PRODUCT GUIDE



Variety LINEUP

FALL
DORMANCY

AmeriStand
435TQ RR



TRAFFIC
TESTED



WINTERHARDINESS: 1.2
CUTTINGS/SEASON: 3-4

Traffic Tested® Alfalfa with Roundup Ready® Tolerance

- Outstanding leaf retention and stem quality for optimizing digestibility and forage quality potential
- High yield potential with excellent stand persistence
- High resistance to seven yield-robbing diseases
- Improved salt tolerance of germinating seeds*

AmeriStand
419LH BRAND

WINTERHARDINESS: 2
CUTTINGS/SEASON: 3-4

High Resistance to Potato Leafhopper with Increased Yield & Forage Quality Potential

- Selected for enhanced glandular hair trait expression with excellent winterhardiness
- High resistance to six common alfalfa diseases plus leafhopper and aphids
- Multi-foliolate (ML) for increased forage quality
- Fast recovery after cutting with very good forage yield potential

AmeriStand
427TQ



TRAFFIC
TESTED

WINTERHARDINESS: 1.8
CUTTINGS/SEASON: 4-5

Top Productivity with High Resistance to Aphanomyces Root Rot Race 1 and 2

- Trial topping forage yield with Traffic Tested® variety performance
- Perfect disease resistance score of 35/35 DRI with HR for both races 1 and 2 of Aphanomyces
- Selected for superior forage quality
- Very fast recovery for frequent harvest schedules under intensive management
- Improved salt tolerance of germinating seeds*

AmeriStand
318TQ



TRAFFIC
TESTED

WINTERHARDINESS: 1.1
CUTTINGS/SEASON: 3-4

Enhanced Yield, Traffic Tolerance and Stand Persistence

- Dependable variety for less intensively managed fields
- Latest generation of products that combine excellent winterhardiness, fast recovery after cutting and improved forage yield potential
- Excellent quality potential as compared to commercial checks

AmeriStand
480 HVXRR



WINTERHARDINESS: 2.2
CUTTINGS/SEASON: 3-4

The Industry's First Genetically Enhanced Alfalfa Technology Developed to Maximize Quality

- Gives growers the ability to better manage the yield-versus-quality tradeoff
- Offers more flexibility in cutting schedule to achieve improved forage quality or greater yield potential when compared to conventional alfalfa at the same stage of maturity
- Fast recovery for frequent harvest schedules under intensive management

AmeriStand
457TQ RR



TRAFFIC
TESTED



WINTERHARDINESS: 1.8
CUTTINGS/SEASON: 4-5

High Quality Traffic Tested® Alfalfa with Roundup Ready® Tolerance

- Excellent forage quality for optimal animal performance
- Perfect disease resistance score of 35/35 DRI with HR for both races 1 and 2 of Aphanomyces
- Very fast recovery for frequent harvest schedules under intensive management

AmeriStand
455TQ RR



TRAFFIC
TESTED



WINTERHARDINESS: 2.0
CUTTINGS/SEASON: 4-5

Top Quality Traffic Tested® Alfalfa with Roundup Ready® Tolerance

- Performance of very popular AmeriStand 407TQ with herbicide resistance
- Excellent forage quality for optimal animal performance
- Very fast recovery for frequent harvest schedules under intensive management
- Improved salt tolerance of germinating seeds*

*In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds (Ger) as compared to the industry salt tolerant checks in each category. References available upon request.



Production TIPS

Use these tips to help you establish a great stand of high yielding, high quality alfalfa.

SOIL SELECTION

- Choose a field with good drainage
- Test the soil for pH and fertility
- Soils should have a pH of 6.5 or above
- If soil pH is below 6.5, an application of lime may be required 12 months ahead of seeding to raise soil pH

SOIL TEST

- Soil test for phosphorus (P), potassium (K) and other elements like sulfur
- Your local soil testing lab can make best recommendations for fertility
- P and K can be applied anytime prior to and/or at seeding
- Soil and plant tissue tests can also guide ongoing topdressing ratios throughout the life of the stand

SEEDING

- With proper management, alfalfa can be seeded conventionally, into reduced tillage or into no-till
- Seed a minimum of 15 pounds per acre
- Spring seedings can begin as soon as frost is out of the ground, seeding early will help improve first year yields
- Fall seedings should occur at least 6 weeks before the historic freeze date for performance the following year

SEEDING DEPTH

- Start with a firm seed bed
- Seed to soil contact and proper seeding depth makes the difference in stand performance
- Plant 1/4 to 1/2 inch deep in heavier soils
- Plant 1/2 to 3/4 inch deep in sandy soils

HARVEST

- Cut first year spring seeded stands at early to mid-bloom (about 70-80 days after seedings)
- Subsequent harvests can be made 25 to 28 days later
- Established stands (second year or older) can be harvested more frequently without severe stand damage
- Most growers like to start first harvest on established stand with a bud cut and following harvests at early bloom (about 26-30 days in most areas)
- Traffic Tested® varieties have been proven to withstand more frequent harvests

Variety Characteristics	Fall Dormancy	Number of Cuttings	Traffic Tested*	Salt Tolerance*	Phytophthora Root Rot	Anthracnose Race 1	Anthracnose Race 5***	Verticillium Wilt	Fusarium Wilt	Bacterial Wilt	Aphanomyces Root Rot Race 1	Aphanomyces Root Rot Race 2	Aphanomyces Root Rot Race 3**	Stem Nematode	Root Rot Nematode	Pea Aphid	Spotted Alfalfa Aphid
AmeriStand 435TQ RR	3.1	3-4	EX	Ger	HR	HR	—	HR	HR	HR	HR	—	—	MR	—	HR	R
AmeriStand 318TQ	3.5	3-4	EX	—	HR	HR	—	HR	HR	HR	HR	—	—	—	R	—	R
AmeriStand 480 HVXRR	4.0	3-4	EX	—	HR	HR	—	HR	HR	HR	HR	R	—	R	—	R	R
AmeriStand 419LH BRAND	4	3-4	—	—	HR	HR	—	HR	HR	HR	HR	—	—	R	—	HR	—
AmeriStand 457TQ RR	4.2	4-5	EX	—	HR	HR	—	HR	HR	HR	HR	HR	—	R	—	HR	R
AmeriStand 427TQ	4.3	4-5	EX	Ger	HR	HR	—	HR	HR	HR	HR	HR	—	HR	—	R	—
AmeriStand 455TQ RR	4.4	4-5	EX	Ger	HR	HR	—	HR	HR	HR	HR	—	—	R	HR	R	—

HR = >51% Resistance, R = 31-50% Resistance, MR = 15-30% Resistance, LR = 6-14% Resistance

*In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds (Ger) as compared to the industry salt tolerant checks in each category. References available upon request.

**Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel race. This research was initiated in 2017 and we anticipate completion in 2019.

***Anthracnose Race 5 was recently confirmed by researchers at Forage Genetics International, LLC (FGI) and USDA's Agricultural Research Service.

In the following states, purchase and use of HarvXtra® Alfalfa with Roundup Ready® Technology is subject to a Seed and Feed Use Agreement, requiring that products of this technology can only be used on farm or otherwise be used in the United States: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. In addition, due to the unique cropping practices do not plant HarvXtra® Alfalfa with Roundup Ready® Technology in Imperial County, California, pending import approval and until Forage Genetics International, LLC (FGI) grants express permission for such planting.

Forage Genetics International, LLC ("FGI") is a member of Excellence Through Stewardship® (ETS). FGI products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with FGI's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. As of June 2017, HarvXtra® Alfalfa with Roundup Ready® Technology has pending import approvals.

GROWERS MUST DIRECT ANY PRODUCT PRODUCED FROM HARVXTRA® ALFALFA WITH ROUNDUP READY® TECHNOLOGY SEED OR CROPS (INCLUDING HAY AND HAY PRODUCTS) ONLY TO UNITED STATES DOMESTIC USE. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import

is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Growers should refer to <http://www.biotechstatus.com/> for any updated information on import country approvals. Excellence Through Stewardship® is a registered trademark of Biotechnology Industry Organization.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready® crops contain genes that confer tolerance to glyphosate. Glyphosate herbicides will kill crops that are not tolerant to glyphosate.

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Due to factors outside of Forage Genetics International's (FGI's) control, such as weather, crop production patterns, and other factors, results to be obtained, including but not limited to yields or financial performance, cannot be predicted or guaranteed by FGI. Results are based upon FGI controlled tests and field trials and public trials. Actual results may vary.



americasalfalfa.com

VENUS BRAND ALFALFA

All the bells & whistles for less. Upgrade from common without paying the big bucks!

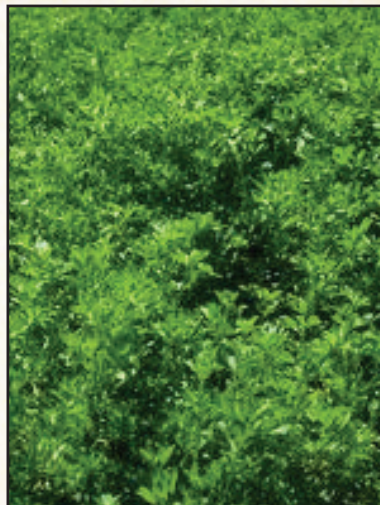
VENUS Brand Alfalfa offers:

- Fine stems and lots of leaves
- Disease and insect resistance
- Good winter hardiness
- Long life
- High yields/quality forage
- Reasonable price
- Does well with grass mixtures
- Fall Dormancy 4

**Plant - February - Early May
August - September**

- **VENUS** alfalfa is for the hay producer who wants top quality forage, but the seed cost has you waiting or using an older, big stemmed variety.
- **VENUS** has the high quality and disease resistance of the newer types at an economical price.
- **VENUS** Brand's fine stems and numerous leaves brings you the quality animals gain on. This quality hay is highly marketable; producing premium prices.
- **VENUS** Brand has been coated, pre-inoculated, and Apron treated for better stand establishment.

**Seeding Rate - 18 lbs. per acre optimum
15 lbs. minimum**



VENUS XDT ALFALFA



<u>Variety</u>	<u>Hay Tons/Acre</u>
Venus XDT	4.45
Pioneer 55Q27	3.78
WL365HQ	3.45
Hi-Gest 360	3.42
Rebound 6XT	3.42

**Lancaster, WI Trial Results with
4 Replications over 2 cuttings**



Agronomic Traits

Traits

Bacterial Wilt	HR
Fusarium Wilt	HR
Phytophthora Root Rot	HR
Verticillium Wilt	HR
Anthracoae	HR
Aphanomyces Root Rot (Race 1)	HR
Aphanomyces Root Rot (Race 2)	HR
Traffic Tolerance	Excellent
Recovery after harvest	Very Fast

Winter Survival & Adaptation

Traits

Fall Dormancy	4.5
Winter Survival	2.0
Stand Persistence	Excellent
DRI	35/35

Venus XDT

Rating

HR
HR
HR
HR
HR
HR
HR
Excellent
Very Fast

- **Top yielder in comparative trials**
- **Excellent disease resistance package including Race 2 aphanomyces**

Venus XDT Alfalfa is a high forage yielding alfalfa with deep crown placement resulting in excellent traffic tolerance. These sunken crowns protect the plant under wheel compaction and animal traffic pressures. Venus XDT also provides an excellent disease resistance package including resistance of multiple strands of aphanomyces Root Rot Race 2. With a fall dormancy of 4.5 and a winter hardiness of 2.0, Venus XDT alfalfa delivers a quality to similar many high end alfalfas.



- 3- Year Clover
- High Yielding
- Rapid Establishment
- High Digestibility
- Improved Disease Resistance



Dynamite is a high yielding, double cut red clover selected for its improved disease resistance. With these characteristics, Dynamite makes for an excellent addition to mixtures for hay, silage, pasture, and wildlife settings. Early spring growth and abundant regrowth help prove that this clover is one of the top yielding clovers available. Dynamite can be mixed with small grains, grasses, and other legumes to fit your needs. Plant 7-10 lbs per acre when sown alone or 4-6 lbs per acre when seeding in a mix. Optimal planting time is late January through April or mid-August through Mid-September at a depth of 1/8 - 1/4 in.

High Yields

3 year data - over 3 locations in 3 states
Yield compared to Gallant

Gallant	103%
Freedom	100%
Kenland	100%
Kenway	94%
Marathon	90%
Arlington	82%

Test MEAN 24.18/Tons DM/acre



A Superior Variety A 3 Year Clover

*Gallant Red Clover
produces more forage
and lasts longer in the
field than most red
clover varieties!*



Gallant Red Clover makes an excellent companion crop in pastures and hay fields.

Great addition to any pasture or hayfield and can combine with a multitude of options. Plant 8 to 10 pounds per acre alone or 5 to 6 pounds per acre with grass January through April or mid August through September 15th.

Improved Disease Resistance

- HR — Northern and Southern Anthracnose
- HR — Black Patch
- R — Powdery Mildew

Excellent Persistence



Gallant Medium Red Clover has superior persistence to most medium red clover varieties. The photo above compares a 3 year old stand of Gallant (right) to another variety.



Stamina is a new intermediate-type of white clover selected for persistence under grazing, stolon density, and larger leaf size. Stamina's high stolon density helps it spread aggressively preventing hoof damage caused from grazing pressure. This aggressive nature gives Stamina the persistence to out-yeild and out-last other white clovers and ladinos. In recent trials conducted by the University of Kentucky in Lexington, KY, Stamina proved to persist better than Patriot, Durana, and Alice. In other trials, Stamina has proven to out-yeild Legacy and our previous clover, Kopu II.

Seeding Rates:

New hay fields/pasture: 1-3 lbs/acre in mixes.

Renovation/Overseeding existing fields/pastures: 2-3 lbs./acre

Method of Seeding:

Use of a Brillion seeder, a no-till drill or a culti-packer is ideal. Frost seeding also works well, especially if the animals are allowed to "hoof" it into the existing pasture. Seed to soil contact is vital to having a successful stand. Plant the seed 1/4" deep. For best performance Stamina should be lightly grazed frequently during establishment.

- **Aggressive Tillering**
- **High Yielding**
- **Excellent Persistence**

GRAZING PERSISTENCE DATA

VARIETY	PERCENT STAND								
	2014	2015		2016		2017		2018	
	NOV. 3	APR. 6	OCT. 30	MAR. 24	OCT. 17	MAR. 22	OCT. 19	MAR. 20	SEP. 26
STAMINA	72	88	88	89	68	45	66	58	65
DURANA	83	91	91	86	69	48	64	59	65
PATRIOT	87	93	93	90	78	53	62	53	55
ALICE	91	92	92	85	53	35	53	47	52
LSD VALUE	9	8	8	10	16	17	16	17	13

UNIVERSITY OF KENTUCKY FORAGE TRIAL PLANTED SEPTEMBER 9, 2014 AT LEXINGTON, KENTUCKY.



SYNERGY LADINO CLOVER



An impressive Ladino White Clover with exceptional growth habits, characterized by a tall, leafy, spreading plant mass. Synergy Ladino highly complements existing pasture grasses, has good regrowth and persistence, and performs well under heavy grazing settings. Synergy Ladino is highly compatible with cool season grasses and legumes including tall fescue, orchardgrass, ryegrass, red clover, and alfalfa. It will perform on a variety of conditions including wetter and lower pH soils where other legumes are not well suited.

With its performance and customer satisfaction, Synergy is a very recognizable ladino in the Midwest. Recommended seeding rate is 2-3 lb. per acre in pasture overseedings.

NEED HELP FOR STRESSED PASTURES? USE MISSOURI SOUTHERN'S CONVENIENT PASTURE OVERSEEDING MIXTURE

- **Legumes reduce nitrogen costs**
- **Dilutes effects of endophyte fungus in KY31 tall fescue**
- **Increase the protein content of grass forages**
- **Ladino Clover can withstand close grazing & spreads by stolons**
- **Red clover, a short lived perennial that makes for excellent grazing**
- **Plant 6-10 lbs. initially, 2-4 lbs for maintenance**

*January through April or
mid August - September 15th.*



94% MEDIUM RED CP & 6% LADINO CLOVER CP



BIRDSFOOT TREFOIL NORCEN

- A non-bloating legume.
- Preferred pH soil 5.0 to 6.0

Norcen Birdsfoot Trefoil is an upright variety suitable for pasture or hay. Birdsfoot Trefoil does best in grass mixes. Trefoil does prefer rotational grazing.

Missouri Southern Seed applies a coating material that holds inoculation next to the seed for better plant growth and nitrogen fixation. We also add Apron seed treatment to ward off early seedling diseases. Raw seed is sometimes available.

A very good addition to most all grass pastures, including tall fescue. Birdsfoot Trefoil may be frost seeded in winter, or shallow seeded in the spring or late summer.

Plant: 4 to 8 lbs per acre at a 1/4 inch depth January through April or late August through September 15.



AberLasting

White x Kura Clover

- Aberlasting Clover is a cross between White Clover and Kura Clover.
- This cross makes Aberlasting more persistent than white or ladino clover.
- Can be grown with most cool season grasses.
- Excellent cold tolerance.
- Excellent drought tolerance.
- Great addition to any pasture
- Very aggressive. Spreads by rhizomes
- Seed 2-3 lb per acre when added to pasture.
- Can be frost seeded or drilled.
- Plant Jan-April or mid-Aug-Sept.



COW★PRO

Endophyte Free

FORAGE TALL FESCUE



COW★PRO Brand Forage Type Tall Fescue is an outstanding forage grass suitable for all classes of livestock, with early vigor, fast regrowth and almost year-round production. COW★PRO Fescue solves many forage needs.

- High yielding-high quality forage.
- Exceptional early seedling vigor for quick establishment.
- Suitable for horses - even broodmares.
- Excellent spring and fall growth.
- Suitable for winter stockpiling.
- Tolerant of poorer soils.
- Heat and drought resistant.
- Shows resistance to rust and other foliar diseases for longer life and better animal intake.



Seeding Time: March thru May & August thru October
Seeding Rate: 20-25 lbs. per acre



COW★PRO II

FORAGE TALL FESCUE

• EXCEPTIONALLY
HIGH-YIELDING

• EXCELLENT
SEEDLING VIGOR

• HEAT AND DROUGHT
TOLERANT

• PERSISTENT
VARIETY

Cow Pro II forage fescue is a new generation, top yielding, endophyte-free tall fescue. With excellent early seedling vigor, Cow Pro II is quick to establish making for excellent pasture, hay or silage production. Cow Pro II is a highly disease resistant, medium maturing fescue with excellent heat and drought tolerance. In multiple trials, Cow Pro II fescue has out yielded KY31, Max Q, and Baroptima +E34.



Cow Pro II fescue is well adapted to various soil types and pH levels. Plant 20-25 lbs per acre March-early May or August-October. Cow Pro II is highly palatable when compared to KY31 so avoid overgrazing. Remove livestock from pastures when grass levels reach 3-5 inches. With proper management practices, Cow Pro II should provide high quality forage.



Estancia Tall Fescue

with ArkShield® Technology

Estancia with ArkShield® is the latest generation forage tall fescue with the addition of a beneficial endophyte.

What is Estancia Tall Fescue?

Estancia tall fescue is the result of years of laboratory and field research by the University of Arkansas in cooperation with the University of Missouri. Estancia is a medium maturing, high yielding tall fescue with excellent seeding vigor.

What is ArkShield®?

ArkShield® is a patented smart endophytic fungus that lives inside Estancia Tall Fescue seed and plants in a mutually beneficial relationship protecting the grass from disease, insects and environmental stresses like heat and drought. ArkShield® is natural and desirable in forage grasses and has no known negative effects on livestock. The ArkShield® endophyte makes Estancia a more productive and persistent perennial forage grass.

Estancia with ArkShield® Quality Assurance:

Estancia is packaged in a 25 lb. sealed foil bag to reduce air, heat and moisture transfer into and out of the bag that helps to ensure the viability of the seed and the live ArkShield® endophyte. Estancia with ArkShield® has both a guaranteed analysis tag ensuring the seed purity and germination, as well as a sow-by date ensuring the viability of the live endophyte.

Put your pasture to work!

Two factors that dramatically impact the profitability of a cow-calf operation are calving rate and weaning weight. Improvement to these production factors will increase the pounds of calf that can be marketed within a given calving season or year. Lower pregnancy rates, calving rates and calf weaning weights have been observed in many research studies in cows and heifers grazing toxic fescue.

Combining cow and calf performance data, year round grazing of toxic fescue could be costing cattle producers more than \$250 per head in lost revenue based on the Arkansas beef Improvement Program's reported annual direct costs of maintaining Beef cows.



Estancia Tall Fescue Production

Estancia Tall Fescue produces tons of nutritious, palatable, high-quality forage that results in healthier cows, heavier weaning calves and improved steer and heifer weight gains.

Effect of Cultivar on Grazing and Subsequent
Performance of Steers Grazing Tall Fescue Pastures,
Southeast Agricultural Research Center, KSU, 2004

Tall Fescue Cultivar - High Endophyte
257 Day Grazing Phase

Item	Estancia	MaxQ	K-31
Gain, lb.	3.99	3.77	2.43
Daily Gain, lb	1.55	1.47	0.94
Gain/Acre, lb	319	302	199

ArkShield® Smart Endophyte Protection



ArkShield's Smart Endophyte protects the Estancia forage from disease, insects, heat and drought stresses that result in a more persistent perennial pasture without negatively affecting cattle performance or calving rates.

Planting Guide for Estancia Tall Fescue

- Closely graze or harvest existing toxic fescue
- Spray stubble with a non-selective herbicide
- Test soil and follow soil test recommendations
- Plant a cover-crop
- Graze/Harvest break-crop (don't transfer toxic fescue seeds in manure to break-crop forage)
- After useful life of the break-crop, spray out with a non-selective herbicide
- No-Till drill Estancia in September to November in the Southern states and August to September or March to May in the Midwestern and Northeastern states
- Seed Estancia at 20-25 lbs per acre
- Fertilize as recommended
- Estancia can be planted with other species such as alfalfa, red or white clover and grasses
- Don't graze or harvest seeding pasture the first winter.
- Be sure not to feed toxic fescue hay in newly established Estancia Pasture (or transfer toxic seed via manure)





Warrior II is a later maturing, upright growing orchardgrass derived from the Warrior line of high-yielding orchardgrass. This next generation variety boasts all of the traits of Warrior Orchardgrass, with improved resistance to disease and grazing pressures.

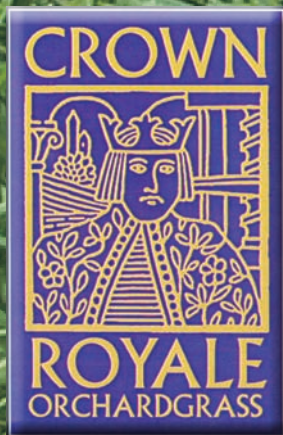
Warrior II is the #1 ranked proprietary orchardgrass in a three year dry matter yield trial in Orange, Virginia beating Persist & Shiloh II orchardgrass varieties. Data was gathered using three harvest schedules throughout the given year.

Warrior II is recommended for intensive rotational grazing, pasture, hay, green chop, and silage. However, orchardgrass requires a high mowing/grazing height. It has been found for best yields and plant life to leave at least 3.5 to 5 inches of stubble for regrowth.

Three Year Dry Matter Yield Trial of Orchardgrass studied in Orange, Virginia by Virginia Tech

Variety	lb DM/A
Warrior II	38772
Shiloh II	37488
Benchmark Plus	37109
Persist	36501
Endurance	35582

Warrior II was selected for its improved disease resistance to stem and leaf rust as well as its increased forage yields. These traits make it a perfect complement to alfalfa, red and white clover, birdsfoot trefoil, tall fescue, and early maturing varieties of Timothy such as our Cow Pro Timothy. Its palatability and longevity give this variety strong bonus features. Plant 15 to 20 pounds per acre March through April and September through October. Best results when drilled.



Crown Royale orchardgrass is a later maturing orchardgrass with improved disease resistance to leaf, stem, and stripe rust. Crown Royale was selected for its increased yield trials throughout most of the United States producing up to 35% more forage than other grasses tested. Crown Royale has excellent early seedling vigor making it easy to establish. It also performs well on various soil types ranging from clay to gravelly loams and on shallow to deep soils.

Crown Royale has shown excellent winter hardiness and moderate drought resistance. Due to its later maturity, Crown Royale is a perfect companion for fescue, timothy, alfalfa, and red and white clovers. It works well for rotational grazing pasture, hay, green chop, and silage. However, orchardgrass requires a higher mowing/grazing height. It has been found for best yields and plant life to leave at least 3.5 to 5 inches of stubble for regrowth.

Crown Royale should be planted at 15-20 pounds per acre drilled March-April or late August-October at 1/8 to 1/4 inch depth.

**Arlington Agricultural Research Station
Arlington WI
2011/2012 - 2 year totals**

Variety	DM Tons/Acre
Crown Royale	7.72
Pennlate	7.21
Profit	7.07

Disease Resistance Rating	S	LR	MR	R	HR
Leaf Rust					•
Stem Rust					•
Leaf Scald					•
Mottle Virus			•		
Stripe Rust					•

S=Susceptible LR=Low Resistance MR=Medium Resistance
R=Resistance HR=High Resistance



COW★PRO FORAGE TIMOTHY

- Earlier maturing variety
- Excellent Yields
- Great companion crop for pastures
- Extra wide leaves

Cow Pro Forage Timothy is a tall standing, productive timothy that brings forward many special improved characteristics that outperform Climax in both volume and quality. Cow Pro Timothy is noticeably taller in upright growth and offers a great number of extra wide leaves for more tonnage. Cow Pro Timothy also matures one week earlier than Climax allowing for a better companion crop. Plant 8 to 12 pounds per acre late August through October or February through May 1st.



PALATON Reed Canarygrass!

A cool season grass that is known for its ability to withstand excessive wetness in the pasture/hayfield. When compared to other varieties, Palaton is more palatable to cattle and other livestock due to lower alkaloid levels.

With good winter hardiness, Palaton has a record of producing 5 tons of dry matter over a 3 year average of three cuttings.

Reed canarygrass has been known to produce multiple hay cuttings throughout the year. It makes great pasture when incorporated with a legume. Plant late February through April, or late August through September. Late summer planting is recommended for low, wet areas.

A fine and firm seed bed is needed for planting. Plant 1/4 inch deep. Plant 10 to 12 pounds in a mono stand. Higher rates are recommended for poor soil conditions.

Sierra Perennial Ryegrass

Sierra is a diploid variety of perennial ryegrass that makes an excellent addition to pastures. Perennial ryegrasses are best suited for cooler climates where drought and extreme high temperatures are uncommon. However, Sierra is highly palatable with excellent drought and cold tolerance for a perennial ryegrass. It is common for many varieties of perennial ryegrass to thin within 1-2 years. Sierra consistently rates high in percentage of stand well into the third year in trials across the country due to its dense, low crown. This allows for Sierra to be more tolerant to hoof traffic and stress. Plant 25-30 lbs per acre drilled in a mono stand or 5-10 lbs in a mixed stand March through early May or September through October. Seed should be planted in a well prepared seed bed. Responds well to fertilizer applications.

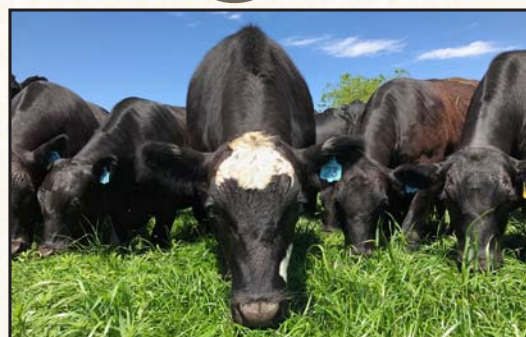


- **Drought Resistant** • **Very Persistent** • **Excellent Grazer**

Albion tetraploid forage perennial ryegrass is a widely adapted variety of perennial ryegrass suitable to the Midwest. Albion is deeper rooted & much more heat & drought tolerant than other perennial ryegrasses. Even though ryegrasses aren't known for their drought tolerance, Albion survived and grew in the drought of 2012! Albion is a profuse tillering plant with wider leaves than most ryegrasses. Albion is very suitable for a rotational grazing system or frequent hay cuttings. It has been found that Albion responds best when grazing or hay harvest occurs before reproduction and when 3 inches of stubble is left for regrowth. Responds well to fertility. Plant 25 to 35 pounds per acre February through April or September through October.



- EXCEPTIONAL YIELD
- COLD TOLERANT
- EXCELLENT SEEDLING VIGOR
- MULTIPLE YEARS PRODUCTION
- PERSISTENT
- IMPROVED QUALITY



TetraMag hybrid ryegrass was selected for its yield capability and excellent persistence. Being a cross of perennial ryegrass and Italian ryegrass, TetraMag can produce large amounts of forage for hay, pasture, or silage.

TetraMag has ranked at the top of experimental trials throughout various regions of the United States. These results are largely due to TetraMag having excellent early seedling vigor making TetraMag an excellent choice for inter-seeding pastures or hay fields. Plant 25 lbs per acre for a monostand or 5 to 15 lbs in mixed stands. Planting is optimal when done in the spring. However, early fall plantings are also successful due to TetraMag having improved winter hardiness. Not known to be a long lived perennial. Responds well to fertilization. Leave 3-5 inches for regrowth.

BESTFOR

Tetraploid Ryegrass

Bestfor (*Lolium Hybridum*) is a cross of perennial and Italian ryegrass. It produces an immense amount of forage consisting of broad dark green blades, and large succulent stems preferred by all livestock.

Bestfor, compared to tall fescue, brome grass, and timothy, is by far more palatable and digestible. It produces a superior pasture when sown alone. However, it was originally bred to be sown with alfalfa, legumes or other grasses for permanent pasture or hay production.

Bestfor's quick germination and rapid establishment makes it an excellent choice for overseeding existing pastures and hay fields.

Bestfor consistently out-performs improved forage perennial ryegrass in dry matter yield trials.

Bestfor germinates in 4-7 days under ideal conditions, which allows grazing and chopping within 6-8 weeks.

Bestfor's seeding rate is 30-35 lbs. per acre in a mono stand and 5-15 lbs. per acre of Bestfor in a mixed stand. If combined with other grasses or legumes, the seeding rate is 25-50% of the mixture. Planting is optimal when done in spring, however, early fall plantings are also successful.



- Fast Establishment
- High Forage Quality

Sugarcrest is a new perennial-type festulolium that provides better forage quality and persistence than other "fescue-type" festuloliums. Festuloliums are known to establish quickly making them an excellent addition to pasture and hay mixes. Sugarcrest excels from other varieties by having fast regrowth giving more tonnage capabilities per acre than its competition. Sugarcrest has also proven to be more persistent than its competition allowing for the possibility of a perennial field. Sugarcrest is recommended for hay, grazing, silage, and green chop. In the transitional zone it has been found best used when added to a grass/legume mix to help bolster pastures. Festuloliums are not known to be long lived perennials. Plant 25-35 lbs per acre when sown alone or 5-15 lbs when sown with other grasses. Responds well to fertilization. If grazing or mowing, leave 3-4 inches for regrowth.



- Highly Palatable & Digestible
- Improved Dry Down
- Superior Tillering

Enhancer ryegrass is a diploid Italian ryegrass that was developed for lower moisture content and increased sugar content. By lowering the moisture content livestock can ingest more plant material. With an increase in sugar content, additional energy is provided to the animal allowing for an easier conversion of plant proteins into meat and milk.

Enhancer Italian ryegrass requires cold temperatures for it to go reproductive. When planted in the late spring in the transition zone, Enhancer can over-winter and produce early season production the following year.

Enhancer is recommended for grazing, green chop, haylage, and dry hay for beef/dairy cattle, sheep, and goats.

Due to its strong seedling vigor, high yield capability, and high forage quality, Enhancer makes an excellent addition to temporary pastures or permanent pastures/hayfields. Plant 30-35 lbs per acre when sown alone or 5-15 lbs per acre when sown in a mix. Plant late March – early May.



- Improved Cold Tolerance
- High Yielding
- Improved Disease Resistance

Variety	DM Pounds/Acre	2010/2011
Lonestar	9447	
Marshall	8044	

Trial ran by The Samuel Roberts Noble Foundation Ag
Division Ardmore, OK

Lonestar Annual ryegrass is a very cold tolerant, disease resistant forage variety that has excellent seedling vigor and rapid regrowth. Lonestar is a medium maturing variety suitable for grazing, hay, cover crop, or erosion control. Lonestar is a diploid annual ryegrass, which will allow the hay to dry quicker than tetraploid varieties. Lonestar features improved foliar disease resistance, such as gray leaf spot and crown rust. Lonestar provides growers the highest quality forage and high yields. Lonestar has placed near the top of forage trials throughout the U.S. for overall dry matter yields. Lonestar has shown to perform well in cold or high temperatures making it one of the most versatile ryegrasses available. Plant 25 to 35 pounds per acre mid August through October.

Late Winter/Early Spring



Cow★Pro Forage Oats

Cow★Pro Forage Oats are an extremely tall oat variety. Developed especially for forage production. Late maturing – approximately 5 days later than Jerry. Cow★Pro Oats have strong straw strength, resistant to Smut, moderate resistance to Stem Rust. Grain has light test weight, and white color. Highly recommended for hay, pasture, or silage. Adding Austrian winter peas or hairy vetch will increase protein and yield. Plant Feb. thru April early as possible. Seed 100 lbs. per acre.

Winter Annual Legumes - Spring Forages

Hairy Winter Vetch - A very winter hardy legume for pasture, hay or silage. High in protein, this legume is very palatable. Is used for a cover/plowdown crop. A good companion with small grains, wheat, rye, barley or triticale. Seed in late summer. Plant 25-30 lbs in mixtures; 40-50 lbs. in pure seeding.

Austrian Winter Peas - Winter peas make an excellent companion to small grains for hay or silage, adding additional protein and yield. Not adapted for grazing. Winter Peas makes a good nitrogen producing cover crop. Seed in late winter with oats or late summer with wheat or triticale. Plant 25-30 lbs. per acre with companion crop; 40-50 lbs. per acre for cover crop.

Vivant Hybrid Brassica

Vivant is a high yielding brassica that is a cross between a forage turnip and forage rape. Vivant offers a tremendous opportunity for multiple grazings. Vivant can be sown in the spring with oats or Italian Ryegrass; in the summer with sorghum-sudangrass or pearl millet. With good fertility, moisture and management, Vivant can be ready to graze in 40-65 days. Vivant has a tap root and grows longer than turnips into times of dry weather.

Jerry Oats

Medium maturity-about 4 days later than Don, medium height. Good lodging resistance, very high test weight, high groat percentage, white/ivory seed. Moderately susceptible for red leaf, moderately resistant to crown rust and moderately susceptible to stem rust.

WRANGLER

SEEDED

BERMUDAGRASS

with improved cold tolerance and forage production is an excellent choice for pasture, hay, or soil conservation in temperate and subtropical regions. Wrangler is well adapted to the transition zone of the United States (OK, KS, MO, AR, TN, etc.) where winterkill of common is a problem. In fact, Wrangler is the most widely planted cold tolerant forage variety planted in the U.S. It has great early spring green-up and fast regrowth making Wrangler an excellent choice for any farming system.

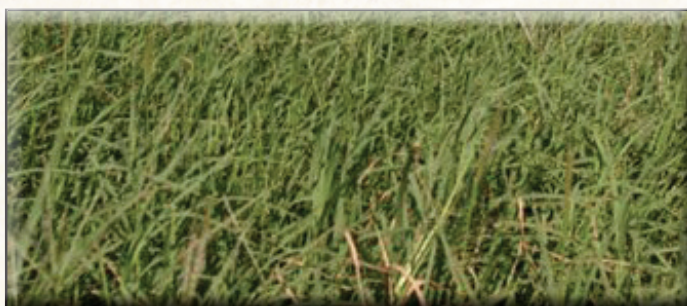
CULTURAL PRACTICES

- **Fertility:** A total of 100 to 200 lb./ac/year (112 to 224 kg/ha/year) of actual Nitrogen is recommended based on expected precipitation and level of dry matter production or quality desired. The Nitrogen should be split into at least two applications; the first in early spring and the second in mid summer. Minimum soil levels of 65 lb./acre phosphorous and 200 lb./acre potassium should be maintained for maximum production at the desired Nitrogen level.
- **Harvesting Schedule:** Every 30 to 60 days depending on fertility and moisture. As a rule, the more frequent cuttings provide higher quality forage with less total dry matter while less frequent cuttings reduce quality but increase dry matter production.



SEEDING

- **Dates:** Late spring when soil temperatures reach 65°F (20°C). Plantings through summer months are successful if moisture is available for germination and seedling establishment.
- **Rates:** 8 to 12 lb./acre (9 to 13 kg/ha).
- **Depth:** 1/8" (3 mm) on heavy soils to 1/4" (6 mm) on sandy soils.
- **Method:** Brillion seeder; broadcast (roll or harrow).
- **Soil Preparation:** Prepare firm seed bed free of weeds and clods to provide good seed to soil contact.
- **pH:** Test soil prior to planting. A range of 6.0 to 7.5 is sufficient.
- **Fertility:** Test soil prior to planting. A fertilizer low in nitrogen but high in phosphorous and potassium is recommended as a starter fertilizer to promote seedling vigor without promoting excessive weed growth. Increases nitrogen as seedlings develop and a sod forms.
- **Weed Control:** Not recommended in the seedling stage except for very light applications of 2, 4 D to control broadleaf weeds. Residual herbicides are not recommended in the first 60 days.
- **Irrigation:** If applicable, keep soil moist for germination. As seedlings develop reduce frequency of watering but increase the amount.



Stampede PLUS Bermudagrass Blend was formulated to combine the excellent winter hardiness and early spring green-up of the proven **Wrangler** variety with the fast establishing, fast producing **Giant** and **CD90160** varieties. The result: a widely adapted, high producing forage blend that establishes quickly and handles the toughest stress. Due to the addition of varieties Giant and CD90160, grazing or multiple hay cuttings can occur during the planting year.

Follow the cultural practices of Wrangler (above).

PLANTING

FORAGE LEGUMES

SPECIES	SEEDING RATE LBS/ACRE DRILL/BROADCAST	SEEDING TIME	DEPTH INCHES	APPROX SEEDS/LB (1000)
ALFALFA.....D	15-20	(SP. OR LATE SUMMER)	1/4	220
BIRDSFOOT TREFOIL.....D	5-8	(FEB-APR OR LATE SUMMER)	1/4	375
MEDIUM RED CLOVER.....B	5-8	(JAN-APR OR LATE SUMMER)	0 - 1/4	275
ALSIKE CLOVER.....B	4-6	(JAN-APR OR LATE SUMMER)	0 - 1/4	680
ALTASWEDE CLOVER.....B	6-10	(JAN-APR OR LATE SUMMER)	0 - 1/4	275
COW*LOVER CLOVER MIX.....B	6-8	(JAN-APR) (LATE SUMMER)	0 - 1/4	304
LADINO CLOVER.....B	1-3	(JAN-APR OR LATE SUMMER)	0 - 1/4	860
WHITE CLOVER.....B	1-3	(JAN-APR OR LATE SUMMER)	0 - 1/4	860
SWEET CLOVER (YELL/WHITE).....B	10-15	(JAN-APR OR LATE SUMMER)	0 - 1/4	260

KOBE LESPEDEZA (STRIATA).....B	15-20	(JAN-APR)	0 - 1/4	227
KOREAN LESPEDEZA (STIPULECEA) B	15-20	(JAN-APR)	0 - 1/4	240
KOREAN LESPEDEZA, HULLED.....B	10-20	JAN-APR)	0 - 1/4	320

ANNUAL LEGUMES / BRASSICAS / HERB

BALANSA CLOVER.....D	5-8	(FEB-APRIL OR LATE SUMMER)	0 - 1/4	500
BERSEEM CLOVER.....D	15	(FEB-APRIL OR LATE SUMMER)	0 - 1/4	300
CRIMSON CLOVER.....B	15-20	(AUG-OCT)	0 - 1/4	150
HAIRY WINTER VETCH.....B	20-25	(FEB-APR OR LATE SUMMER)	1/2 - 1	16
WINTER PEAS.....B	30-40	(FEB-APR OR LATE SUMMER)	1/2 - 1	3.6
CHICORY, PER. HERB.....D	4-5	(SPRING & FALL)	1/8 - 1/4	425
RADISH.....D	10-12	(AUG-SEPT)	1/4	40
RAPE.....D	6-10	(SPRING & FALL)	0 - 1/4	145
TURNIP.....D	2-5	(SPRING, SUMMER & FALL)	1/4	167

FORAGE GRASSES

SPECIES	RATE/ACRE DRILL/BROADCAST	SEEDING TIME	DEPTH INCHES	APPROX SEEDS/LB
BERMUDAGRASS.....D	8-12	(L. SPRING & E. SUMMER)	1/4	1,300
BLUEGRASS.....B	10-15	(FEB-APR) (AUG-OCT)	0-1/4	2,200
BROMEGRASS, SMOOTH.....B	15-25	(FEB-APR) (AUG-OCT)	1/4-1/2	134
BROMEGRASS, MEADOW.....B	15-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	93
ORCHARDGRASS.....D	15-20	(MAR-APR) (AUG-OCT)	1/4 - 1/2	590
PRAIRIE BROME.....D	30-35	(E. SPRING & E. FALL)	1/4 - 1/2	520
RED TOP.....B	8-12	(FEB-MAY) (AUG-OCT)	1/4	5,100
REED CANARYGRASS.....B	8-12	(FEB-MAY) (AUG-SEPT)	1/4 - 1/2	550
RYEGRASS, ANNUAL.....B	25-35	(FEB-MAY) (AUG-OCT)	1/4 - 1/2	270
RYEGRASS, PERENNIAL.....B	25-35	(FEB-MAY) (AUG-OCT)	1/4 - 1/2	270
TIMOTHY.....B	8-12	(FEB-MAY) (AUG-OCT)	0-1/4	1,230
TALL FESCUE.....B	20-25	(FEB-APR) (AUG-OCT)	1/4-1/2	225

PASTURE MIXTURES

HORSE.....B	20-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	1,033
ELITE.....B	20-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	475
CLASSIC.....B	20-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	630
HARDY.....B	20-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	452
WATERWAY.....B	20-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	432
FIX-A-LOT.....B	20-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	475
FLEX.....B	20-25	(FEB-1ST MAY) (AUG-OCT)	1/4-1/2	400

WARM SEASON GRASSES (PLS) PURE LIVE SEED

APPROX SEED	PER ACRE	TIME	PER LB
BIG BLUESTEM	5-10	(LATE MAY & JULY)	130
INDIANGRASS	6-10	(LATE MAY & JULY)	170
LITTLE BLUESTEM	5-6	(LATE MAY & JULY)	260
SIDE OATS GRAMMA	8	(LATE MAY & JULY)	135
SWITCHGRASS	5-6	(LATE MAY & JULY)	280
EASTERN GAMMA GRASS (DORMANT)	8	(DEC - FEB)	7.5
CAUCASIAN BLUESTEM	2-3	(LATE MAY & JULY)	900
CRABGRASS	4-6	(LATE MAY & JULY)	825
VIRGINIA WILDRYE	5-10	(SPRING-FALL)	96
CANADA WILDRYE	7	(SPRING-FALL)	115

HELPFUL CONVERSIONS

Acre	=	43,560 Sq. Ft.
	=	.405 Hectare
Hectare	=	2.47 Acres
Pound	=	454 Grams
Kilogram	=	2.205 lb.

Typical Purity and Germinatin with PLS %

Purity Percent	Germ 90%	Germ 85%	Germ 80%
99.50.....	89.55.....	84.57.....	79.60
99.25.....	89.32.....	84.36.....	79.40
99.00.....	89.10.....	84.15.....	79.20
98.50.....	88.65.....	83.72.....	78.80
98.00.....	88.20.....	83.30.....	78.40
97.50.....	87.75.....	82.87.....	78.00
97.00.....	87.30.....	82.45.....	77.60
96.50.....	86.85.....	82.02.....	77.20
96.00.....	86.40.....	81.60.....	76.80
95.00.....	85.50.....	80.75.....	76.00
94.00.....	84.60.....	79.90.....	75.20
93.00.....	83.70.....	79.05.....	74.40
92.00.....	82.80.....	78.20.....	73.60
90.00.....	81.00.....	76.50.....	72.00
65.00.....	58.50.....	55.25.....	52.00
64.00.....	57.60.....	54.40.....	51.20



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CHART

LAWN SEEDS

SPECIES	RATE LBS PER 1000 SQ FT	APPROX SEEDING TIME	APPROX SEEDS/LB (1000)
BERMUDAGRASS.....	2-3	(MAY-JULY)	1,300
BENTGRASS.....	2	(MARCH-SEPT)	8,000
BLUEGRASS.....	3-5	(FEB-MAY) (AUG-OCT)	2,200
BUFFALOGRASS.....	1-3	(MAY-AUG)	275
CLOVER, WHITE DUTCH.....	3-5	(FEB-APRIL) (AUG-OCT)	700
CROWN VETCH.....	2-3	(SP-SUMMER-FALL)	122
FESCUE, TALL KY 31.....	8-10	(FEB-APR) (AUG-OCT)	225
FESCUE, TALL TURF TYPES.....	8-10	(FEB-APR) (AUG-OCT)	225
FESCUE, CREEPING RED.....	3-5	(MAR-MAY) (AUG-OCT)	615
FESCUE, CHEWINGS.....	3-5	(MAR-MAY) (AUG-OCT)	615
RYEGRASS, PERENNIAL.....	5-6	(FEB-JUNE) (AUG-OCT)	270
RYEGRASS, ANNUAL.....	5-6	(FEB-JUNE) (AUG-OCT)	270
RYEGRASS, TURF TYPES.....	5-6	(FEB-JUNE) (AUG-OCT)	270
ZOYSIA.....	2	(MAY-AUG)	1,200
WILDFLOWERS, MIDWEST MIXTURE	5 OZ	(SPRING, FALL)	419

LAWN MIXES

FANCY.....	3-5 LBS	(FEB-APR) (AUG-OCT)	700
PREMIUM.....	3-5 LBS	(FEB-APR) (AUG-OCT)	935
SUPREME.....	3-5 LBS	(FEB-APR) (AUG-OCT)	808
PLAYGROUND.....	5-7 LBS	(FEB-APR) (AUG-OCT)	440
LANDSCAPER.....	7-9 LBS	(FEB-APR) (AUG-OCT)	236
PRETTY TUFF.....	7-9 LBS	(FEB-APR) (AUG-OCT)	236
EASY TURF.....	7-9 LBS	(FEB-APR) (AUG-OCT)	234
SUPER EASY TURF 4.....	8-10 LBS	(FEB-APR) (AUG-OCT)	234
SHADY.....	5-7 LBS	(FEB-APR) (AUG-OCT)	420
5-WAY.....	8-10 LBS	(FEB-APR) (AUG-OCT)	225
5 PLUS 10.....	7-9 LBS	(FEB-APR) (AUG-OCT)	422
CONTRACTORS.....	7-9 LBS	(FEB-APR) (AUG-OCT)	236

ANNUAL FORAGES AND GRAINS

SPRING	SEEDING RATE LBS/ACRE	APPROX SEEDING TIME	DEPTH INCHES	APPROX SEEDS/LB (1000)
OATS, FORAGE, COW★PRO.....	D 85-100	(FEB-APR)	1-2	16
OATS, SPRING, GRAIN.....	D 64-96	(FEB-MAR)	1-2	16
BARLEY, SPRING, GRAIN (NORTH).....	D 72-96	(EARLY SPRING)	1-2	14
WHEAT, SPRING, GRAIN (NORTH).....	D 90-120	(EARLY SPRING)	1-2	11

SUMMER

COWPEAS, FORAGE (HAY).....	D 50-60	(MID MAY-JULY)	1	3.6
MILLET, PEARL, HYB, COW★PRO.....	D 12-15	(MID MAY-JULY)	1/2 - 3/4	82
.....	B 30-40			
MILLET, GERMAN FOXTAIL.....	D 20-30	(MID MAY-JULY)	1/2	165
SORGHUM-SUDAN HYB. HONEYCOMB.....	D 20-30	(MID MAY-JULY)	1	22
.....	B 30-50			
SORGHUM-SUDAN HYB. SURPASS BMR6.....	D 20-25	(MID MAY-JULY)	1	20
.....	B 30-35			
SORGHUM, FORAGE HYB SILO 7000.....	D 6-8	(MID MAY-JULY)	1	15
.....	B 20-25			
SORGHUM, GRAIN HYB RS215.....	D 6-8	(MID MAY-JULY)	1	15
SOYBEANS, FORAGE COW★PRO.....	D 75-90	(MID MAY-JULY)	1	3.4
SOYBEANS, HAY, LAREDO.....	D 40-50	(MID MAY-JULY)	1	6
TEFF GRASS.....	D 10	(MID MAY- JULY)	1/8 - 1/4	1300

FALL/WINTER

BARLEY, WINTER, GRAIN.....	D 72-96	(AUG-EARLY OCT)	1/2 - 1	14
OATS, WINTER, BOB.....	D 75-100	(AUG-OCT)	1-2	16
RYE, FORAGE, COW★PRO (SOUTHERN CEREAL).....	D 100-120	(AUG-OCT)	0-2	18
RYE, FORAGE, ELBON..... (SOUTHERN CEREAL)	D 100-120	(AUG-OCT)	0-2	18
RYE, WINTER (NORTHERN CEREAL).....	D 84-112	(AUG-NOV)	0-2	18
TRITICALE, WINTER.....	D 100-120	(SEPT-OCT)	1-2	15
WHEAT, FORAGE, COW★PRO.....	D 100-120	(AUG-OCT)	1-2	11
WHEAT, PASTURE.....	D 100-120	(AUG-OCT)	1-2	11
WHEAT, WINTER, GRAIN.....	D 100-120	(OCT-NOV)	1-2	11-13

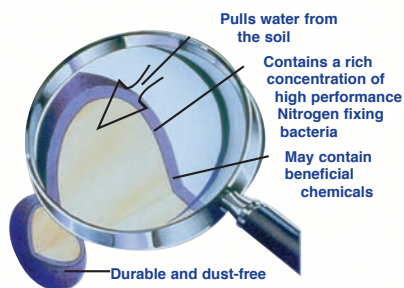
WILDLIFE FOOD PLOT

SPECIES	PLANTING RATE LBS PER ACRE	SEEDING TIME
BUCKWHEAT.....	48-60	MAY- AUG
CHICORY.....	5	SPRING - EARLY FALL
CHUFA.....	30-40	APRIL - JULY
CLOVER, LADINO.....	5-8	JAN - APR, AUG - SEP
CORN, HYBRID, & OP.....	12	APRIL - MAY
COWPEAS.....	60	MAY - JULY
DEER MAGIC.....	10	SPRING - FALL
EGYPTIAN WHEAT.....	10	MAY - JULY
SPRING WILDLIFE.....	50	MAY - JULY
FALL WILDLIFE.....	50-100	AUGUST - OCTOBER
LAB-LAB BEANS.....	20	MAY - JULY
LESPEDEZA, BI-COLOR.....	10	SPRING - SUMMER
LESPEDEZA, SERICEA.....	20-30	EARLY SPRING
MILLET, BROWNTOP.....	30-40	SPRING - SUMMER, EARLY FALL
MILLET, JAPANESE.....	20-30	MAY - AUGUST
MILLET, WHITE PROSO.....	30	MAY - AUGUST
PEAS, WINTER.....	50	FEB - APR - AUG - SEPT
RADISH.....	10-12	JULY - SEPT
RAPE.....	6-10	APRIL - SEPTEMBER
RICE.....	50-90	MAY - JUNE
SORGHUM, HYB, FORAGE.....	6-8	MAY - JULY
SORGHUM, HYBRID GRAIN.....	6-8	MAY - JULY
SORGHUM, WGF.....	15-30	MAY - JULY
SOYBEANS.....	75-90	MID MAY - JULY
SUGAR BEET.....	5	SPRING, EARLY FALL
SUNFLOWER, PEREDOVIC.....	15-30	APRIL - JULY
SUNFLOWER, HYBRID OIL.....	6-8	MAY - JULY
SUNN HEMP.....	25-35	MAY-JULY
TURNIP, FORAGE.....	3-5	EARLY SPRING - MID SUMMER
TURNIP, PURPLE TOP.....	2-5	SUMMER - FALL



Coated "CP"

Preinoculated
Uncoated



COATED SEED ENHANCES SEED GERMINATION AND SEEDLING SURVIVAL AND GROWTH. PLANTING RATES ARE THE SAME AS PURE SEED. CHECK PURE LIVE SEED REQUIREMENTS WHEN CONSIDERING COATED SEED.

How Many Plants In A Bag of Seed?



Forage Late Spring/Summer



Surpass

**BMR 6 Sorghum
Sudangrass**



- High sugar content to improve palatability and feed intake
- Superior regrowth for quicker harvests
- Up to 50% more leaves than traditional haygrazers improving feed quality & feed utilization
- 15-25% less lignin content than competitive bmr hybrids
- RFQ value comparable to alfalfa
- Dwarf multileaf helps improve standability and harvestability

Surpass is a bmr-6 hybrid sorghum sudangrass that can meet more than half of the energy needs of cattle and is comparable to alfalfa. This does not mean that it has the same protein level, but rather similar energy levels to get equal weight gains.

Surpass can be used for hay, baleage, silage, greenchop, or directly grazed. **Surpass** is usually harvested in 50-60 days for the first cutting. With adequate moisture and fertilization, later cuttings should occur in approx. 40 day intervals.

Having bmr traits give **Surpass** reduced levels of lignin resulting in higher feed intake and improved weight gains. It also indicates a higher leaf to stem ratio resulting in higher feed intake. Due to better stalk digestibility and a smaller stalk diameter, seeding rates can be reduced compared to other hybrid sorghum sudangrasses. Drill 20-25 lbs per acre late May-July or broadcast 30-50 lbs per acre.

Fertility: We recommend that no more than 80-120 units of N in split applications should be used throughout the growing season. Apply 60 units preplant and 40 units after each cutting. P, K, and all micronutrients should be applied at rates according to a soil test.

Honey Comb

HYBRID SORGO SUNDANGRASS

Cow★Pro Honeycomb is fine stemmed and very leafy. Honeycomb is well suited for summer pasture, hay or green chop. Honeycomb is a three way cross Hybrid Sorg-Sorghum X Sudangrass. The sorgho cross reduces the stem size and brings about its sweet, juiciness. Honeycomb has uniform growth with very broad, dark green leaves. Its excellent root system provides standability and drought tolerance. Excellent seedling vigor and fast regrowth provide multiple cuttings or continuous summer pasture.

- Seeding Time: Planting can begin in mid-May or when the soil temperatures are 60 to 65 degrees. Later plantings up through July are possible if moisture is available for germination, and if fewer cuttings are acceptable.
- Seeding Rates: Drilled at 25 to 30 lbs per acre. Broadcast at 35 to 50 lbs per acre. A good seed bed preparation will enhance quality and quantity. The higher the seeding rate, the smaller the stem size.
- Planting depth of 1 inch is recommended.
- Fertility: Soil test before planting. Honeycomb normally needs 80 to 120 lbs. N. Split application, preplant and after first cutting, 50 lbs. P - 90 lbs. K. Very responsive to nitrogen needs. Lime is needed on acidic soils.
- Harvest 24 to 36 inches and should be cut when the first boot stage appears. Leave 6 to 10 inches of stubble for tillering and regrowth.
- Protein content ranges for 12% to 14% prior to heading.
- Not recommended for horses. Alternative Cow★Pro Pearl Millet.
- Follow guidelines to avoid prussic acid and nitrate toxicity.
- A perfect way to rebuild hay supplies or quick pasture.



**Coming
Soon!**

**Aphid Tolerant
Sorghum-Sudans**

COW★PRO HYBRID PEARL MILLET

An excellent choice for a quick hay crop or summer pasture. Very leafy on very fine stems. The extra leafiness will help boost protein levels over other pearl millets. Cow★Pro Pearl Millet has excellent seedling vigor and tremendous regrowth and tillering after cutting or grazing. Cow★Pro Hybrid Pearl Millet will grow better on marginal or acidic soils than sorg x sudan crosses and is drought tolerant. There is no prussic acid danger with pearl millet, but is susceptible to nitrate toxicity. Cow★Pro Hybrid Pearl Millet offers multiple cuttings of excellent quality forages for cattle, horses, sheep and other grazing animals.

- Seeding Time: Mid May or when soil temperatures are 60 degrees plus. Later plantings can be done if moisture is adequate.
- Seeding Rate: 12 to 15 lbs. per acre drilled; preferably in narrow rows. Broadcast 30 to 40 lbs. per acre on prepared seed bed. 85,000 seeds per lbs.
- Planting depth of 1/2 to 3/4 inches.
- Fertility: Soil test before planting. Hybrid pearl millet normally requires 80 to 120 lbs. nitrogen in split applications, preplant and after first cutting. It responds to nitrogen, but excessive amounts with stress may cause nitrate toxicity.
- Harvest: 24 to 36 inches, or before seed heads emerge. Leave 6 to 10 inches of stubble for tillering and regrowth.
- Protein Content: Ranges 12% to 14% prior to heading.



ExCeed bmr
Pearl Millet



- **Reduced Lignin content**
- **Rapid Regrowth**
- **Dwarf gene to increase leaf to stem ratio**
- **Aphid resistant**
- **Excellent forage producer allowing for superior animal performance & weight gain**

Exceed BMR hybrid pearl millet is an enhanced summer annual that delivers a high quality forage product to dairy, beef, sheep, & goat producers. Exceed has BMR gene technology resulting in less lignin content which provides improved palatability, feed intake, and digestibility. Therefore, this creates excellent weight gains or milk production in your livestock. Exceed BMR also has a dwarfing gene which increases leaf to stem ratios and improves standability giving you an excellent summer pasture, hay field, or silage product. Exceed has shown to grow well on a variety of soil types. There is also no prussic acid danger with pearl millets, however, it can be susceptible to nitrate toxicity. With adequate moisture and fertility, Exceed will provide multiple cuttings or grazings for cattle, horses, sheep and other grazing animals. Plant 15 lbs per acre when drilling or 20-25 lbs per acre when broadcasting. Plant mid May or when soil temperatures reach a consistent 60-65 degrees F. Later planting dates can be successful if adequate moisture is present.

SILO 700D BMR FORAGE SORGHUM

- Increased lodging resistance
- High grain yield potential
- Reduced Lignin for increase palatability
- High green leaf retention

This Forage sorghum hybrid is "Brown midrib" and has a very sweet stem with excellent green leaf retention. The brown midrib characteristic increases digestibility of the stem fibers by reducing the quantity of indigestible lignin. Lignin content is reduced approximately 40-60% depending upon environmental conditions. By reducing lignin, cellulose and hemicellulose content is increased making the plant more palatable which in turn provides additional energy and nutrition. Reduced lignin can make a stem softer and more limber. However, Silo 700D BMR has good standability and lodging resistance.

Large grain heads add to the nutritional level of silage produced. Its high grain yield of 5000+ pounds per acre on a strong, sturdy stem make this an excellent silage performer. Due to Silo 700D BMR having such a high grain-stover ratio, animal performance is excellent in both the feedlot and dairy. The protein content and total digestible dry matter makes this a near perfect silage product.

Plant 6-8lbs per acre drilled in rows or 15 lbs broadcast when soil temperatures reach a consistent 60-65 degrees F. Although this product is thought of as a one time cutting, it has been found to have decent regrowth

Seed Count	17,000	Head Size	6-10 inches
Seed Color	Red	Days To Bloom	85-90 days
Exertion	6-8 Inches	Regrowth	Good
Plant Height	6-8 foot		



Charger Teff Grass



Charger Teff grass is a warm season annual grass that can be harvested multiple times during the growing season for hay, silage, or pasture. Charger is fast growing and produces high quality forage and high yields during the summer growing season. With ideal growing conditions harvest schedules should occur 40-45 days apart. Teff has a nutritional value comparable to timothy making it an excellent forage choice for cattle, horses, and other livestock.

Teff is very small seeded preferring a firm seed bed like alfalfa. When planting, a Brillion seeder or cultipacker works best. A conventional no-till drill may be used, however, it is not optimal. Often, no-till drills push the seed too deep. If broadcasting, rolling must occur before planting and after. Plant 10 pounds per acre, 1/8 to 1/4 inch deep, late May-July or after soil temperatures reach 65 degrees consistently. Applying 50-60 pounds of nitrogen at plant, and 30 pounds after each cutting.

Bonus Teff is warm season annual forage grass that can provide multiple cuttings of high-quality forage through the summer months. Univeristy trials place Bonus Teff Grass among the top of the charts. Bonus can be used for all classes of livestock, such as sheep, cattle, and horses. Soil tests are recommended to determine the proper amount of fertilization needed. However, at least 50 pounds of nitrogen per acre is recommended for planting. To help boost growth after a cutting, small amounts of nitrogen should be applied. When harvesting teff grass, try to harvest in the pre-boot stage, roughly 45-50 days after planting. Leave 3-4 inches for regrowth and expect a second cutting in 35-45 days. Plant at 10 pounds per acre 1/8 to 1/4 inch deep with a brillion seeder or use a cultipacker to roll into the soil. If neither are available, you can roll, broadcast, and roll over the top. Planting too deep results in poor stands.

RS215 HYBRID GRAIN SORGHUM



RS215 is a medium-early maturing (105 day) hybrid grain sorghum that produces a high density, high bushel weight, red grain. RS215 is a drought tolerant variety with good standability

and excellent disease resistance. It typically blooms around 65 days and reaches 45-50 inches of height at maturity. Capable of yielding 6500-8000 lbs. per acre. Product approximately has 15,000 seeds per pound. Plant 6-7 lbs per acre when planted in rows late May through June.

MANAGEMENT GUIDE TO SUMMER FORAGES

Fertilizing: When planting summer forages (i.e. sorghum-sudan, pearl millet, teffgrass, forage sorghums) it is recommended to use 60-80 units of N at plant. After each cutting, apply a smaller amount N (40 units) to help with regrowth. Forage sorghums can use 80-100 units of N at planting due to only one cutting. Soil test for lime, P, and K applications.

Preventing Prussic Acid: In most cases prussic acid is produced early in a plants life (sudan, sorghum, and sorghum-sudans) and then diluted by additional growth so by the time the forage is fed there is no harm to the animal. Prussic acid content can be harmful when plants are stunted at an early stage or when growth is abnormally slow. This slow growth can be due to drought or an early freeze. If either occurs, it is best suited to wait one week. If drought occurs, it is best suited to wait for adequate rainfall which will help dilute prussic acid.

Nitrate poisoning: All plants contain some nitrate, meaning that nitrate poisoning can occur in almost anything you plant. Nitrate poisoning tends to occur most frequently when forages are grown under stressful conditions. Nitrate levels can be diluted in the diet with grains or other forages low in nitrates. At that time the forage can be fed safely. If there is ever any doubt, it is best to test the forage for nitrate levels. Contact your local seed or feed dealer.

GERMAN MILLET



German Foxtail Millet is a summer annual that is used for hay and wildlife plantings. German Millet is extremely drought tolerant and can be planted later in the season with expected good yields. With quick growth, German Millet is typically harvested in about a 60 day period. This one time cutting should be harvested for best forage results when grain is in the milk stage. German Millet can also be planted with Laredo Haybeans for roughage. However, the millet is usually over-ripened at harvest. Plant late May through early July if adequate moisture. Drill 20-30 lbs per acre when planted alone or 15 lbs per acre when planted with 40 lbs per acre of Laredo Haybeans. German Millet responds well to nitrogen applications. German Millet is not well suited for horses.

COWPEAS



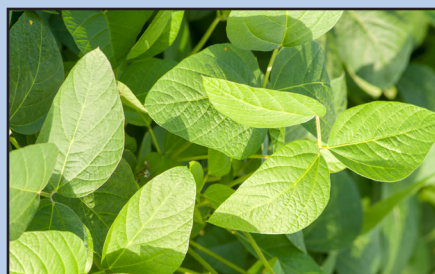
Cowpeas are a summer annual legume that are used for pasture, hay and wildlife plantings. Cowpea varieties can vary greatly. Some are smaller in height and quite bushy while others can be taller, viney types. Red Ripper and Iron and Clay tend to be the varieties that are sold most often. These two varieties are characterized as tall, viney stemmed, and large leaf varieties. Cowpeas are tolerant of drought-like conditions, low fertility, and acidic soils. Plant late May through early July if moisture is adequate. Plant 50 lbs per acre drilled or 60-75 per acre broadcasted.

LAREDO HAYBEANS

Laredo haybean is a late maturing soybean variety used for hay, silage, and wildlife plantings. As one of the oldest soybeans still in production, Laredo soybeans have proven to be a resilient variety. Being a group 7 soybean, Laredo Haybeans get very tall and bushy reaching 4-5 foot in height. Laredo haybeans are high in protein content and can be very rich. German Millet is sometimes planted with Laredos for added roughage. Typically, the millet will mature before the soybeans are harvested. Unlike traditional soybeans, Laredo Haybeans have a terminal bud that sets closer to the stem allowing for some regrowth when slightly grazed by wildlife. The ideal harvest is when pods begin setting. Seed size is smaller than a conventional soybean resulting in lower seeding rates. Plant 50 lbs per acre when drilled. Plant 40 lbs per acre and 15 lbs per acre of German millet. Plant mid May through July.



COW★PRO SOYBEANS



A soybean bred for forage production. This late group IV soybean is tall and leafy and tends to be 10 to 14 days earlier than Laredo Haybeans. Cow Pro Soybeans are very drought tolerant and have been found to be very productive in poorer soils. Similar to a Laredo, Cow Pro Soybeans can be planted with German millet in order to add roughage and increase yield. Seed 60 lbs pre acre in rows or 90 lbs per acre when drilled. There are approximately 3400 seeds per pound. Plant after soil temperatures reach a consistent 60 degrees F.

Forage yield and quality of three Cow Pro soybeans harvested 60, 80 and 100 days after planting at Sun Prairie, Wisconsin in 2000.

Variety	Days to harvest	Height in	DM yield t/a	CP %	ADF \$	NDF \$	Milk yield lb/a	RFV
Cow Pro	60	28	1.66	32.8	3.6	40.5	3106	144
	80	36	2.37	24.6	32.5	36.8	4925	161
	100	36	2.52	17.9	32.3	38.5	5076	154
Average		33	2.18	25.1	32.8	38.6	4333	153

BRASSICAS & HERBS



Vivant hybrid brassica is a high yielding cross between a forage turnip and forage rape. Unlike a turnip, Vivant

has a taproot and has been found to be best suited for grazing situations. With excellent regrowth capability, multiple grazings can occur. Vivant can be planted in the spring with oats; in the summer with pearl millet or sorghum sudangrass; or in the late summer with grains or cool season grasses. With good pH levels, fertility, and moisture, Vivant can be ready for grazing within 40-50 days. Do not overgraze. Once grazed down to 4 inches it is best to remove cattle for a minimum of 30 days. Plant 2-5 lbs per acre April through June or late July through early September. Vivant responds well to Nitrogen and Phosphorous.



Jackpot forage turnips are a new variety of turnip bred to give multiple grazings of high quality forage. With 6-10 growing points emerging from a low set bulb, Jackpot turnips provide improved grazing over a traditional purple top turip. Jackpot turnips have also shown to have increased palatability and regrowth capability over a purple top turnip. They can be sown with oats, other cereal grains, and cool season grasses from April through late May or late July through early September. Plant 2-5 lbs per acre. Best results are when planted in late summer.



Chicory is a high yielding, broad leaved perennial herb that has excellent feed value for livestock. Chicory is suitable for all types of livestock and is a great protein source. It is ideally managed when mixed with clovers and grasses. Plant 5 pounds per acre spring or late summer/early fall.



Purple Top turnips are a 55 day general purpose turnip. Roots are large and smooth, globular, white in color measuring sometimes up to 4 inches in diameter. Tops will provide forage for cattle or wildlife. Plant 2-5 pounds per acre spring or late summer.

FALL/WINTER FORAGES



COW★PRO FORAGE WHEAT (Triticum Aestivum)

Cow★Pro Forage Wheat is a beardless, soft red winter wheat bred for large volume forage production. Very leafy, with wide blades and exceptionally tall height. Cow★Pro Forage Wheat is 6 to 12 inches taller than most wheat varieties and almost double the forage production. Cow★Pro Wheat produces a lot of straw with decent grain yields. Its closed head reduces disease and is resistant to weather damage resulting in high test weight. The beardless aspect allows for wider window of hay harvest time. Good for fall grazing and hay or haylage in the spring. Seed 100 to 120 lbs per acre - August through November. Responsive to Nitrogen.

FRIDGE TRITICALE

(Triticum Secale)

Fridge Triticale is a tall winter variety that has excellent winter survival throughout the Midwest. Triticale is a genetic cross between wheat (triticum) and rye (secale) and has the ability to reproduce itself. It is higher in protein and palatability than wheat and common rye, and is an excellent small grain for pasture, hay, or haylage. In general, the variety is recognized by strong stems, dark medium green foliage color, and long, awnletted spikes (**NOT BEARDED**). Fridge relies on rapid, early growth and stand height to produce tonnage. Seed 100 to 120 lbs per acre September through October. Fertility requirements: 40 lbs P, 80 lbs K in the fall. 80 to 100 lbs N in the spring.

COW★PRO FORAGE RYE

(Secale Cereale)

Cow★Pro Forage Rye is the best grain for grazing. Cow★Pro Rye establishes fast for fall grazing. Cow★Pro Rye grows faster than common winter rye for more cows per acre. Cow★Pro Rye is a strain cross variety which results in hybridized vigor. Very adaptable to cattle grazing, but not recommended for hay. Cow★Pro Rye comes out of winter dormancy quicker than common rye, wheat and cool-season grasses. This allows you to graze earlier in the spring and save some hay. Cow★Pro Rye is compatible with annual ryegrass for extra yield and extended grazing. Seed 100 - 120 lbs per acre - August through November. Responsive to Nitrogen.

COVER CROPS



KENTUCKYPRIDE
Crimson Clover

- Excellent cold tolerance
- Late maturity
- Increased forage yields
- Improved weed suppression
- Sets more nitrogen than Dixie



Kentucky Pride is a late maturing crimson clover that is known for its improved winter hardiness and its increased biomass capabilities. In recent trials conducted at the University of Illinois Ewing Demonstration Center, Kentucky Pride showed 36% improvement in winter survival when compared to the industry standard, Dixie. In the same trial, Kentucky Pride has proven to have 4 times the biomass and 25% increase in root depth. This allows nitrogen contribution, but also superior weed suppression. Plant 15-20 lbs per acre at 1/4 inch depth August through September or March through April. Performs best on soils with pH levels of 5.5-7.0



SURVIVOR
Cold Tolerant Winter Pea



- Increased Nitrogen production
- Good weed suppressor
- Improved cold tolerance
- Greater biomass production

Survivor Winter Peas are a cool season annual legume that were selected for their advanced cold tolerance and later maturity.

Winter peas (or field peas) are known for being very inconsistent in

their winter survival rate. Survivors provide more confidence in winter survival and create more consistent results. Survivor peas have excellent biomass production which translates to excellent weed suppression and increased nitrogen contribution. With peas having a low C:N ratio, nitrogen is quickly made available for the next cash crop. Plant 40-50 lbs per acre August through September or mid February through April.

COVER CROPS



- Nitrogen Mining & Nutrient Scavenger
- Aerates Ground
- Promotes Water Infiltration
- Natural Tillage



GroundHog Radish is a diakon radish that has proven to be excellent for cover crop in the Midwest. Being a nitrogen scavenger, GroundHog radishes have an extra large root system allowing it to pull nitrogen and other nutrients deep within the soil back to the surface. According to studies by the University of Maryland, radishes have the ability to capture 100-175 lbs of nitrogen per acre before winter killing. While decomposing throughout the winter, nitrogen and other nutrients will release and become available for the next seasons cash crop. Upon decomposition, radish roots leave large holes in the ground that not only help aerate the ground but help promote water infiltration. Although radishes are mostly used as a cover crop, it has been found that they can be planted for forage, weed suppression, and wildlife. Plant 6-10 lbs per acre when sown alone or 1-5 lbs per acre when used in a mix. Plant August through early October or early April through May.



- Deep tap root that helps break compaction
- Sets large amounts of nitrogen
- Excellent Weed Suppressor
- Creates a large amount of Biomass

Fixation Balansa Clover is a cool season winter annual legume that has proven to be very versatile and capable of big results. Fixation balansa clover is an excellent choice for a fall/winter cover crop, pasture, and wildlife attractant. Capable of setting large amounts of Nitrogen (up to 100 lbs per acre), balansa clover has been most often used in cover crop mixes. It has a deep taproot to break up soil compaction which creates channels for air, water, and succeeding roots. Fixation balansa clover is also very winter hardy. It has been found to survive down to -10 degrees making it more winter hardy than winterpeas, crimson clover, and berseem clover.

Fixation can be planted in the fall or spring, but it creates a much larger amount of biomass when planted in the fall. Throughout the early process of the plants life you will notice minimal vertical growth. However, the plant is actively growing beneath the soils surface. Within the first 45 days it has been recorded to have 18 inches of growth beneath the soils surface. When mature, the plant can reach heights of 4-6 feet. However, because of the plants rosette growth pattern (prostrate growth) you may only see 2 feet in vertical growth. Fixation balansa should be planted at a rate of 5-8 pounds per acre when planted alone. If planted with any cereal we recommend a rate of 3-5 pounds per acre. For proper germination no-till drill/brillion seeder is suggested. Broadcasting is also suitable, but seed to soil contact is highly suggested for a successful germination. Broadcasting onto hard-packed soils will result in a diminished stand.

COVER CROPS



- Excellent companion to a weakening alfalfa stand
- Excellent palatability
- High RFQ values
- No recorded cases of bloat
- Multi-cut variety with improved winter hardiness
- Sets large amount of nitrogen for cover crops

Frosty berseem clover is a cool season annual legume that can be used for cover crops, pasture/hay applications, companion to a weakening alfalfa stand, and wildlife attractant. Native to the Mediterranean, berseem clover has traditionally failed to prove productive when planted in the Midwest. However, Frosty berseem clover has been bred for later maturity, cold tolerance, productivity, and nutritional value.

Frosty is a multi-cut variety that has shown to be an excellent additive to weakening alfalfa stands. With its quick establishment, Frosty can fill in the bare spots and increase yields up to 30%. When harvested, Frosty dries down just like alfalfa. It is also shown to re-grow at the same rate as alfalfa, therefore, maintaining yields for your second and third cuttings.

Frosty berseem can also be utilized as a cover crop. It is an ideal nitrogen fixing legume due to its growth habit. It produces early season biomass that makes it a highly attractive cover crop when in rotation with corn. Frosty is also more winter hardy than common berseem clover. Frosty has shown to survive in temperatures as low as 5 degrees Fahrenheit. Even though, Frosty has shown excellent winter hardiness, it should be planted in a mixture or used in an application where winterkill is acceptable. Plant 5-7 lbs per acre drilled in a mix or 15 lbs per acre for a mono-culture 1/4 inch depth. Broadcast 10-15 lbs per acre in a mix or 20-25 lbs in a mono-stand March through May 1 or mid August through mid September.

FIX N MIX

This cold tolerant cover crop mixture is a highly attractive choice for rotation with corn.



Consisting of Fixation balansa clover, Frosty berseem, Crimson clover, and Diakon radish, Fix N Mix not only sets a large amount of Nitrogen for the next cash crop but also helps break up compaction.

Plant August through September. Plant 8 lbs per acre when sown alone or 4-5 lbs per acre when planted with a cereal grain.

TERM N MIX



This cover crop mixture is a highly attractive option to plant after corn or soybeans. Consisting of Diakon radishes, turnips, rape, and crimson clover, Term N Mix is a fast growing blend that will provide erosion control and cover quickly. Another benefit of this mixture is that it will terminate (winterkill) throughout the winter. If a mild winter occurs, a complete termination may not happen. Plant 8 lbs per acre when sown alone or 4-5 lbs per acre when planted.

COVER CROPS



Spring Oats are a quick growing cover crop that can provide quick erosion control. Oats collect excess nitrogen and other nutrients. Winter kills after first freeze, but provides excellent weed barrier. Plant 1-3 bushel August-September.



Cowpeas are a viney, summer annual legume that make an excellent addition to summer cover crop. Very forgiving of poorer soil types and pH levels, cowpeas can provide nitrogen for your next cash crop. This product creates a good amount of biomass meaning that it suppresses weeds well. Plant 50-60 lbs per acre late May through July. July plantings can occur if adequate moisture is present.



Turnips are not only an edible food but also great for alleviating soil compaction. Roots are large and smooth, and although they don't produce as much biomass as a radish, turnips are great for water infiltration. Plant 2-5 lbs. per acre late summer.



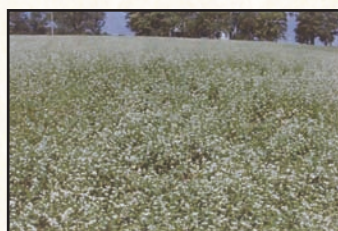
Rape is most often used for forage, but it can also be used as a cover crop. Due to its rapid fall growth, it can capture a significant amount of N. Rape is also a great weed suppressor. Plant 10 lbs per acre late summer/early fall.



Wheat, mostly used for a cash grain, makes a great cover crop. Slower to mature than other cereal grains making it easy to kill. Germinates quickly helping to suppress weeds. Plant 60-120 lbs. per acre late summer/early fall.



Cereal Winter Rye is the hardiest of the cereal grains. It can also be planted later in the fall than other grains. Quicker growing than wheat, rye also absorbs more unused N. Rye suppresses weeds allelopathically. Plant 60-120 lbs per acre late summer/early fall.



Buckwheat is a great short-season cover crop. Generally, buckwheat matures in a 10-12 week time period. It is known for its ability to suppress weeds and collect phosphorus. It also attracts beneficial insects and pollinators. Plant 50-60 lbs drilled or 100 broadcast late spring or late summer.



Annual ryegrass is an economic choice for a cover crop. It holds the soil well and will collect some N. It has a very dense and deep root system. Plant 20-30 lbs late summer/early fall.



Winter Oats are another quick growing cover crop. They will collect excess N and small amounts of other nutrients when planted early enough. Not as winter hardy as rye, wheat, or barley. Plant 2-3 bushel per acre late summer/early fall.



Winter Hairy Vetch is a winter annual legume that is known for its nitrogen contribution. Hairy Vetch produces such a large amount of N that it can partially replace fertilizer for spring. It will improve topsoil tilth and is also a weed suppressor and a phosphorus scavenger. Plant 20-30 lbs per acre late summer.



Crimson clover is a winter annual that can provide nitrogen for your next cash crop. It will create a good amount of biomass and has been found to grow well when planted with a companion crop. Plant 15-20 lbs per acre late summer.



Winter peas are a legume that can be an excellent nitrogen source. Most often used as a plow down crop, winter peas can produce a large amount of biomass. Winter peas can also withstand cold temperatures. However, they do not always winter over. Plant 40-60 lbs late summer/early spring



Winter barley is an early maturing cover crop. Barley is a quick source of biomass which can improve soil structure and water infiltration. It will collect excess N and it is a great weed suppressor. Earliest maturing cereal grain. Plant 60-100 lbs per acre late summer/early fall.

WILDLIFE



CORN, HYBRID, FIELD Roundup Ready; 115 day maturity. Allows weed control in food plots. 80,000 kernel bag. Plant April-June. Covers 4 acres.

CORN, REID'S YELLOW DENT

This old fashioned, 110 day maturity field corn is an open pollinated, non-hybrid variety with yellow kernels. A hardy and productive plant that will attract many wildlife species including deer. Plant 10 to 12 lbs. per acre April thru June.



LABLAB This summer bean is extremely high yielding and drought tolerant. Once established, Lab Lab's high protein content makes it excellent for deer throughout the summer and fall until a killing frost. Lab Lab can be planted with millet, sorghum, or corn to provide a stalk for the vines to climb. This will help increase its productivity. Plant 20 lbs. per acre May thru July.



SORGHUM, HYB GRAIN Regular Milo grown for livestock and wildlife. Full grain head 100-120 day maturity. Plant 8-12 lbs. per acre. May-July.

SORGHUM, WGF GRAIN Wild Game Food, open pollinated is a short Milo 24" to 30", upright in growth with full grain head. Excellent wildlife feed. Ducks and geese love it. 100 day maturity. Plant 30 lbs broadcast, 15 lbs. drilled. May-July.



SUNFLOWER, PEREDOVIC

Small, black sunflowers, growing 4-5 feet in height. Attracts game birds and other wildlife. Provides good hunter cover. 100-120 days to maturity. 30 lbs broadcast, 15 lbs. drilled. Plant April-July.

SUNFLOWER, HYBRID

High in oil content, attracting most wildlife. Grown 2-3 ft with small heads filled with seeds. Plant 15 lbs. per acre broadcast, or 6-8 lbs. drilled. 100 day maturity. Plant April-July.

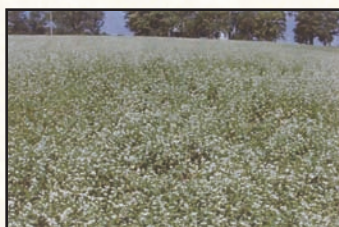
COWPEAS

This viney, summer legume will attract turkey and deer from seedling stage on through maturity. Grows well on various soil types with very little preparation. Plant May thru July 60 lbs per acre.



SORGHUM, HYB-FORAGE

SILO 700D a forage sorghum that puts on grain heads. Grows tall, allowing for lodging that gives feed and excellent cover for wildlife. Upland game birds and songbirds love it, not to mention turkey, deer, and rabbits. Grain heads are similar to Milo in size. 100-120 day maturity. Seed 15 lbs. per acre broadcast, or 8 lbs. per acre drilled. Plant May-July.



BUCKWHEAT Good for quail, doves, turkey, duck, and geese, plus other wildlife. Abundance of feed. 10-12 week maturity. Plant 40-50# per acre. April-July



RICE a duck and goose hunters dream wildlife plot. Don't wait for it to happen—create your own waterfowl habitat, preseason and postseason. Convert that wet land into a living sanctuary. Your reward will come from many hours of nature's association with hunting and waterfowl observations. Seed 50-90 lbs per acre. 150 day maturity. Plant June-July.



EGYPTIAN WHEAT Really a sorghum, very tall with a grain head. Provides excellent cover and feed for birds as it bends over. Seed 10-15 lbs. per acre.

DOVE PROSO MILLET

Millet that grows 3-4 foot tall in height producing higher seed yields than common white proso millet. High appeal to doves, quail, pheasant, and other wildlife. Matures in 65-75 days. Plant 20 lbs. lbs per acre late May through July. Later plantings are successful if adequate moisture.



JAPANESE MILLET One of many different millets, growing fast to 2-4 ft. in height. Maturity 100-120 days. Good in flood plain. Ducks, geese, dove and quail. 20-30 lbs. per acres. Plant May-Sept.



BROWN TOP MILLET Grows 2-4 feet tall for quail, doves, turkey and ducks. Will produce seed in 60-70 days. Seed 30-40 lbs. per acre.



GERMAN FOXTAIL MILLET a summer annual grass usually cultivated for cattle hay. Seed heads have a foxtail appearance. Seeds are attractive to quail, dove, and other upland birds. Seed ripens in 60 days. Drill 20 - 25 lbs; Broadcast 30 lbs. in late May thru July.



WHITE PROSO MILLET Grows 1-2 ft. putting on small seeds that have high appeal to doves. Quail, pheasant and other wildlife will be attracted. Maturity 75 days. Plant 30 lbs. per acres. May-Sept.

WILDLIFE



SPRING WILDLIFE MIX Missouri Southern's Spring Mix is attractive to many wildlife species; deer, turkey, quail and more. The diversity of these different plants will provide food in spring, summer, fall, and early winter. This quality mix contains 50% soybeans; 20% hybrid grain sorghum; 20% German foxtail millet, and 10% perodovic sunflowers. Plant 50 lbs. per acre -Mid-May thru July.



SYNERGY LADINO CLOVER Synergy Ladino clover is a long-lived perennial and a must have for wildlife food plots. Synergy spreads by stolons and secondary roots making a dense green mat. Synergy also grows upright for high yields and more browse. Synergy is tolerant of wet soils and lower ph. Easy to seed. Sow in late winter, early spring, or late, late summer. Seed 8 lbs. to the acre for thick stands.



KOREAN LESPEDEZA A reseeding annual legume used for pasture or hay and makes excellent wildlife cover and feed. Especially good for quail, dove, ducks, rabbits, deer, and livestock. Drought resistant and will grow in a variety of soils. Plant 10-15 lbs. per acre. Offers value in 90-120 days. Plant February-April and August-October.



CHUFAS Grow like peanuts with no outer shell. Prefer fertile, sandy and loamy soils. Good for deer and turkeys. Seed 50 lbs. per acre broadcast or 20-30 lbs. Planted in rows. Plant May-September.



SUGAR BEET Beet seed is a great addition to any wildlife plot. Deer love to eat both the foliage and the roots and the nutrition is excellent. Sugar beets grow well in almost all soil types but do require moisture. For wildlife plots, we recommend broadcasting 5 lbs. per acre. Plant in spring or early fall.



LESPEDEZA, SERICEA A perennial, erect in growth with fine stems and multiple leaves. Grows 18-40 inches tall depending upon weather and soil conditions. Especially attractive for certain wildlife cover. Offers some food value. Good for erosion control. Seed 20-30 lbs. per acres. Plant late March-May.



BICOLOR LESPEDEZA This perennial shrub legume is used to provide food and cover to pheasant, quail, rabbit, and deer. Plant along field borders, ditches/washouts and other small areas devoted to wildlife habitat. Plant 10 lbs/acre late Spring and Summer.

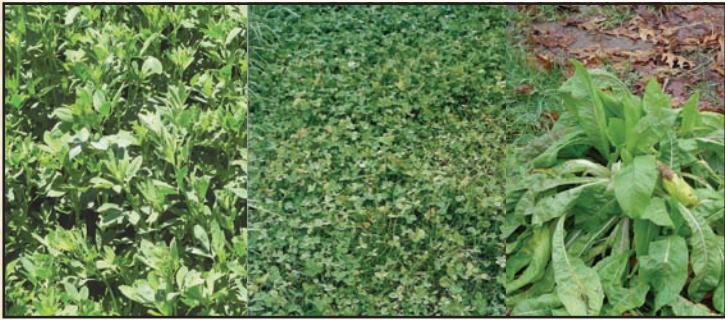


STAMINA Stamina is a new intermediate-type of white clover selected for persistence under grazing, stolon density, and larger leaf size. Stamina's high stolon density helps it spread aggressively preventing hoof damage caused from grazing pressure. This aggressive nature gives Stamina the persistence to out-yeild and out-last other white clovers and ladinos. In recent trials, Stamina proved to persist better than Patriot, Durana, and Alice. In other trials, Stamina has proven to out-yeild Legacy and our previous clover, Kopu II.



RAPE Rape is a fast growing, heat and cold tolerant brassica that is highly adaptable to the Midwest. Being high in energy, rape makes good pasture for cattle or deer. Seed in spring for summer grazing or late summer for fall and winter harvest. Seed 10 lbs. per acre.

WILDLIFE



DEER MAGIC Deer love alfalfa, ladino clover, and chicory. We have combined Venus Alfalfa, Synergy Ladino Clover, and Chicory to make a long-living, high protein plot which not only gives deer a desirable and nutritious diet, but also spreads your food plot risk. Seed 10 lbs. per acre in spring and late summer.



FALL WILDLIFE MIX Missouri Southern's mix is a diversity of small grains, legumes, and brassicas that give deer the option of selection. This mix contains 30% Bob Oats; 25% Winter Wheat; 25% Winter Rye; 15% Austrian Winter Peas; 5% Turnips and Rape. Good food for deer and other wildlife in the fall, winter and early spring. Plant 50 to 100 lbs. per acre - September thru November.



CHICORY is an extremely leafy perennial herb. Deer find chicory very desirable to browse and also highly nutritious. Chicory is a basic in long living food plots. Chicory and ladino white clover are very compatible together. Seed chicory in the spring or fall at 5 lbs. to the acre.



TURNIP, PURPLE TOP a 55-day popular general-purpose turnip. Roots are large and smooth, globular, white in color measuring sometimes up to 4 inches in diameter. Tops provide forage for wildlife. Seed 2 to 5 lbs. per acre. Plant April-October depending upon plot locations and harvest needs.



CRIMSON CLOVER a winter annual legume that is a good forage producer and a quick starter. It is a good food source for deer and turkey. Crimson promotes good insect production for quail and other birds. Seed 10 - 20 lbs. in the late summer preferred; or in the spring.



HAIRY WINTER VETCH A very winter hardy legume for pasture, hay or silage. High in protein, this legume is very palatable. Is used for a cover/plowdown crop. A good companion with small grains, wheat, rye, barley or triticale. Seed in late summer. Plant 25-30 lbs in mixtures; 40-50 lbs. in pure seeding. Also good with oats planted in spring.



VIVANT HYBRID BRASSICA Vivant is a high yielding brassica that is a cross between a forage turnip and forage rape. Having a high protein content, this brassica is highly attractive to deer and other wildlife. Plant in spring or late summer.



JACKPOT TURNIP Forage turnip bred for multiple grazings. Bulb has 6-10 growing points making Jackpot Turnips a quality forage for wildlife. Highly digestible and high in protein. Plant 3-5 lbs/acre in spring or early fall.



WINTER OATS, BOB a variety suitable for fall planting. High in nutrition from plant and grain. Attracts deer, turkey, and rabbits. Not as winter-hardy as other small grains. Very compatible with winter annual legumes or brassicas. Seed 90-100 lbs. per acre - August thru October



AUSTRIAN WINTER PEAS Produce top quality forage for deer during the fall, winter and early spring. A cold tolerant viney plant. A good complement to small grains. Plant August-September; February - April. 30 - 40 straight; 20-30 lbs. with grains.

WHITETAIL

Imperial Whitetail Clover



- Perennial 3-5 years longevity
- Genetically Selected specifically for deer
- Up to 30% Protein

Imperial Whitetail Alfa-Rack Plus



- Perennial 3-5 years longevity
- Mixture of Alfalfa, Chicory, and Imperial Clover
- Up to 44% protein
- Well drained soil Suggestion

Imperial Whitetail Fusion



- Perennial 3-5 years longevity
- Mixture of Chicory and Imperial Clover
- Up to 44% protein
- Well drained soil Suggestion

Imperial Whitetail Chic Magnet



- Perennial 3-5 years longevity
- Consists of Chicory
- Up to 44% protein

Imperial Whitetail Extreme



- Perennial 3-5 years longevity
- Mixture of burnet, chicory, and berseem
- Up to 44% protein
- Well drained soil Suggestion. Even works on thinner soils

Imperial Whitetail Vision



- Perennial 3-5 years longevity
- Mix of Fusion plus Kale
- Up to 44% Protein

Imperial Whitetail Ravish Radish



- Annual that should be planted in late summer or fall
- Quick development that improves compaction

Imperial Whitetail Mineral/Vitamin Supplements



Supplements can help maximize antler growth and doe lactation

Whitetail Turkey Select



- Annual best planted in spring
- Attracts and holds wild turkeys
- "Nut-like" tubers are scratched up by turkey

Imperial Whitetail Conceal



- Annual best planted in late spring
- Create thick cover and screen
- Components grow at various heights

Imperial Whitetail Attractants



Imperial Whitetail Herbicides





INSTITUTE

Whitetail Edge



- Perennial 3-5 years longevity
- Mixture of alfalfa, chicory, burnet, and sanfoin
- Up to 44% protein
- Well drained soil suggested

Imperial Whitetail Destination



- Annual best planted in late summer or early fall
- Mixture of oats, peas, radish, kale, and berseem

Imperial Whitetail Secret Spot



- Annual that should be planted in late summer or early fall
- Designed for small food plots in hard to reach places
- Contains pH enhancer

Imperial BowStand



- Annual that should be planted in late summer or early fall
- Designed for small food plots in hard to reach places
- Mixture of secret spot, radish, and lettuce
- Contains pH enhancer

Imperial Whitetail No-Plot



- Fast growing annual that can be planted in spring or fall
- Designed for areas that are hard to reach with big equipment
- Blend of clovers, brassicas, and other forages

Imperial Whitetail Tall-Tine Tubers



- Annual that should be planted in late summer or fall
- Establishes and grows quickly
- Extremely cold tolerant
- Two food sources - foliage above ground and turnip bulb below

Imperial Whitetail Ambush



- Annual that should be planted in late summer or early fall
- Mixture that consists of sweet lupines and sugar beets
- Cold tolerant and easy to plant

Imperial Whitetail PowerPlant



- Annual that should be planted in late spring
- Mixture of forage beans, peas, sunflowers, and sunn hemp
- Up to 38% protein

Imperial Whitetail Beets & Greens



- Annual that should be planted in late summer or fall
- Brassica blend of kale, radish, turnips, and sugar beets
- Extremely cold tolerant

Imperial Whitetail Oats Plus



- Annual that should be planted in late summer or early fall
- Primarily Oats with addition of wheat and triticale
- Establishes quickly

Imperial Whitetail Pure Attraction



- Annual that should be planted in late summer or early fall
- Mixture grains and brassicas
- High sugar content
- Heat & Cold tolerant to give full season attraction

Imperial Whitetail Winter Peas Plus



- Annual best planted in late summer or early fall
- Consists of peas, radish, kale and oats
- High in sugar and protein

Imperial Whitetail Winter-Greens



- Annual that should be planted in late summer or fall
- Brassica blend of turnips and kale
- Extremely cold tolerant

NATIVE GRASSES OR FORAGES



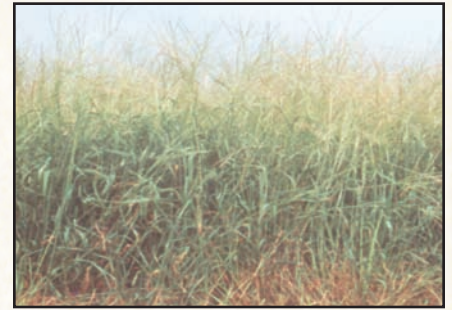
Big Bluestem

Big Bluestem is a perennial warm season grass that is used for forage, prairie restoration, and highway right-a-ways. It is a high quality forage for all types of livestock. It prefers moist, well drained soil, but will work on many soil types. Plant 10 PLS per acre late May-July or frost seed December-February.



Little Bluestem

Little Bluestem is warm season perennial grass that is used for forage, prairie restoration, highway right-a-ways, and wildlife habitat. It grows well on a wide range of well drained soils. Plant 6 PLS per acre late May-July or frost seed December-February.



Crabgrass is a warm-season annual that is easy to establish. Most often used for forage, this grass is adapted state wide and can produce on a variety of different soil types. Stands are maintained by allowing to re-seed. Plant 4-6 PLS per acre late May-July



Indiangrass

Indiangrass is a warm season perennial grass that is used for forage and prairie restoration. When harvested before flowering, it is considered one of the most palatable native grasses for livestock. It is adaptable on various soil types, but prefers well drained bottom land. Plant 8-10 PLS per acre late May-July or frost seed December-February.



Eastern Gama

Eastern Gamagrass is a warm season perennial grass that tends to grow in 1-4 foot diameter clumps. Used primarily for forage, this native has vigorous regrowth abilities and great palatability. It prefers moist, heavy soils for maximum production. Plant 8-10 PLS per acre December - February or plant stratified seed in late May.



Virginia Wild Rye

Virginia Wild Rye is a unique native grass - it is a cool season perennial. Most often used for forage, this grass is beardless making it suitable for hay or pasture. Grows best in moist soils and can thrive in shade or full sun. Plant 10 PLS per acre fall or spring.



Sideoats Grama

Sideoats Grama is a long-lived perennial warm season grass that is used for prairie restoration, highway right-a-ways, and some forage. It can produce lots of forage, but is not the most palatable native. Extremely drought tolerant, however, it needs moisture until it is established. It prefers well drained sites. Plant 8-10 PLS per acre late May-July or frost seed December-February.



Switchgrass is a warm season perennial grass used for forage, prairie restoration, and in some cases bio-energy production. Although it is very drought tolerant, switchgrass prefers low, moist ground but can grow on various soil types. Due to its height and deep root system, switchgrass can become dominant over other natives over time. Plant 5-6 PLS pounds per acre late May-July or frost seed December-February.

MISSOURI SOUTHERN LAWN SEED



Kentucky 31 Tall Fescue is a cool season variety fescue known for its drought hardiness and durability to wear and tear. As the original tall fescue lawn grass variety, Kentucky 31 is lighter in color and is not as fine bladed as true turf type varieties. When seeding a new lawn plant 8-10 pounds per 1000 square feet March - early May or September through October.



Zenith Zoysia from seed:

- Affordable
- Superior Lawn
- Low Water Requiring
- Dense Turf
- Winter Hardy
- Heat Loving
- Weed Resistant
- Low fertility Requiring
- A True Lifetime Lawn



Plant 1 to 2 pounds per 1000 square feet when soil temperatures reach 65 degrees. Generally for the transition zone this means late May to July.

CROWN VETCH

Perennial Ground Cover

Seed spring or late summer
1 lb per 400 square feet



Rock Star Kentucky Bluegrass is an improved variety of bluegrass that has excellent early spring green-up, fine leaves, and has the fastest establishing speed of Kentucky Bluegrass varieties. It is cold hardy, persistent variety that makes for an excellent addition to turf blends throughout the transition zone. Plant 3-5 pounds per 1000 square feet March through early May or September through October.

Midwest Wildflower Mix

Kind	Type	Color
Coneflower, Purple	.P.	Purple
Scarlet Flax	.A.	Red
Mixed Corn Poppy	.A.	Red/Pink
Lance Leaved Coreopsis	.P.	Yellow
Dwarf Blue Cornflower	.A.	Blue
Polka Dot Cornflower Mix	.A.	Red/Blue
Indian Blanket	.A.	Red/Yellow
Alaska Shasta Daisy	.P.	White
Clasping Coneflower	.P.	Yellow
Purple Prairie Clover	.P.	Purple
Plains Coreopsis	.P.	Yellow/Red
Mexican Hat	.P.	Yellow/Orange
Ox-eye Sunflower	.P.	Yellow
Dwarf Evening Primrose	.P.	Yellow
Prairie Coneflower	.P.	Yellow/Orange
Black-Eyed Susan	.Bi.	Yellow
Greyheaded Coneflower	.P.	Yellow
New England Aster	.P.	Lavender



MISSOURI SOUTHERN LAWN SEED



- Excellent Early Seedling Vigor
- Great in Full Sun or Partial Shade
- Reduced Nitrogen Requirement
- Fewer Fungicides, Environmentally Friendly
- Improved Turf Quality
- Improved Traffic Tolerance
- Good Heat & Drought Tolerance

5 Way Tall Fescue is a blend of five turf type tall fescues including Falcon IV and Renegade DT, two premier varieties. With these two excellent varieties and three other highly rated fescues, 5 Way has become the choice lawn for many. 5 Way not only has excellent disease resistance, but also great heat & drought resistance. It also has a uniform appearance due to its turf type characteristics, meaning it will not be clumpy like KY31 Tall Fescue. 5 Way is also productive when planted in full sun or partial shade. Plant 8-10 pounds per 1000 square feet for a new lawn March - early May or September - October. If over-seeding plant 4-5 pounds per 1000 square feet.



- Top Ranked Turf Type
- Great Heat & Drought Tolerance
- Fine Leaved
- Rhizomatus Tall Fescue



Falcon IV is an improved heat and disease resistant, semi dwarf variety with excellent turf-type qualities. As one of the top ranked varieties, Falcon IV has fine leaves and great drought resistance making it an excellent choice for your lawn. Plant 8 to 10 pounds per 1000 square feet for a new lawn or 4 to 5 pounds per 1000 square feet when overseeding. Plant March through early May or September through October.



- Top Ranked Turf Type
- Great Heat & Drought Tolerance
- Fine Leaved
- Semi-dwarf type

Renegade DT is an improved, heat and disease resistant, semi-dwarf tall fescue variety with excellent wear tolerance, fine leaves, and a dark green color. With traits including short dwarf dense growth, improved turf quality, and improved resistance to brown patch, Renegade DT makes for an excellent lawn. Plant 8 to 10 pounds per 1000 square feet for a new lawn or 4 to 5 pounds per 1000 square feet when over-seeding. Plant March through early May or September through October.

TUFF-TURF BRAND TURF TYPE TALL FESCUE

This is Missouri Southern Seed's own turf-type tall fescue. This fescue is reasonably priced, durable, and very attractive. Because Missouri Southern owns this brand, there are less royalties and better savings for the customer without sacrificing any quality. This turf-type fescue has excellent drought resistance and fine textured leaves making any lawn or durable playing field a suitable and beautiful sight. Plant 8 to 10 pounds per 1000 square feet March through early May or September through April.



MISSOURI SOUTHERN LAWN SEED



- Improved Traffic Tolerance
- Easy to Maintain - Less Mowing
- Good in Full Sun
- Good Drought Tolerance
- Contains Double Time for the Fastest Establishment
- Environmentally Friendly, Requires Less Input



Super Easy Turf 4 combines four of the best varieties to give you an exceptional looking, yet durable lawn. Capitalizing on the strengths of Falcon IV and Renegade DT turf-type tall fescues, makes them the core of this mixture. Super Easy Turf 4 also contains Double Time perennial ryegrass for fast establishment and improved drought tolerance. This along with the tall fescue and an elite Kentucky Bluegrass will quickly provide a lush, beautiful lawn all season long. Plant 8-10 pounds per 1000 square feet March - early May or September - October. When overseeding plant 4-5 pounds per 1000 square feet.

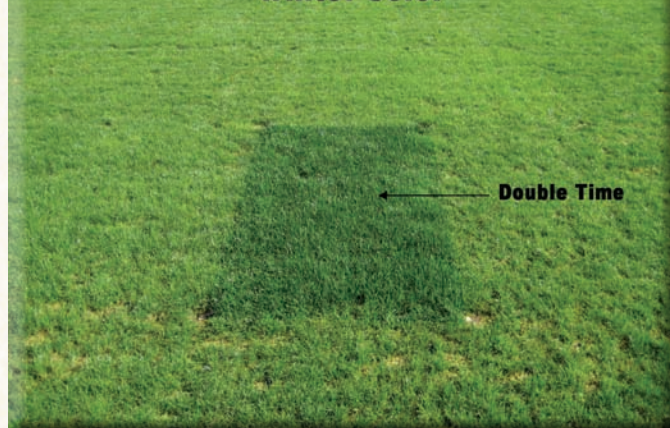
double time
turf - type tetraploid
ryegrass



- Deep Dark Green Color
- Quick Establishment of Turf
- Enhances Tall Fescue and KY Bluegrass Stands
- Stays Green Longer Than its Competition

Double Time is a new and improved variety of ryegrass that leaves all other ryegrasses behind. Establishing quickly, Double Time produces more turf in a two week time period than its competition. Double Time also has a dark green color. Being a tetraploid, Double Time has twice as many cell contents. This means when temperatures and moisture conditions aren't ideal Double Time will have an amazing eye appeal. Additionally, Double Time stays green longer than any other ryegrass. Plant 5-6 pounds per 1000 square feet March - April or September - October.

**Double Time vs. diploid perennial ryegrass
winter color**





www.missourisouthernseed.com

MISSOURI SOUTHERN

PASTURE • HAY • WATERWAY MIXES

HORSE

HALLMARK ORCHARDGRASS	30%
TIMOTHY	15%
LINN PERENNIAL RYEGRASS	24%
KENTUCKY BLUEGRASS	20%
RED CLOVER CP	9%
LADINO CLOVER CP	2%

HARDY

COW★PRO FESCUE	55%
POTOMAC ORCHARDGRASS	20%
TIMOTHY	12%
RED CLOVER CP	11%
LADINO CLOVER CP	2%

CLASSIC

POTOMAC ORCHARDGRASS	40%
TIMOTHY	15%
LINN PERENNIAL RYEGRASS	25%
RED CLOVER CP	12%
ALFALFA CP	6%
LADINO CLOVER CP	2%

ELITE

WARRIOR ORCHARDGRASS	30%
DUO FESTULOLIUM	20%
BESTFOR RYEGRASS	20%
COW★PRO TIMOTHY	10%
SOLID RED CLOVER CP	18%
SYNERGY LADINO CLOVER CP	2%

FIX-A-LOT

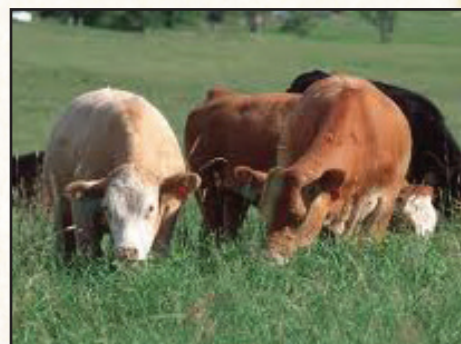
BESTFOR RYEGRASS	40%
ANNUAL RYEGRASS	25%
COW★PRO FESCUE	20%
COW★PRO TIMOTHY	10%
MEDIUM RED CLOVER CP	5%

WATERWAY

KY-31 TALL FESCUE	68%
PERENNIAL RYEGRASS	20%
TIMOTHY	10%
RED TOP	2%

FLEX

SMOOTH BROME	25%
BESTFOR RYEGRASS	25%
CLIMAX TIMOTHY	25%
POTOMAC ORCHARDGRASS	25%



LAWN MIXES

FANCY

KENTUCKY BLUEGRASS	18%
CREeping RED FESCUE	18%
PERENNIAL RYEGRASS	34%
ANNUAL RYEGRASS	30%

PREMIUM

KENTUCKY BLUEGRASS	25%
CREeping RED FESCUE	20%
PERENNIAL RYEGRASS	35%
ANNUAL RYEGRASS	20%

SUPREME

PERENNIAL RYEGRASS	55%
KENTUCKY BLUEGRASS	30%
CREeping RED FESCUE	15%

LANDSCAPER

KY 31 TALL FESCUE	80%
PERENNIAL RYEGRASS	20%

PRETTY-TUFF

TURF-TYPE FESCUE	75%
ANNUAL RYEGRASS	25%

EASY-TURF

TURF-TYPE FESCUE	80%
PERENNIAL RYEGRASS	20%

5 PLUS 10

5 WAY TURF FESCUE	90%
KY BLEGRASS	10%

PLAYGROUND

KY 31 TALL FESCUE	55%
KENTUCKY BLUEGRASS	10%
PERENNIAL RYEGRASS	25%
ANNUAL RYEGRASS	10%

SUPER EZ TURF 4

FALCON IV TURF FESCUE	40%
FINELAWN ELITE TURF FESCUE	40%
DOUBLE TIME TURF RYEGRASS	15%
ROCK STAR BLUEGRASS	5%

SHADY

CREeping RED FESCUE	30%
TURF-TYPE FESCUES	70%

CONTRACTOR

VNS TALL FESCUE	75%
ANNUAL RYEGRASS	25%



HOW TO PLANT A NEW LAWN

Five Easy Steps to a New Lawn



1. Preparation: Aerate or till the soil, remove rocks, and apply an all-purpose fertilizer. Rake the seedbed until it is smooth and firm. When overseeding, be

sure to rake out thatch so seed can have contact with soil.



2. Sowing: Spread the seed evenly. Lime if necessary.

3. Rake Lightly: Germination is

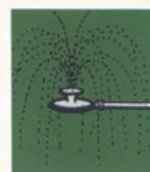
improved when seeds are covered with 1/8 to 1/4 inch of soil - no more.



4. Cover Seed: Cover the seedbed with a very thin layer of top dressing or straw. This keeps the soil from drying out while allowing the sun to

filter through.

5. Water: The top layer of soil must remain moist until the grass is well established. Spray mist as often as necessary. Avoid overwatering.



Your lawn should be ready for first mowing in three to six weeks.

■ Feed every six to eight weeks in fall and early spring.

■ Use broadleaf weed killers after the new lawn is mowed at least three times.