BEST FORAGE

& Cover Crop Seed Guide

BEST FORAGE

Best Forage is a family owned and operated business. We are premium seed distributors that source our seed carefully from more than a dozen suppliers. We are also lifetime dairy farmers that face many of the same challenges that many of you face and strive to overcome with each growing season. While we don't claim to have all the answers (nobody does, even if they claim to), we do share what knowledge we have learned over the years with the products we sell.

At Best Forage, we strive to provide our customers with the best forage genetic options in silage corn, alfalfas, clovers, forage grasses, hay & pasture seed. The same forage genetics we use on our farm and many of our dealers use on their farm. Forage selections that we believe, in your cropping and livestock enterprises, will increase your profitability.

We also provide high quality cover crop seed to help improve our customer's soils with water management, nutrient management, and overall productivity. Top crop yields with the best digestibility are grown on your better soils. Incorporating cover crops into a cropping rotation speeds the improvement, the biological life and productivity of those soils.

While we are not the biggest seed company on the planet, nor are we always the cheapest option, those are not our main objectives, we strive to be the most profitable option for the farmers we serve.

Thank you for supporting our family business!

Forages

BEST FORAGE

Cover Crops

Lawn & Turf

BEST FORAGE

JOHN DEERE FINANCIAL

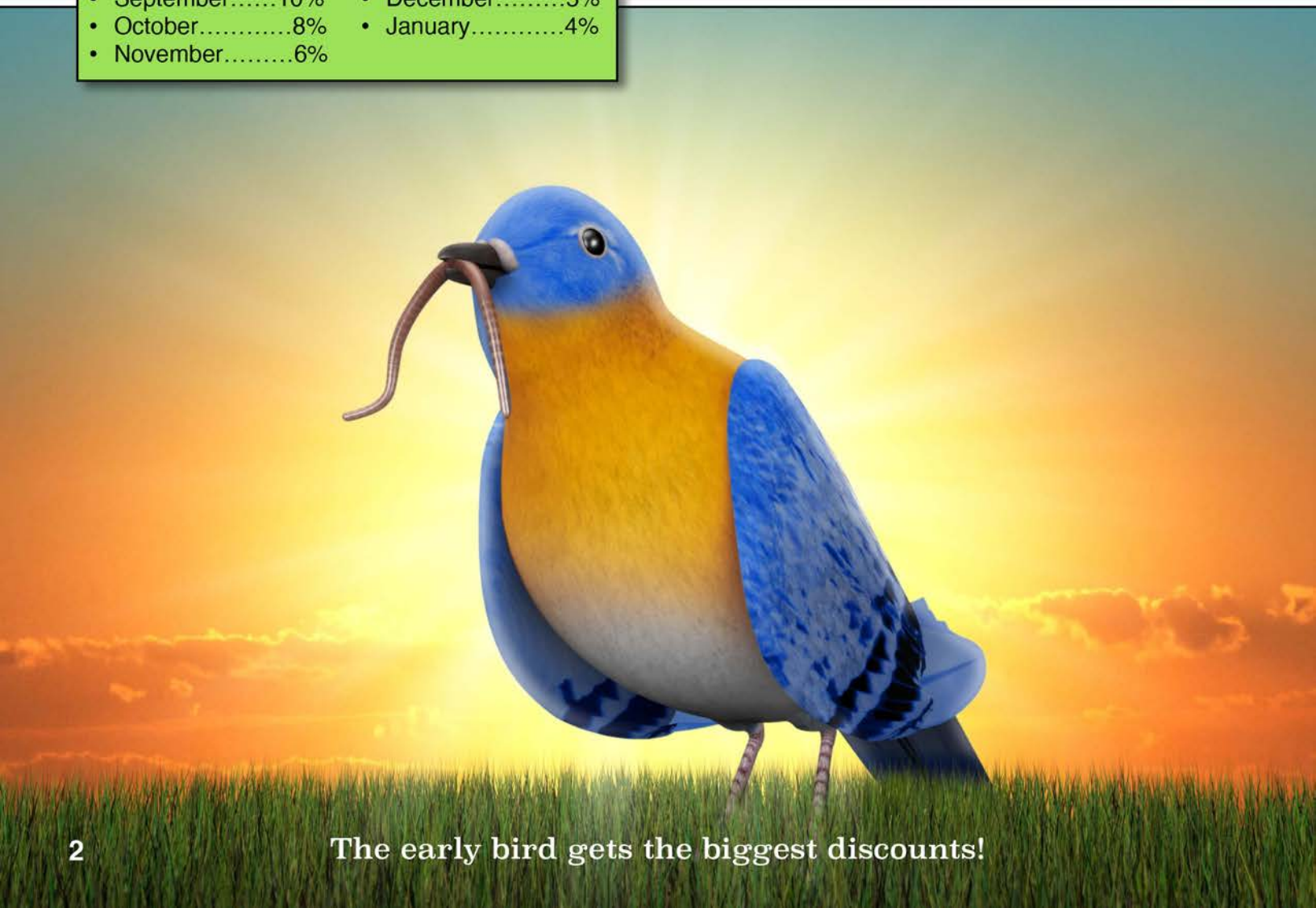
John Deere Financial is a line of credit that can be used as a management tool for purchasing seed. It is available on seed from Alforex, Masters Choice, Local Seed, and Partner's Brand. The John Deere Financial plan varies slightly between seed companies. If interested in using John Deere Financial please contact your dealer or call us at (888) 836-3697 for plan details.

Prepay Cash Discounts

- September……10%
- October……8%
- November……6%
- December……5%
- January……4%

Early Bird Advantages

- Order early and you are more likely to get the varieties & hybrids you want and avoid seed shortages or delays
- Order early and you have the opportunity to save on early payments for alfalfa, clovers, corn, soybeans, premium grasses and select forage mixes
- To qualify for early order discounts, orders must be placed by noon of the last business day of the month
- Payment must be postmarked by the last day of the month for the given discount



The early bird gets the biggest discounts!

BEST FORAGE

Useful Tools

"Haney Test"
A Better Way to Soil Test

Conventional soil tests evaluate only the chemical and physical properties of the soil. Conventional soil tests ignore the fact that 90% of the nutrient cycle is biological.

A new way to measure soil health mimics what a plant root encounters, especially with cover crops, and can save on fertilizer costs.

The test measures water-soluble organic carbon and soil biological activity to assess nutrients available to plants.

The result is a much more precise look at available nitrogen and nitrogen that likely will be available (given microbial activity) during the life of the crop.

Farmers receive results along with an Excel file with tabs for N, P, K, Soil Health Scores, Nitrogen and Phosphate, plus an explanation sheet. The Soil Health Score includes an analysis of organic and inorganic carbon, carbon-to-nitrogen ratios and a look at how efficiently the microbes in the field are converting the carbon present.

Compared to traditional testing, the importance of the new test is increased precision and its ability to save significant amounts of fertilizer inputs.

Try this:

The next time you soil sample, take the combined soil sample from your field, split it in half and send one sample to the lab you have been using and send the other sample to a lab that will run the Haney test.

Then when you receive the results, fertilize one-half of the field according to the Haney test and the other half of the field according to the recommendations of your regular lab.

The results should speak for themselves.

Forage Testing - Dynamic NDFd (TTNDFd)

TTNDFd, or Total Tract NDF digestibility, is a tool that combines feed and cow factors to measure energy from fiber.

TTNDFd gives a better picture of fiber digestibility as a whole by using several time points of NDFd (24, 30, 48 hour) combined with the rate of fiber digestion, the rate of passage and also the indigestible fiber. **NDFd 30 hr and NDFd 40 hr do not separate digestible vs indigestible.** Single point in time vitro values do not necessarily reflect rate of fiber digestion (different passage rates).

Corn silage, alfalfa and forage grasses can be compared with TTNDFd whereas they cannot be accurately compared with RFV or RFQ. Forage samples can look similar on paper but differ greatly in TTNDFd and can feed entirely different.

TTNDFd gives us a more accurate tool to predict how forages will feed and their effect on milk production.

Corn silage and alfalfa samples have an average TTNDFd value of 42%, whereas grasses have an average value of 44%

The goal is to have forages that have a TTNDFd value that is higher than 48%.

For every 2-3 unit change in TTNDFd there is a corresponding change in milk yield by a pound. Comparing two forages, one with TTNDFd value of 42% and the other sample with a value of 50%, you could predict the second sample when balanced in the ration has the potential to increase milk production by 2.5 to 3 pounds of milk.

Key Performance Indicators

BEST FORAGE

How many tons of digestible forage are you harvesting?

Acres x t DM/A x %NDF x TTNDFD % NDF = tons digestible forage

We can help you raise your yields of highly digestible forage by up to 30-40%

(without the cost of farming more acres)

Feed costs represent 60-70% of the overall cost of raising dairy or livestock.

The quantity and quality of the forages produced on your farm has a direct impact on your feeding program & animal performance.

Both of which contribute greatly to your bottom line.

Optimizing starch digestibility can get you an additional 3-5 lbs. more milk but optimizing fiber digestibility can get you an additional 5-7 lbs. more milk.

If your forage fiber isn't digestible, it's not producing meat or milk but is just passing through the animal and out the tail end!

Use TTNDFd when selecting what forage varieties to include in cropping plans!

Use TTNDFd when buying or selling forages to get the quality you need or the premium you deserve!

Unless you test, it's just a guess.

BEST FORAGE

Customized Cropping Plans

Ask Yourself?

Do you know exactly what your daily feed costs are and how forage quality impacts those costs?

Do you know exactly how many tons of digestible forage you are harvesting and how much you need?

Do you have a detailed forage plan in place for the next cropping season to ensure maximum profitability?

Are your livestock and cropping enterprises working together to maximize your overall profitability?

To Find Out More . . .

Contact Us

Schedule a time to discuss:

1. Your operation & future goals
2. What our requirements are and what info we need

Customized Cropping Plan

On a field by field basis, together we'll analyze your operation and develop a cropping plan to meet your livestock needs while optimizing production and profit.

Beneficial Microbes

Soil Feeding the Plant

Plant Feeding the Soil

NITROGEN FIXATION
Several microbes are able to convert freely available atmospheric nitrogen into a plant available form.

NITROGEN MINERALIZATION
Several microbes are able to convert soil born nitrogen into plant available form. Mining the N currently unavailable within the soil.

PHOSPHORUS SOLUBILIZATION
Several microbes have the ability to solubilize otherwise insoluble phosphorus and make it available to the plants.

SURFACTANT PRODUCTION
Several microbes are able to reduce surface tension to free up more organic and inorganic nutrients.

PLANT GROWTH PROMOTION
Several microbes have the ability to release hormones or hormone-like products that stimulate growth and other developmental activities.

MICRONUTRIENT AVAILABILITY
Several microbes have the ability to enhance micronutrient availability including siderophore production to help attract iron to the plant.

DEGRADATION CAPABILITIES
Several microbes have the ability to degrade: cellulose, lignin, chitin, starch and other compounds present in the soil improving soil health.

ENVIRONOC 401 MICROBIAL PLANT BIOSTIMULANT

In-Furrow Application
16 oz per acre

Broadcast Application
32 oz per Acre

Biodyne® USA

With a diverse team of beneficial microorganisms present in high concentration levels, **ENVIRONOC 401** is a natural way to promote the fundamental relationship between the soil and plant. The microbes that make up this robust team are not genetically modified, non-pathogenic, and 100% naturally occurring. 401 with its diverse population of beneficial microorganisms ensures the soil and plant are able to efficiently work together to maximize the plant's growth and productivity. 401 allows you to:

- Establish larger and more diverse populations of beneficial microbes in your fields
- Optimize the rhizosphere with a more robust and efficient plant and microbe relationship to improve growing conditions
- Improve nutrient release and management through microbial activity, enhancing overall soil productivity

5 Year Average

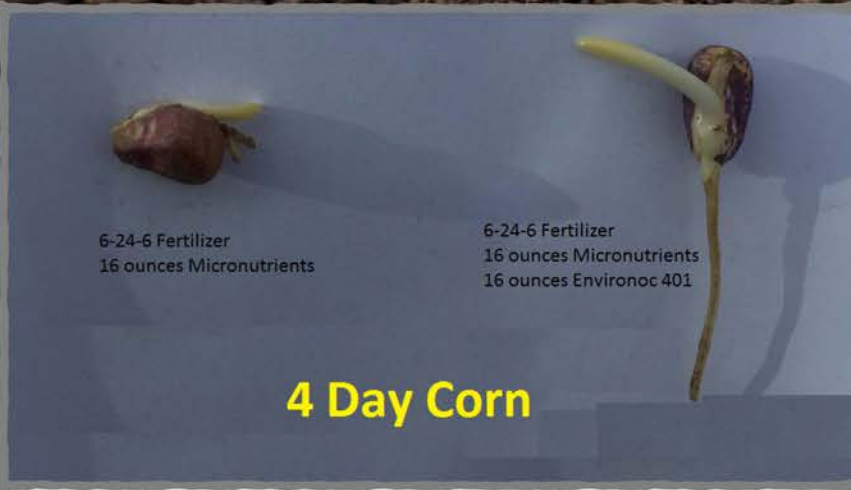
Multiple Trials, Multiple States

an average of

$18 More Profit per Corn Acre

an average of

$21 More Profit per Soybean Acre



Give your crops every advantage to produce top yields!

Northern Indiana Side by Side Environoc 401 Trial

Corn Planted on April 29, 2018 and pollinated the first 2 weeks of July

Yield Check- August 15, 2018
-Every 6th Ear picked from Treated and Untreated Areas
-Esimated Yield +27.44 Bpa

ENVIRONOC 501 BIOLOGICAL STUBBLE DIGESTER

RECLAIM your investment dollars tied up in Residue/Stubble

Crop residue. Stubble. Waste. The leftovers from last season's harvest could be considered a real nuisance. From increased fertilizer use to tire damage and fuel consumption, undigested residue is a physical tie up of your investment dollars.

But there is another way. Biodyne's ENVIRONOC 501 Biological Stubble Digester is a broadcast application utilizing high concentrations of more than two dozen natural-occurring, viable, non-genetically modified beneficial microbe strains.

When you end your season with an application of ENVIRONOC 501, you're already starting the next season off right. Not only are you increasing the workability of the soil and the ease of planting the next crop, but you're also helping to reduce wear and tear on your tires and equipment caused by typically tough crop residue.

Application rate of 16 oz per acre.
(can be added to fall/spring burndown and/or nitrogen program)

Treated with 501 vs non-treat, better planting efficiency, seed to soil contact, and stand optimization.

The results are impressive. In a laboratory Clinical Trial on GMO corn, inoculation with ENVIRONOC 501 demonstrated 69.2% more organic mass loss than non-inoculation.

Numerous land grant university studies have indicated that, based on fertilizer costs, the value of locked up nutrition contained within normal crop residue and stubble can range from $50 to $200 per acre.

501 boosts the natural process of breaking down and recycling nutrients from residue and stubble back into the soil. Rather than digest the stubble, 501 etches the surface to allow water, air and the beneficial microbes to enter the stalk. Nutrients are released from the inside out, preparing the soil for next season's crop and building organic matter.

Our best alfalfas for yield & digestibility

LeafMAX 4318 HD+

Highly Digestible Alfalfa

- One of our highest yielding varieties
- Highly digestible alfalfa; top milk producer, naturally low lignin
- Top product for highest profitability
- Holds exceptional forage quality, even in delayed harvest
- Branch root variety
- Resistance to APH2
- FD 4.3, WSI 1.8, DRI 34/35

LeafMAX 3815

Our #1 Selling Alfalfa Variety

- High yields with very high quality
- Branch root variety that resists heaving
- Excellent winter-hardiness
- Handles wheel traffic at harvest with sunken crown
- One of the few alfalfas rated grazing tolerant
- Excellent leaf-to-stem ratio
- FD 3.8, WSI 1.5, DRI 30/30

Strongest Disease Package

LeafMAX 4519 APH2+

w/Standlife Genetics®

- *High Aphanomyces Resistance - Race 1, 2, & 3*
- Multiple strain resistance to "APH2" AND "APH3"
- Excellent yields, very good digestibility
- Exceptional disease resistance, 35/35 disease rating, Stem Nematode resistant
- Exceptional performer in tough disease areas
- Branch root variety
- FD 4.5, WSI 1.9, DRI 35/35

Best Leafhopper resistance

LeafMAX 4019 PLH

Improved Potato Leafhopper Resistance

- Outstanding yield under Potato Leafhopper pressure, a tap root variety
- A must plant for growers that have Leafhopper pressure and do not scout or spray
- One of the highest Potato Leafhopper resistant brands on the market!
- Built-in Leafhopper protection with glandular hairs
- FD 4.0, WSI 1.9, DRI 30/30

LeafMAX 3522

Economy alfalfa blend

- Very good yield potential
- Adapted to a wide range of growing conditions
- Blend of alfalfas, no vernal, tap root varieties
- FD 3.5, WSI 2.2, DRI 27/30

Low Lignin alfalfas for digestibility

Hi-Gest® 360

Low Lignin Alfalfa

- Product of conventional plant breeding
- Medium-tall plants with a dense canopy of stems and leaves
- Whole plant lignin is 7-10% lower than other dormant varieties for improved performance
- No yield drag, no loss of pest resistance, no reduction in winter-hardiness with 28-30 day harvest
- High resistance to Aphanomyces Race 1 & Race 2
- FD 3.0, WSI 1.5, DRI 35/35

World Forage Analysis Superbowl

Multiple Top 10 Placings

5-8% More Leaves

AFX 460

Low Lignin Alfalfa

- Product of conventional plant breeding
- Medium-tall plants with a dense canopy of stems and leaves
- Whole plant lignin is 7-10% lower than other dormant varieties for improved performance
- No yield drag, no loss of pest resistance, no reduction in winter-hardiness with 28-30 day harvest
- High resistance to Aphanomyces Race 1 & Resistance to Race 2
- FD 4.0, WSI 1.5, DRI 34/35

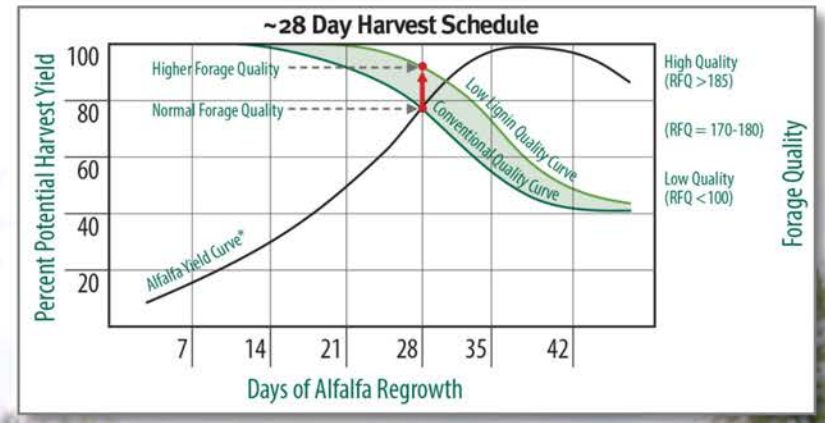
Hi-Gest® Low Lignin ALFALFA TECHNOLOGY

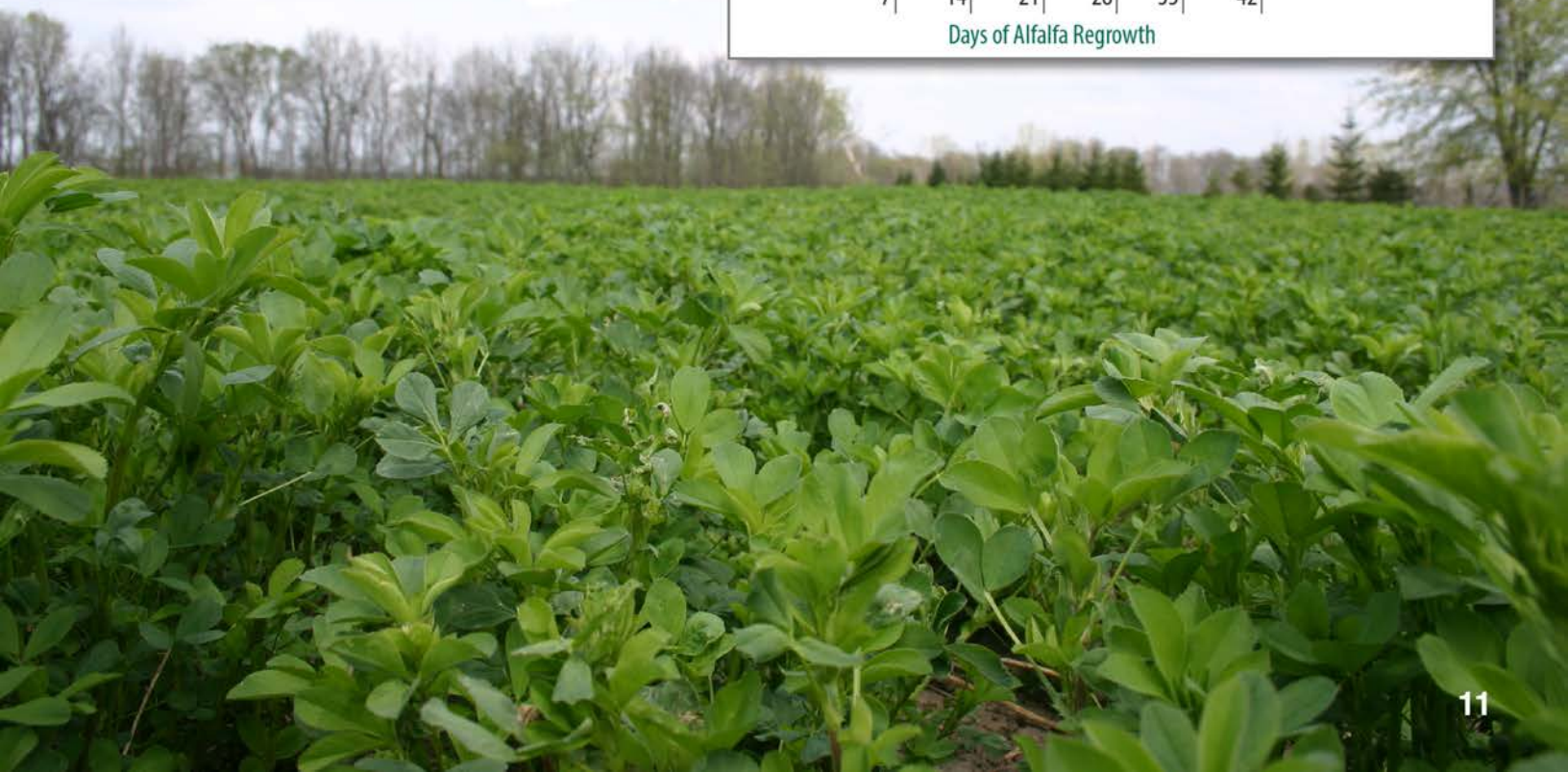
Roundup Ready alfalfa

WL 375HVX.RR

Roundup Ready, Low-Lignin

- FD 5 alfalfa with up to 22% reduced lignin
- Clean fields with Roundup Ready weed control
- Unmatched forage quality
- High Resistance to Aphanomyces Race 1,2,& 3
- 4-6 cuttings per year
- FD 4.6, WSI 2.1, DRI 40/40





Alfalfa

Seeding rate: 18-22 lbs./acre alone
8-12 lbs./acre in mixes

Seeding depth: 1/4" deep in a firm seedbed

Preferred soil: Well-drained soils with adequate water holding capacity and free of perennial weeds. Field should not be reseeded to alfalfa for at least 1 year after previous alfalfa crop was terminated due to autotoxicity.

Management: Use 25-30 units of N at seeding on coarse textured soils with low organic matter, 20-35 lbs./acre if seeded with a companion crop and 40-55 lbs./acre if companion will be harvested as silage.

Best Use: Haylage, baleage, or dry hay

May be planted spring or late summer on a well prepared, firm seedbed. More specific recommendation for planting, growing, fertilizing and harvesting are available upon request.

AFX 469 Alfalfa

YIELD Hi-Ton® PERFORMANCE ALFALFA

- Tall and showy, with large leaves
- Average seedling year yield performance when spring direct seeded
- For growers who aggressively manage their established alfalfa acres to maximize milk per acre
- FastGrowth ability shaves 3-5 days off the time between harvests to maximize seasonal yields
- Carries a strong, multiple-pest package to protect fast-growing plants and aggressively managed acres
- Very fast green-up after harvest and accelerated growth to harvest maturity, up to 30% faster regrowth over conventional varieties
- FD 4.0, WSI 1.5, DRI 32/35

Baralfa X42 Hybrid Alfalfa

BARENBRUG

- Hybrid alfalfa with a branch root
- Rapid recovery after harvest
- Consistent high forage yields with finer stems
- Very dense, persistent stands even in heavier soils
- Contains 34% Yellow Jacket seed coating for quick germination, fast emergence & higher seedling survivability
- FD 4.0, WSI 1.8, DRI 30/30

YELLOW JACKET ENHANCED SEED COATING

AlfaBar Alfalfa Blend

BARENBRUG

- Excellent disease resistance
- Fine stems, upright growth
- Combination of Barenbrug's top 3 alfalfa varieties
- Branch root allows for persistence & better production in poorly drained soils
- Sunken crown protects from both animal hoof traffic & insulates the crown in severe winter weather
- Rhizomatous stems that branch out and develop new crowns

Alfalfa Summary

Variety	Fall Dormancy	Winter Survival	Root Type	Crown Depth	Disease Rating Index	Phytophthora Root Rot	Bacterial Wilt	Verticillium Wilt	Fusarium Wilt	Anthracnose	Aphanomyces Race 1	Aphanomyces Race 2	Aphanomyces Race 3	Yield Ability	Forage Quality	Recovery after harvest	Moderately wet soils	Well drained soils	Grazing/Wheel Traffic
LeafMAX 4519 APH2+	4.5	1.9	Branch	Sunken	35/35	HR	HR	HR	HR	HR	HR	HR	R	1	3	3	1	1	2
LeafMAX 3815	4.0	1.5	Branch	Sunken	35/35	HR	HR	HR	HR	HR	HR	HR	-	1	1	2	2	1	2
LeafMAX 4318 HD+	4.3	1.8	Branch	Average	34/35	HR	HR	HR	HR	HR	HR	R	-	1	1	2	2	1	4
LeafMAX 4019 PLH	4.0	1.9	Tap	Average	30/30	HR	HR	R	HR	HR	HR	-	-	4	3	4	3	1	4
LeafMAX 3522	3.5	2.2	Tap	Average	27/30	HR	HR	R	HR	R	R	S	-	4	4	4	4	1	4
APX 469 Hi-Ton®	4.0	1.5	Tap	Average	33/35	HR	HR	HR	HR	HR	HR	R	-	1	3	1	3	1	4
Hi-Gest 360	3.0	1.5	Tap	Average	35/35	HR	HR	HR	HR	HR	HR	HR	-	2	1	3	3	1	4
APX 460 Hi-Gest®	4.0	1.5	Tap	Average	34/35	HR	HR	HR	HR	HR	HR	R	-	2	1	2	3	1	4
WL 375HVX.RR	4.6	2.1	Tap	Average	40/40	HR	HR	HR	HR	HR	HR	HR	HR	1	1	1	1	1	2
Baralfa X42	4.0	1.8	Branch	Average	30/30	HR	HR	HR	HR	HR	HR	-	-	1	1	1	2	1	2

1 = excellent, 3 = average, 5 = poor

Fall Dormancy: The higher the number, the less dormant the alfalfa is. A less dormant alfalfa will start growing earlier in the spring and grow later into the fall. A less dormant alfalfa typically yields more but it is also more susceptible to a late spring freeze. Typical numbers for the Midwest is between 3 to 5.

Winter Survival: The lower the number, the more winter hardy the alfalfa. All the above alfalfas have very good to excellent winter survival scores.

Disease Ratings	% Resistant Plants
HR=High Resistance	> 50%
R=Resistance	31-50%
MR=Moderate Resistance	15-30%
LR=Low Resistance	6-14%
S=Susceptible	0-5%

Yellow Jacket Enhanced Seed Coating

- Made from cornstarch, environmentally friendly and biodegradable.
- Like a spongy layer around every seed
- Holds moisture and nutrients around the seed to aid in quicker germination and establishment
- Increases the density of the seed which aids in uniform seeding and flowability
- Seed is more easily seen
- Holds 600 times its weight in water
- Protects seedlings up to 3 weeks after seeding
- Apron (fungicide) adds additional insurance for successful establishment

YELLOW JACKET ENHANCED SEED COATING

This photo shows how much faster seed coated with Yellow Jacket (right) grows compared to uncoated seed (left).

Alice White Clover

BARENBRUG

YELLOW JACKET ENHANCED SEED COATING

- High nitrogen fixation
- Winter-hardy & persistent
- Large leaf
- Very palatable
- Available w/Yellow Jacket or an OMRI approved coating

A large-leaf ladino clover that grows to medium height, Alice exhibits tremendous nitrogen-fixing capacity, benefiting its companion forage varieties. Alice is persistent and winter hardy, making it the perfect companion for pastures in the northern United States and Canada. It also has greater stolon density, allowing for more persistence under intense grazing and traffic.

White Clover

Seeding rate: 2-3 lbs./acre in a mix w/grass
4 lbs/acre when frost seeding

Seeding depth: 1/8"- 1/4" deep

Preferred soil: Medium to heavy soils, but works on all soil types

Management: Adequate levels of calcium, phosphorus, and potassium are important for success.

Best Use: Pasture

May be planted spring or late summer on a well prepared, firm seedbed. For late summer seeding, plant at least 8 weeks before killing frost. Can frost seed in late winter on fine textured soils.

RegalGraze White Clover

- Superior forage yields
- Excellent grazing tolerance
- Good nitrogen fixation
- Large leaf, heat tolerant
- Available with Yellow Jacket Enhanced Seed Coating

Premium Clover Blend

- A 70/30 blend of Freedom! Red Clover and Alice White Clover.
- Excellent mix for pastures
- Wide adaptation, highly palatable
- Available w/Yellow Jacket or an OMRI approved coating
- Seeding rate 6-10 lbs/acre

Freedom! MR Red Clover

- Our top selling premium red clover
- The best red clover for dry hay production
- Reduced hairs on stems & leaves which reduces dustiness and makes for faster dry down
- One of the highest yielding red clovers with typically 3 strong years of forage production
- Very high quality forage
- Excellent mixed with alfalfa in heavier soils
- Available with Yellow Jacket seed coating or an approved OMRI coating

A selection from the University of Kentucky for increased dry matter production and faster drying, Freedom! has finer stems and less pubescence (hairs) on the stem which gives it the unique characteristic and ability for faster water evaporation. Due to this faster evaporation, Freedom! is ideal for hay production because it will dry down faster, reducing the loss of quality. The decreased amount of pubescence also reduces the amount of dust within the hay. Freedom! is also suited for grazing and silage. Freedom! MR has the added benefit of increased mildew resistance (MR). Mildew can be an issue in the upper-transition zone, midwestern, and northeastern United States.

Red Clover

Seeding rate: 8-12 lbs./acre alone
6-8 lbs./acre in mixes

Seeding depth: 1/4" - 1/2" deep

Preferred soil: Medium to heavy soils

Management: Adequate levels of calcium, phosphorus, and potassium are important for success.

Best Use: Silage, baleage, dry hay, pasture

May be planted spring or late summer on a well prepared, firm seedbed. For inter-seeding into established alfalfa, best time is late summer or early fall to reduce competition at least 8 weeks before a killing frost. Can also be frost seeded in late winter on finer textured soils.

Common Medium Red Clover

- Short lived perennial forage legume
- Great for green manure, plowdown & cover crop
- Coated seed recommended for frost seeding
- Available as coated or uncoated seed
- Seeding rate 12-15 lbs/acre or 6-8 lbs/acre mixed with grass

Mammoth Red Clover

- Single cut red clover
- Not as desirable for hay or pasture due to thick stems
- Great for cover crop or plow down
- Builds organic matter, grows taller than medium red clover, nitrogen producer
- Seeding rate 10-12 lbs/acre or 2-6 lbs in a mix

FROSTY Berseem Clover

Use Frosty Berseem in:

Cover Crops
Wildlife Food Plots
Forage Crops

Frosty Berseem Clover

- Summer/winter annual legume
- Produces large amount of biomass, up to 4+ ton dry matter; good weed suppression
- Highly nutritious (18-28% protein)
- Tolerates waterlogged soils
- Initial growth is slow, but then grows fast - expect forage to be ready in approx. 8 weeks
- Can winter kill in northern climates
- Non-bloating legume
- Seed at least 7-8 weeks before frost
- Drill 15 lbs/acre or 5-7 lbs. in a mix
- Broadcast 25 lbs/acre or 12-16 lbs. in a mix

Crimson Clover

- Strong Nitrogen fixing & high biomass potential
- Great as a cover crop, good for grazing or silage
- Very good shade tolerance
- Increases water holding potential
- Attracts beneficial insects & pollinators
- Seeding rate 10-20 lbs/acre or 8-10 lbs/acre in a mix

Seed in spring or fall at least 6-8 weeks before frost. Crimson is a semi-upright winter annual legume with quick germination and prefers well drained soils.

Fixation Balansa Clover

- Yields of over 5,250 lbs/acre dry matter, up to 28% crude protein, RFV as high as 277
- Can produce up to 250 lbs. of fixed nitrogen
- The most cold-tolerant annual clover
- Helps with soil drainage and water infiltration due to its deep tap root system (up to 30" deep)
- Quick to germinate but slower to establish than other clovers, can tolerate some flooding
- Seeding rate 5-8 lbs/acre as a mono-culture or 3-5 lbs/acre in a mix.

Fixation balansa clover is the most cold-tolerant annual clover; it can withstand temperatures down to -14 F. Fixation can tolerate a variety of soil types and can even grow through short periods of standing water. As an annual clover, Fixation also helps with soil drainage and water infiltration due to its deep tap root system.

Alfalfa & Grass Mixtures

Why add grass to alfalfa?

Agronomic Benefits

- Improve overall forage yields 15-20%, up to 50%
- Complementary to each other
- Better yields in poor draining soils, low lying areas
- Better in low pH soils
- Less insect pressure
- Erosion control
- Faster drying
- Less heaving, better overwintering of alfalfa
- Better manure utilization
- Less traffic damage

Nutrition Benefits

- Higher fiber and higher NDFd = higher energy
- Higher milk components
- Increase in rumen pH - Improved rumen function
- Prevent acidosis - Reduced lameness associated w/too much NFC (42% of lameness due to nutrition, excessive grain and/or inadequate fiber
- Lower culling rates
- Allows feeding a higher forage ration, less expensive grain, same or higher fat corrected milk
- Higher fiber diets reduce D.A.'s (displaced abomasum)

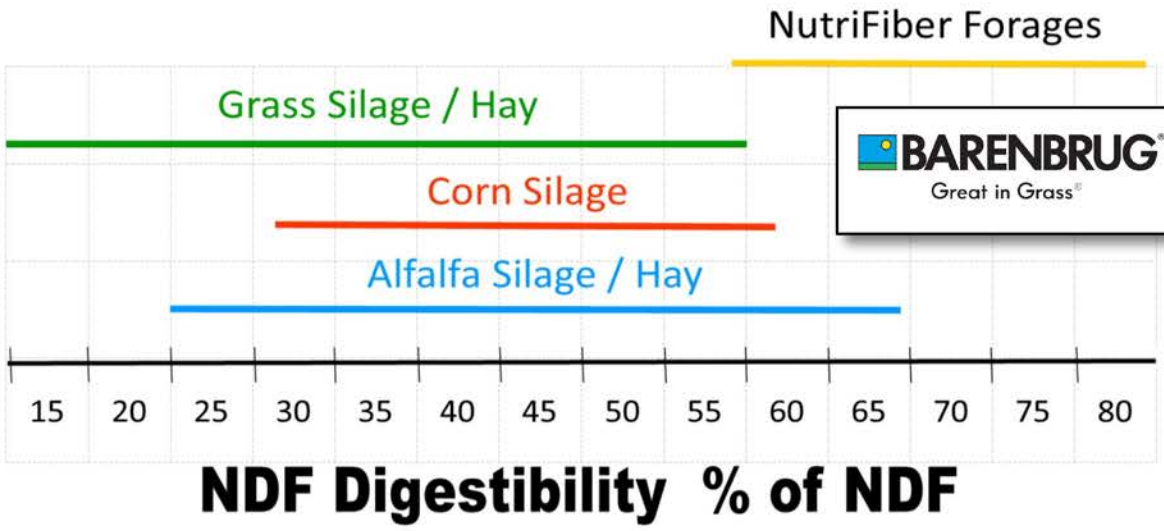
Keys to Success

1. Match forage varieties to soil conditions, fertility, pH, and similar maturities
2. Control weeds prior to planting
3. Maintain proper seeding rates & planting speed
4. Plant into a firm, well prepared seed bed
5. Have excellent seed-to-soil contact
6. Plant at proper planting depth, 1/4" is ideal
7. Use 20-25 units of nitrogen at planting to ensure faster stand establishment
8. Maintain cutting height at least 3-4" high at harvest & harvest at proper maturity
9. Fertilize for both alfalfa & grasses including additional nitrogen and sulfur
10. Test forages using TTNDFd and balance rations accordingly

The Best Forage Grasses in the Industry for Yield & Digestibility!

NutriFiber = Highest NDFd

NutriFiber grasses have been developed to have higher fiber digestibility than alfalfa, corn silage or other grasses.



BARENBRUG Great in Grass®

The Highly Digestible, Effective Fiber for Dairy Rations

"NutriFiber grasses have been developed to have higher fiber digestibility than alfalfa, corn silage, and other grasses"

Dr. David Combs
University of Wisconsin-Madison

How to incorporate NutriFiber into dairy rations:

1) Grow these improved forages from Barenbrug:

A. **Green Spirit Italian Ryegrass** - Highest Quality Annual Forage
- Plant in spring or fall, but spring seeding is preferred
- High yields, tonnage up to 80% of corn silage yields
- Increases corn silage yields in rotation
- Ideal for inter-seeding into thinning alfalfa stands
- Can be planted as a straight stand

B. E² Hybrid Alfalfa + Grass Mixtures
- Increased yield & stand longevity
- Higher digestible fiber than straight alfalfa
- Components matched for maturity

C. **Milkway** - Meadow Fescue & Soft Leaf Fescues
- Highest quality perennial forage
- Wide range of adaption
- Traffic tolerant, ideal for multiple manure applications
- Improve butterfat and milk yield

D. **STF-43** Soft Leaf Fescue
- 10-15% better digestibility than other tall fescues
- Widely adapted perennial, long-lived
- Ideal for nutrient management needs on large dairies

2) Harvest as hay or haylage and feed as part of a TMR

3) Use as a partial replacement of corn silage and alfalfa in your TMR

The Highly Digestible Effective Fiber for Dairy Rations

NutriFiber

Look for this NutriFiber logo on these superior products.

The NutriFiber Advantage

- 17% ***increase*** in milk fat
- Supports high milk production
- Promotes rumen health
- Reduces acidosis
- 25-40% ***increase*** in digestible fiber
- Proven in University trials

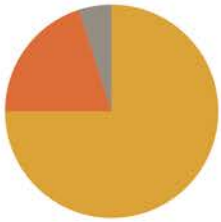
No other seed company has more years of experience in planting, growing, harvesting and feeding NutriFiber forages to dairy cows than we do!

High Yielding, Highly Digestible Hay Mixes*

Haymaster (All Grass) Mix

BARENBRUG

- our best soft leaf tall fescue, late maturing orchardgrass, and timothy
- very easy to dry mixture of forage grasses
- good for most soil types with good fertility
- Seeding rate 25-30 lbs/acre alone or 8-10 lbs in a mix

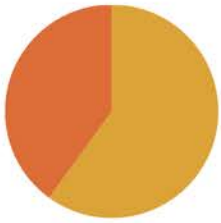


- 75% Soft Leaf Fescue
- 20% Late Orchardgrass
- 5% Timothy

Milkway (All Grass) Mix

BARENBRUG

- a premium mixture of very high NDFd varieties of soft leaf tall fescue and meadow fescue
- excellent with alfalfa or red clover for dry hay, haylage or baleage
- good for medium to heavier soils
- Seeding rate 25-30 lbs/acre alone or 8-10 lbs in a mix



NutriFiber

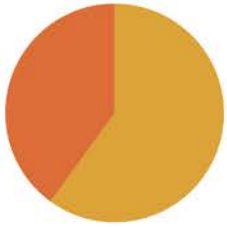
- 60% Meadow Fescue
- 40% Soft Leaf Fescue

E2 640 Hay Mix

BARENBRUG

- premium mixture of hybrid alfalfa and soft leaf tall fescue
- excellent for dry hay, haylage or baleage
- good for most soil types with good fertility
- Seeding rate 25 lbs/acre.

YELLOWJACKET ENHANCED SEED COATING



NutriFiber

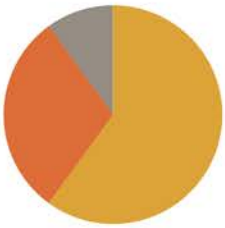
- 60% Hybrid Alfalfa
- 40% Soft Leaf Fescue

E2 631 Hay Mix

BARENBRUG

- premium mixture of hybrid alfalfa, soft leaf tall fescue, and late maturing orchardgrass
- excellent for dry hay, haylage or baleage
- good for most soil types with good fertility
- Seeding rate 25 lbs/acre.

YELLOWJACKET ENHANCED SEED COATING



NutriFiber

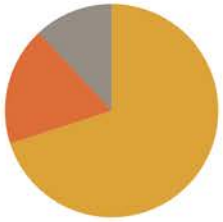
- 60% Hybrid Alfalfa
- 30% Soft Leaf Fescue
- 10% Late Orchardgrass

** Actual percentages may vary slightly due to availability*

High Yielding, Highly Digestible Hay Mixes*

Premium Dairy Hay/Haylage Mix

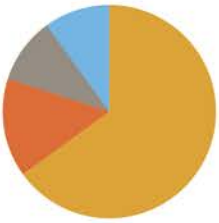
- top yielding, excellent digestibility mix of alfalfa, and **NutriFiber** forage grasses of soft leaf tall fescue and meadow fescue
- supports high milk production and improves milk components
- higher yields of digestible forage over straight alfalfa, top of the line product for dairy farms
- Seeding rate 25 lbs/acre



- 70% LeafMAX Alfalfa
- 18% Meadow Fescue
- 12% Soft Leaf Fescue

Highland Hay Mix

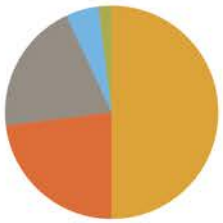
- a premium mixture of alfalfa, soft leaf tall fescue, orchardgrass, and brome
- easy to dry mixture with high yields
- soft, palatable hay mixture
- good for medium to lighter soils
- Seeding rate 25-30 lbs/acre



- 65% LeafMAX Alfalfa
- 15% Soft Leaf Fescue
- 10% Late Orchardgrass
- 10% Brome

Lowland Hay Mix

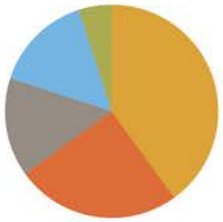
- a premium mixture of a branch root LeafMAX alfalfa, soft leaf tall fescue, Freedom! red clover, late maturing orchardgrass, and timothy
- good for medium to heavy soils
- Seeding rate 25 -30 lbs/acre.



- 50% Branch Root Alfalfa
- 23% Soft Leaf Fescue
- 20% Freedom! Red Clover
- 5% Late Orchardgrass
- 2% Timothy

Hay-Grazing Mix

- a premium mixture of a grazing tolerant alfalfa, soft leaf tall fescue, late maturing orchardgrass, meadow fescue, and Freedom! red clover
- great palatability and digestibility
- good for most soil types with good fertility
- Seeding rate 25-30 lbs/acre.



- 40% LeafMax Alfalfa
- 25% Soft Leaf Fescue
- 15% Late Orchardgrass
- 15% Meadow Fescue
- 5% Freedom! Red Clover

** Actual percentages may vary slightly due to availability*

Italian Ryegrass

Italian ryegrass provides excellent quality forage for up to two years, depending on climate and available moisture. Due to its quick regrowth, very early development in spring and prolonged growing period in the fall, this species usually has greater overall productivity than other cool season grasses. When planted in the spring, Italian ryegrass will not go to seed in the first season resulting in very high quality forage.

Green Spirit Italian Ryegrass

- Very high dry matter production, up to 9 ton dry matter per acre
- Better forage quality than annual ryegrass
- Great component in dairy TMR, increases butterfat %
- Excellent forage quality, highly digestible fiber source
- Can reduce acidosis and lameness in dairy cattle
- Increase corn silage yields in rotation up to 25%
- Protein similar to alfalfa with higher yields & more milk/ton
- Ideal for inter-seeding into thinning alfalfa stands & pastures
- Great companion with triticale to improve quality and tonnage
- Supports high milk production
- World Forage Superbowl - Grand Champion Forage
- Great crop for nutrient management plans

BARENBRUG NutriFiber

World Forage Analysis Superbowl

GRAND CHAMPION Multiple Years

Italian Ryegrass

Seeding rate: 35-40 lbs./acre alone
<5 lbs/acre as nurse crop
3-20 lbs./acre in mixes

Seeding depth: 1/8" to 1/4" deep

Preferred soil: Medium to heavy soils or lighter soils with irrigation and good fertility

Management: Use 20-30 units of N at seeding, 30-40 units of N after each cutting, 40 units of N in early spring for quick growth

Best Use: Pasture, silage or baleage

May be planted spring or late summer. Spring seedings will not produce a seed head the first year. For optimal production, maintain pasture in a vegetative state. Graze from 6-8" down to 3-4". Machine harvest at 15-18". Do not mow less than 3". Harvest before winter as tall growth can result in more winter damage.

Item	N	NDF Range % of DM	TTNDFd % of NDF
Green Spirit Italian Ryegrass	***13***	***46 to 56***	***59.5***
Other Grass forage	*448*	*46 to 56*	*48.3*

** Forage samples submitted to Rock River Labs, Watertown, WI in 2012*

TTNDFd suggest Green Spirit has the potential for 3-5# more milk than other grass forage

Green Spirit = High Yields + High Quality

Effect of Green Spirit Italian Ryegrass on the following year's corn silage yield compared to conventional cropping rotations	Tons DM/Acre		2007 Forage Quality Parameters (Average)			
	Yield	Corn Silage Yield	Protein % DM	NDF % DM	NDFd % NDF	lbs milk/ton
Forage Crop 2007 to 2008	2007	2008				
Green Spirit Italian Ryegrass - 25 day cut	9.11	9.1	23.8	45.7	73.3	3370
Green Spirit Italian Ryegrass - 35 day cut	8.69	8.6	22.4	47.4	73.7	3410
Alfalfa	5.02	8.7	24.1	33.2	49.4	3252
Soybean	-	8.6	-	-	-	-
Corn Silage	10.4	7.6	7.0	46.8	53.8	3309
L.S.D. (0.05)	0.1	0.8	0.6	0.8	1.6	59

Effect of Green Spirit Italian Ryegrass on the following year's corn silage yield compared to conventional cropping rotations	Tons DM/Acre		2008 Forage Quality Parameters (Average)			
	Yield	Corn Silage Yield	Protein % DM	NDF % DM	NDFd % NDF	lbs milk/ton
Forage Crop 2008 to 2009	2008	2009				
Green Spirit Italian Ryegrass - 25 day cut	8.12	10.2	21.7	43.9	77.0	3615
Green Spirit Italian Ryegrass - 35 day cut	8.76	10.2	16.9	46.8	71.7	3468
Alfalfa	4.57	9.3	27.2	26.7	59.9	3975
Soybean	3.87	8.8	18.9	36.6	55.4	3597
Corn Silage	10.5	7.8	7.0	48.3	59.9	3249
L.S.D. (0.05)	0.3	0.2	0.4	1.5	1.9	46

Top 5 Conclusions:

BARENBRUG NutriFiber

1. **Green Spirit significantly out-yielded alfalfa, yields approximately 80% of corn silage yields**
2. **Highest yields of corn silage were on ground that was previously planted to Green Spirit, up to 25% higher yields than corn after corn rotation**
3. **Green Spirit had comparable protein levels to alfalfa**
4. **Look at fiber digestibility (NDFd) and Green Spirit, far better than alfalfa or corn silage, exactly what the cow's rumen needs**
5. **Milk per ton of feed, Green Spirit both ties and out yields corn silage in two years of data**

Tall Fescue

Tall fescue is a highly adaptable species which grows well in dry or wet conditions. It is also winter-hardy and persistent. Tall fescue grows early in the spring and has the potential for high dry matter production with nitrogen fertilization.

Some tall fescue varieties can be unpalatable due to rough leaves and high lignin content. Barenbrug's breeding activities have led to a softer leaf, higher yielding varieties with significantly improved palatability and digestibility.

Many varieties contain a harmful fungus called endophyte. This fungus makes the plant less palatable and depresses animal performance and health. In order to ensure good animal health and performance, none of Barenbrug forage varieties contain harmful endophytes. BarOptima Plus E34 only contains beneficial endophytes, no harmful endophytes.

STF-43 BARENBRUG

NutriFiber

World Forage Analysis Superbowl

- Soft leaves & late maturing
- Yields equal to or greater than alfalfa
- High amounts of digestible fiber
- High palatability
- Excellent persistence
- Endophyte-free

STF-43 is an innovative blend of premiere soft-leaf tall fescues which produce impressive yields with high levels of digestible fiber. This blend is the result of Barenbrug's forage analyses program which measures NDF (neutral detergent fiber) and NDFd (NDF digestibility). Barenbrug identified significant differences in the amount of fiber and its digestibility between varieties and formulated STF-43 with the highest amounts of digestible fiber. STF-43 provides energy derived from highly digestible fiber that not only increase productivity but also promotes rumen health. STF-43 is late-maturing, endophyte-free and well suited for hay and haylage production as well as grazing. STF-43 is an excellent choice for interplanting with alfalfa.

Tall Fescue

Seeding rate: 25-30 lbs./acre alone
6-15 lbs./acre in mixes

Seeding depth: 1/4" deep

Preferred soil: Medium to heavy soils

Management: Use 25-30 units of N at seeding, 30-40 units of N after each cutting. Total of 150 units N/acre/year. With alfalfa, use a total of 75 units N/acre/year.
Prefer ammonium sulfate.

Best Use: Silage, baleage, dry hay, pasture

May be planted spring or late summer on a well prepared, firm seedbed. For inter-seeding into established alfalfa, best time is late summer or early fall to reduce competition. Do not mow less than 3" for quicker regrowth.

BarElite Soft-Leaf Tall Fescue

- High forage yield
- Impressive digestibility values
- Late heading, endophyte free variety with higher palatability
- Better rust resistance
- Good for pasture or dry hay production
- Winter hardy
- Component of STF-43 Fescue blend

Tower Tall Fescue

- Broadly adapted with improved tolerance to extreme conditions
- Late maturing variety suitable for intense grazing & hay environments from DLF
- Improved disease resistance (rust & other leaf diseases)
- Maturity helps maintain higher RFQ at harvest

BarOptima PLUS E34

- SAFE, SUSTAINABLE, PROFITABLE
- Healthy reproduction
- Reduced vet costs
- Stress-free pasture management
- Increased intake
- High digestibility
- Late heading
- Increased average daily gains

Top 5 Placing

A soft leaf tall fescue that contains the beneficial endophyte, E34. This revolutionary tall fescue has improved palatability with the soft leaf, all while eliminating toxicity and increased animal productivity. As a soft leaf fescue, BarOptima PLUS E34 contains three highly desirable traits: a high-quality forage, yield, and persistence. BarOptima PLUS E34 is safe, sustainable, and profitable.

Meadow Fescue

Meadow fescue is growing in popularity with farmers both in pasture and in hay mixes. It grows under cool, moist conditions, tolerating wet and sometimes flooded areas. Once established, it also performs well under drier conditions for making hay or silage. In good soils, meadow fescue surpasses perennial ryegrass in summer production. Meadow fescue will typically yield slightly less than tall fescue but has better palatability and fiber digestibility. Meadow fescue does best on fertile soils for optimum performance. Barenbrug has the biggest breeding program for development of meadow fescue in North America.

HDR Meadow Fescue

- Blend of best varieties available
- Excellent disease resistance
- Very dense with great palatability
- Very high yields with excellent digestibility
- Excellent in dairy TMR rations and pastures

HDR Meadow Fescue Blend is the most advanced blend of the best meadow fescues available today. It contains the highly sought after BarVital Meadow Fescue which is by far the highest yielding meadow fescue available; out-yielding other meadow fescues by up to half a ton dry matter yields including Pradel meadow fescue. HDR is the most digestible and high energy forage grass that can be sown in the U.S.

HDR Meadow Fescue is also in the Milkway grass hay mix, Premium Dairy Haylage mix, Dairy Elite and Dairy HP+ pasture mixes.

Pradel Meadow Fescue

- High disease resistance
- Fine leaves
- Highly palatable and digestible
- Late maturing, winter-hardy & high yielding

Meadow Fescue

Seeding rate: 25-30 lbs./acre alone
6-15 lbs./acre in mixes

Seeding depth: 1/4" deep

Preferred soil: Medium to heavy soils, lighter soils with fertility

Management: Use 25-30 units of N at seeding, 30-40 units of N after each cutting. Total of 150 units N/acre/year. With alfalfa, use a total of 75 units N/acre/year. Prefer ammonium sulfate.

Best Use: Silage, baleage, dry hay, pasture

May be planted spring or late summer on a well prepared, firm seedbed. For inter-seeding into established alfalfa, best time is late summer or early fall to reduce competition. Do not mow less than 3" for quicker regrowth.

Orchardgrass

Orchardgrass is valuable on light textured soils due to its outstanding drought-tolerance. Most varieties have good winter-hardiness, although few varieties have superior winter-hardiness. The species is rather slow to establish but persistency is good under hay, silage, and proper grazing. Wide maturities between varieties of up to 10 days, use later maturing varieties with alfalfa for better quality.

Orchardgrass is categorized as a bunch grass. Careful stand management during the first year is essential for long-term productivity. Orchardgrass grows and spreads laterally by creating new shoots called tillers which emanate from the base of the plant forming an ever-wider bunch. To enable the production of a leafy dense stand, the height of the stand during the first year should ideally be maintained in the 4-12 inch range. This allows full sunlight penetration to the plant base which triggers production of the tillers needed for maximum plant growth and spread. Once the seedlings are firmly rooted, graze lightly by calves, or machine mow several times before heavy use. This will promote further tillering and growth. To enhance production in subsequent years, a spring application of 50 lbs/acre of nitrogen is recommended to jump start early growth, followed by periodic applications of 30-40 lbs/acre timed with rainfall or irrigation. In mild winter areas, an early fall application of 50 lbs/acre of nitrogen can extend the harvest period well beyond the normal season. Cold winter survival is enhanced by entering winter with the grass left at a short but still green 4-5 inch height.

HLR Orchardgrass

BARENBRUG

- Intermediate to Late-maturing blend of top varieties
- Quick to establish
- High Yielding
- Exceptional palatability & digestibility
- Outstanding disease resistance

As a blend of intermediate-to-late maturing orchardgrass varieties, HLR's varieties have been selected for high leaf-to-stem ratio, meaning more leaves for improved digestibility and energy, with less stems that reduce the palatability of your pasture. These varieties have been selected for rust and foliar disease tolerance, drought tolerance, and winter hardiness. The intermediate-to-late heading varieties in HLR are ideal for interplanting with alfalfa.

Orchardgrass

Seeding Rate: 10-15 lbs./acre alone
4-6 lbs. mixed with alfalfa

Seeding Depth: Drill 1/8" to 1/4" into a firm seedbed

Preferred Soils: Lighter to medium textured soils

Management: Use 35-40 units N at seeding,
50 units N in early spring
30-40 units N after each cutting

Best Use: Rotational pastures or dry hay mixed with alfalfa

May be planted in spring or late summer. Do not mow less than 3". Harvest before winter as tall growth can result in more winter damage.

Dividend VL Orchardgrass

- One of the latest maturing orchardgrass on the market
- Good potential yield in combination with alfalfa
- Unequalled maturity

Echelon Orchardgrass

- Very late maturing orchardgrass
- Heat tolerant, good fall performer
- Great as hay or pasture
- Good winter hardiness
- High yielding

Bromegrass

The Brome genus is a large family of varied grasses. Brome seed is large seed and care must be taken to prevent seed from bridging in the drill. Smooth bromegrass is a long-lived perennial, sod-forming grass. Meadow bromegrass is a long-lived perennial that is suited for dry land or irrigated pasture. Meadow bromegrass can extend the grazing season as well as increase total forage production. Alaskan or mountain bromes are best suited for dry hay production. Bromegrass require high fertility levels and well-drained soils.

MacBeth Meadow Brome

- Tremendous growth during cool, moist conditions
- Early spring growth, rapid regrowth
- Very palatable with large soft leaves and high yielding
- Works well for hay or pasture
- Excellent winter-hardiness, moderate shade tolerance
- Topped several university trials
- Seeding rate 15-20 lbs/acre, 3-8 lbs/acre in a mix

Hakari Alaska Brome BARENBRUG

- Better resistance to rust, higher in energy, and more palatable than orchardgrass
- Very high yields with soft, broad leaves
- Winter-hardy with excellent disease and drought tolerance
- Great companion with alfalfa for dry hay production
- Faster establishing than smooth brome or orchardgrass, performs best on well drained soils

Smooth Brome

- Long-lived sod forming perennial forage grass
- Does well in a 2 to 3 cut system, very winter-hardy and drought tolerant
- It spreads by seed and rhizomes
- Seeding rate 15-20 lbs./acre, 3-8 lbs/acre in a mix

Hakari Brome

Seeding Rate: 35-40 lbs./acre alone
15 lbs. with 10 lbs. alfalfa for a 50/50 mixed stand

Seeding Depth: Drill 1/8" to 1/4" into a firm seedbed

Preferred Soils: Well drained with high fertility

Management: Use 25-30 units N at seeding, 30-40 units N after each cutting

Best Use: Dry hay mixed with alfalfa

May be planted in spring or late summer. Do not mow less than 3". Harvest before winter as tall growth can result in more winter damage.

Timothy

Palatability and superior winter hardiness are timothy's most important features. It does very well on wet, peaty and heavily textured soils. Timothy tolerates cutting well and is used primarily as a hay crop. Late maturing varieties are better suited for grazing.

Barfleo Timothy

BARENBRUG

- Intermediate maturing timothy
- Excellent spring production
- Improved grazing tolerance
- Persistent, winter-hardy

Barfleo is an intermediate maturing variety with good spring production. It is well suited for dry hay production and has been the leading variety in many university forage trials across the country.

Timothy

Seeding Rate: 10-15 lbs./acre alone
2-4 lbs. mixed with alfalfa

Seeding Depth: Drill 1/8" to 1/4" into a firm seedbed

Preferred Soils: Wet, peaty & heavily textured soils

Management: Use 20-25 units N at seeding

Best Use: Dry hay

May be planted in spring or late summer. Do not mow less than 3". Harvest before winter as tall growth can result in more winter damage.

Tenho Timothy

BARENBRUG

- High yielding
- Medium to late maturity
- Good spring production
- Persistent, winter hardy
- Excellent snow mold resistance

Tenho adds palatability, spring growth, health and winter hardiness to the stand. Tenho is excellent for silage and hay making and also for grazing. Tenho has rapid spring growth and regrowth after cutting or grazing.

Barpenta Timothy

BARENBRUG

- High dry matter yields
- Excellent palatability
- Very late-maturing
- Excellent winter hardiness & grazing tolerance

Barpenta is a very late-heading timothy with high dry matter production. Barpenta is suited for timothy hay producers who like to diversify their acreage with varieties maturing throughout the season.

Kentucky Bluegrass

Kentucky bluegrass is one of the most common species in natural pastures in north central and northeastern parts of the U.S. It is highly palatable, except at the advanced maturity stage. It spreads with rhizomes to form a dense sod and thus is very persistent under heavy grazing. Kentucky bluegrass grows best during cool, moist weather on well-drained fertile soils. Warm summer temperatures are the most limiting environmental factor to Kentucky bluegrass production. Kentucky bluegrasses tend to be early maturing and not as high yielding as other forage grasses. It does however, tolerate close and frequent grazing better than most other cool-season forage grasses. In addition, the dense sod formed by the rhizomes make it an ideal grass for erosion control, particularly in grass waterways.

Barduke Kentucky Bluegrass BARENBRUG

- Extremely quick germination and establishment
- Moderate drought tolerance
- Withstands heavy traffic and close grazing
- Good spring growth

Barduke has very good forage yields and will compete in yield with most forage type Kentucky bluegrass varieties.

Balin Kentucky Bluegrass

- Very quick establishment
- Early maturing
- Good persistence & winter hardiness
- Tall growth for a bluegrass

Balin is a fast establishing, taller bluegrass. Balin is one of the few, true Kentucky bluegrasses on the market.

Kentucky Bluegrass

Seeding Rate: 10-14 lbs./acre alone
5 lbs. mixed with other grasses

Seeding Depth: 1/8" into firm seedbed

Preferred Soils: Medium to heavy soils

Management:
- Best to seed with a legume such as white clover or trefoil
- Use 25 units N in early spring to stimulate earlier growth

Best Use: Pastures

Best planted in late summer due to slower germination. Slower to establish than other forage grasses. Maintain stubble height of 2-4" to promote tillering.

Perennial Ryegrass

Perennial ryegrass is the most widely grown cool season forage grass in the world because of its high quality forage. It is best suited to management intensive rotational grazing systems and for machine harvest as silage or baleage production. Due to its slow rate of dry down, perennial ryegrass is not suited well for dry hay production. In a grazing situation, perennial ryegrass works well mixed with a legume such as Alice White Clover and other similar grasses in palatability such as HDR meadow fescue. Perennial ryegrass prefers medium to heavier soils with good fertility or lighter soils with irrigation.

BG-24T BARENBRUG

- Premium blend of early and intermediate maturities
- Contains both diploids & tetraploids
- High yielding
- Improved disease tolerance & winter hardiness

BG-24T is a unique, innovative blend of early and intermediate maturing diploid and tetraploid perennial ryegrass varieties. Research has shown that under high summer temperatures, intermediate maturing varieties perform better than very late maturing varieties. These new varieties have better disease tolerance and perform better in the extreme environmental conditions

BG-34 BARENBRUG

- Premium blend of mid-to-late maturing diploid varieties
- High yielding
- Rapid establishment, regrowth, & wear tolerance
- High disease resistance and winter hardiness

BG-34 is a blend of the best mid-to-late maturing winter-hardy varieties of perennial ryegrass. BG-34 is the standard of high quality pastures throughout the northern U.S. Dairy farmers report milk production increases of up to 10 pounds of milk per cow per day when feeding BG-34 perennial ryegrass.

Remington BARENBRUG

- Dense, leafy sward with high yields
- Exceptional palatability and nutritive value
- Improved winter survival and summer production
- High disease resistance & persistent

Remington is a high-yielding, high quality tetraploid ryegrass that shares many attributes of a diploid type. Remington was selected for its sward density, high yields, and excellent disease resistance. Remington has improved winter tolerance compared to traditional cultivars.

Great companions with Alice White Clover

Remington PLUS NEA2 BARENBRUG

- High yielding tetraploid ryegrass
- NEA2 beneficial endophyte improves drought tolerance & summer production
- Winter hardy & persistent under grazing
- Dense sward, excellent disease resistance
- Exceptional palatability

Remington NEA2, is a new combination of Barenbrug's proven variety, Remington, with a beneficial endophyte, NEA2. Remington is a high-yielding, high-quality tetraploid ryegrass that shares many attributes of a diploid type. Remington was selected in the U.S. for its sward density, high yields and excellent disease resistance. Remington has improved winter tolerance compared to traditional cultivars. Remington also exhibits improved tolerance to heat and produces longer into the summer than the competition. Remington is well-suited to grazing and high-moisture cutting systems. Its exceptional palatability promotes high dry matter intake in a grazing situation. And, as a perennial ryegrass, Remington provides extremely nutritious and digestible forage. The addition of the NEA2 beneficial endophyte expands Remington's area of adaptation, allowing it to persist in regions where perennial ryegrass typically dies out due to summer stress.

Feed Analysis Report	Dry Matter Basis	Grasses (Silage)	
		60 Day Ave	4 Yr Ave
Crude Protein	*17.48*	*14.42*	*13.70*
ADF	*28.67*	*38.11*	*38.08*
aNDF	*43.9*	*55.04*	*56.6*
Lignin	*3.10*	*6.78*	*4.97*
Sugar (ESC)	*5.06*	*4.66*	*5.27*
NDFD 24 %NDF	*32.64*	*24.57*	*31.04*
NDFD 30 % NDF	*44.56*	*31.94*	*37.93*
NDFD 48, % NDF	*72.46*	*51.68*	*54.54*
TTNDFd, % NDF	*62.32*	*43.52*	*45.25*
Milk/Ton, lb	*3315*		

TTNDFd numbers suggest 6-10 lbs. more milk in the Dairy HP+ w/Remington Plus NEA2

Perennial Ryegrass

Seeding rate: 30-40 lbs./acre alone
5-10 lbs./acre in mixes

Seeding depth: 1/8" to 1/4" deep

Preferred soil: Medium to heavy soils or lighter soils with irrigation and high fertility

Management: Use 30-35 units of N at seeding, 30-40 units of N after each cutting, 40-50 units of N early spring for quick growth

Best Use: Pasture, silage or baleage

May be planted spring or late summer. For optimal production, maintain pasture in a vegetative state. Graze from 6-8" down to 2" on 1st grazing in spring to promote tillering, Later grazings, especially during the summer, leave 3" stubble. Machine harvest at 12-15". Do not mow less than 3". Harvest before winter as tall growth can result in more winter damage.

Birdsfoot Trefoil (BFT)

Birdsfoot trefoil is a non-bloating perennial legume that can be used in both pastures and hay production. BFT is well adapted to low pH soils and poorly drained (but not flooded) soils and grows well where alfalfa does poorly. BFT requires high management to reach its full potential which includes leaving at least a 4" stubble height and allowing 40-45 days rest between cuttings. Slow to establish but can be planted in early spring or fall. Seed needs to be inoculated before seeding.

Seeding rate is 8-10 lbs./acre and 2-8 lbs. in a mix.

Forbs

Forb Feast Chicory BARENBRUG

- high quality, reduced bolting chicory blend
- impressive leafiness, high feed value
- excellent source of digestible energy, protein (up to 30%), and minerals
- anti-parasitic properties for small ruminants
- deep taproot lends persistence & production in extreme heat and moisture stress
- Main usage is for pastures and wildlife
- Seeding rate 1-2 lbs/acre

Reeds Canarygrass

(Low Alkaloid)

Reeds Canarygrass is a tall sod forming grass that exhibits great tolerance to wet and flooded conditions as well as excellent drought tolerance. It is of medium palatability and can quickly drop in forage quality as it matures. Improved varieties are low in alkaloids, which improves forage quality and intake. Reeds canarygrass can spread by rhizomes and requires good management to keep it from spreading. Reeds canarygrass generally requires about 40 lbs./acre of nitrogen per ton of forage. Very slow to establish and is generally seeded with other forages to reduce weed pressure. In some states, it can be considered an invasive species and therefore we cannot sell reeds canarygrass in those states.

Seeding rate is 8-12 lbs./acre alone or 2-4 lbs/acre in a mix.

Your farm tells a story.
How will the next chapter begin?

Festulolium

Festuloliums are derived from a cross between either Italian or perennial ryegrass with meadow fescue or tall fescue. Festulolium has the nutritive, palatability, and digestive qualities of ryegrass, while maintaining the durability and drought resistance of meadow fescue. Festuloliums display strong persistence for approximately 3 years, disease resistance and winter hardiness and have season-long productivity and high forage quality.

Festulolium

Seeding rate: 25-30 lbs./acre pure seeding
5-20 lbs./acre in mixes
2-3 lbs./acre as nurse crop

Seeding depth: 1/8" to 1/4" deep

Preferred soil: Medium to heavy soils

Management: Use 20-30 units of N at seeding, 30-40 units of N after each cutting

Best Use: Pasture, silage or baleage

May be planted spring or late summer. Do not mow less than 3". Harvest before winter as tall growth can result in more winter damage.

Perseus

- Meadow fescue x Italian ryegrass cross
- Well suited for intermediate and late cutting
- Vigorous spring growth with rapid regrowth after harvest
- Works well during tough weather conditions

Annual Ryegrass

Annual ryegrass is quick establishing and capable of producing high forage yields in a short period of time. It is a very competitive winter annual cool-season grass that works well as a cover crop, forage and erosion control.

Coldsnap

- Excellent for scavenging nutrients & holding them for the following crop
- Known for its dense root structure for added compaction relief
- Provides a uniform stand maturity for easier spring control
- Slower to mature than cereal rye and other cereal grains
- Coldsnap has been screened and selected for cover crop use
- Superior winter-hardiness when compared to other annual ryegrasses

Winterhawk

- Diploid annual ryegrass
- Above average disease resistance to crown rust and gray leaf spot
- Extremely winter-hardy
- Led the Ohio State University trials in yield and winter hardiness
- Consider supplemental nitrogen (N) if used for feed

Annual Ryegrass

Seeding rate: 30-40 lbs./acre for forage
12-18 lbs./acre as a cover crop

Seeding depth: 1/8" to 1/4" deep

Preferred soil: Well to moderately drained soils with medium to high fertility

Management: For control as a cover crop, see our cover crop guide
For forage, apply 30-40 units N in spring

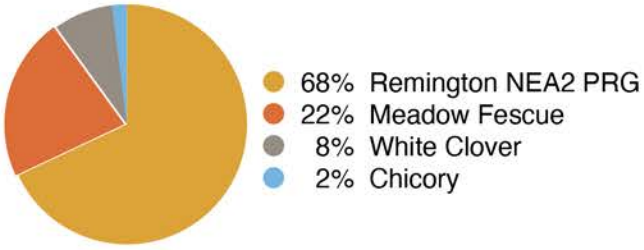
Best Use: Cover crop, early pasture or silage

Do not plant a blend or an early maturing variety as a cover crop, too tough to control. Plant at least 3-10 weeks prior to 1st killing frost.

Pasture Mixes*

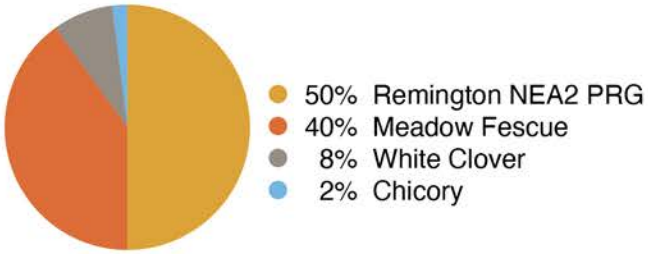
Dairy HP+

- Contains the best varieties of perennial ryegrass, meadow fescue, white clover, and chicory
- One of our top dairy pasture mixes to maintain high milk production with high components
- best performance is on medium to heavy soils with high fertility or on lighter soils with irrigation
- highly palatable and lush, dense sward contribute to high dry matter intakes
- Seeding rate 30 lbs./acre



Dairy Elite

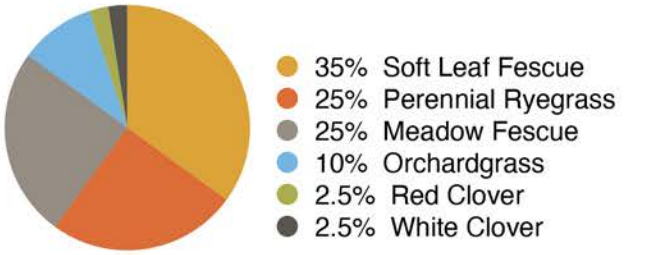
- Similar mixture to the Dairy HP+ above
- Best on medium to heavier soils
- Higher amount of meadow fescue to maintain summer production
- Seeding rate 30 lbs/acre



Dairymaster

BARENBRUG

- High dry matter production
- tolerates drier soils than the Dairy HP+
- High fiber digestibility & nutritive value
- Contains BarOptima PLUS E34 & Remington NEA2
- Seeding rate 25-30 lbs./acre

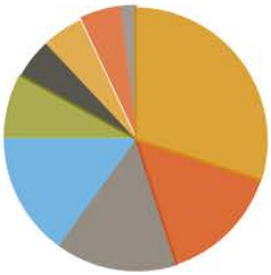


* *Actual percentages may vary slightly due to availability*

Dairy HP+

High Diversity Pasture Mix

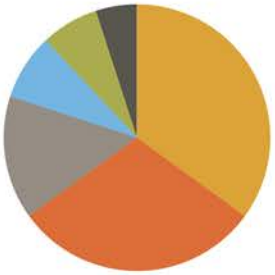
- A highly diverse pasture mix
- Consistent flavor in grassfed beef & dairy products
- Great digestibility and palatability
- Best on medium to heavy soils
- Seeding rate 25-30 lbs./acre



- 30% Meadow Fescue
- 15% Perennial Ryegrass
- 15% Festulolium
- 15% Orchardgrass
- 8% Red Clover
- 5% White Clover
- 5% Birdsfoot Trefoil
- 5% Alfalfa
- 2% Chicory

Highland Pasture Mix

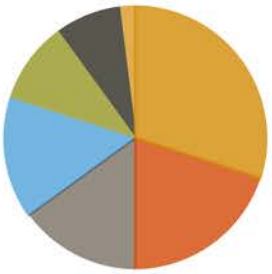
- A pasture mix of improved forages designed for medium to lighter, drier soils
- High yields of highly digestible forages, high NDFd
- Seeding rate 25-30 lbs./acre



- 35% Orchardgrass
- 30% Soft Leaf Fescue
- 15% Grazing Tolerant Alfalfa
- 8% Meadow Fescue
- 7% Festulolium
- 5% White Clover

Lowland Pasture Mix

- A pasture mix of improved forages designed for heavier, wetter soils
- High yields of highly digestible forages, high NDFd
- Good for medium to heavier soils with good fertility and proper drainage
- Quick establishment
- Seeding rate 25-30 lbs./acre



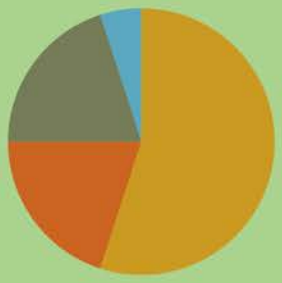
- 30% Perennial Ryegrass
- 20% Soft Leaf Fescue
- 15% Meadow Fescue
- 15% Festulolium
- 10% Orchardgrass
- 8% White Clover
- 2% Chicory

** Actual percentages may vary slightly due to availability*

Beefmaster

BARENBRUG

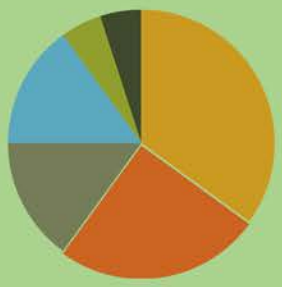
- Rapid establishment, exceptional yields.
- High dry matter intake - Rapid weight gains
- Premium forage varieties of highly digestible soft leaf tall fescues, perennial ryegrass, late maturing orchardgrass and white clover
- formulated for raising stockers, beef cows and calves
- Seeding rate 25-30 lbs./acre



- 55% Soft Leaf Fescue
- 20% Perennial Ryegrass
- 20% Orchardgrass
- 5% White Clover

Quick-2-Grow Pasture Mix

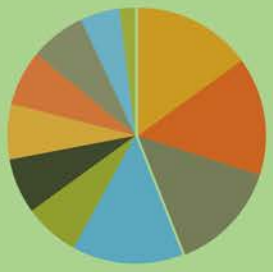
- An improved mixture of short term grasses and clovers
- Fast establishing, great to thicken thin pastures, ideal for early spring pasture
- Short term 3 year pasture mix
- Good for medium to heavier soils with good fertility and proper drainage
- Seeding rate 30-35 lbs./acre



- 35% Festulolium
- 25% Orchardgrass
- 15% Meadow Fescue
- 15% Italian Ryegrass
- 5% Red Clover
- 5% White Clover

Grassfed Pasture Mix

- A premium high powered diverse pasture mix to maximize weight gain in beef & dairy stockers
- High yields of highly digestible forages, high NDFd
- Works on a wide range of soil types with good fertility and proper drainage
- Diversity allows the opportunity for better stand establishment and a more persistent stand life
- Diversity of plants lends itself well to grassfed beef and dairy where consistency of flavor is valued
- Seeding rate 25-30 lbs./acre

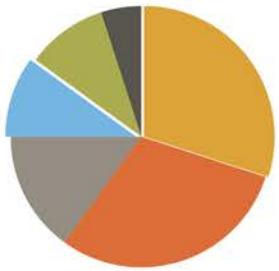


- 15% Soft Leaf Fescue
- 15% Perennial Ryegrass
- 14% Meadow Fescue
- 14% Brome
- 7% Orchardgrass
- 7% Italian Ryegrass
- 7% Alfalfa
- 7% Red Clover
- 7% Birdsfoot Trefoil
- 5% White Clover
- 2% Chicory

** Actual percentages may vary slightly due to availability*

Waterway Mix

- A blend designed to provide erosion control and the possibility for hay production
- Sod forming grasses, not clumpy grasses
- Works on varying soil types
- Seeding rate 30-40 lbs./acre



- 30% Tall Fescue
- 30% Smooth Brome
- 15% Perennial Ryegrass
- 10% Annual Ryegrass
- 10% Timothy
- 5% Kentucky Bluegrass

Stockman's Mix

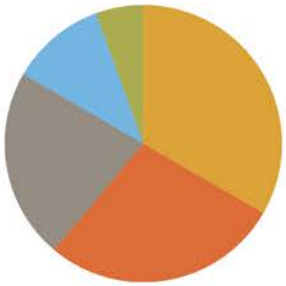
- A mixture of improved soft leaf tall fescue, orchardgrass, and perennial ryegrass.
- Multi-purpose forage mix for cattle, sheep, goats, alpacas and horses
- Adapted to a broad range of soil types
- Persistent, rapid establishment
- Great with legumes, not suitable for dry hay
- Seeding rate 25-30 lbs./acre

- 50% Soft Leaf Fescue
- 30% Perennial Ryegrass
- 20% Orchardgrass

Horsemaster

BARENBRUG

- Rapid establishment, dense sward
- Low growing point, tolerates traffic and grazing pressure
- Excellent source of digestible fiber
- High dry matter production
- Guaranteed endophyte-free
- Seeding rate 25-30 lbs./acre



- 40% Soft Leaf Fescue
- 25% Timothy
- 20% Orchardgrass
- 10% Perennial Ryegrass
- 5% Kentucky Bluegrass

** Actual percentage may vary slightly due to availability*

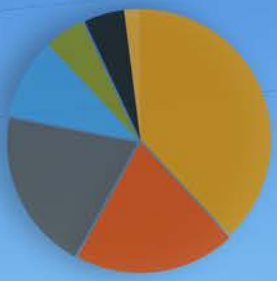
Browsemaster BARENBRUG

- Great grazing mixture for goats
- Early spring growth, fast re-growth
- Excellent for over-seeding pastures
- Coated with Yellow Jacket seed coating for quick germination & establishment
- Seeding rate 20-25 lbs./acre

** Actual percentage may vary slightly due to availability*

Shepherd's Pasture Mix

- A mixture of grasses and clover selected for tolerance to close grazing and lots of traffic
- For sheep, cattle, horses and goats
- Good for hay or pasture
- Good for all soils with good fertility and proper drainage
- Seeding rate 25-30 lbs./acre



** Actual percentage may vary slightly due to availability*

BMR Grazing Corn

MC-MasterGraze BMR

- Top forage quality
- Consistent tonnage in a short period of time, due to tillering properties
- Best results planting with a corn planter, using a grain drill is not recommended
- Harvest as haylage, baleage or graze by early tassle

MasterGraze is a BMR corn that produces top quality forage in as little as 60 days. Yields can be as high as 3 to 5 ton of high quality BMR forage. MasterGraze needs to be treated as a haylage crop that is cut and allowed to wilt before chopping or baling as baleage. MasterGraze can also be grazed. Regrowth is poor. Need to have weeds controlled before planting through the V4 stage to reduce competition and maintain forage quality. Plant at 35,000 - 40,000 population.

Summer Annuals

Forage Characteristics:

Brachytic Dwarf: Four dwarfing genes in sorghum control height. These Brachytic dwarfism genes reduce the length of the internodes without affecting other plant characteristics, such as leaf number, leaf size, maturity or yield/biomass production. Brachytic dwarf sorghums have very high leaf-to-stalk ratios, prolific tillering, superior standability, and comparable tonnage to normal height sorghums.

BMR-6: BMR-6 sorghums have less lignin than conventional sorghums and are extremely palatable. The high digestibility rivals corn silage as the choice for improved animal performance.

Male Sterile: Male sterile sorghums produce no anthers and thus no pollen for self-fertilization. If no pollen source is nearby to cross pollinate, then male sterile plants will produce no grain. Levels of sugars and protein increase in vegetative portions of the plant generating excellent forage quality and palatability. When combined with the BMR-6 trait, male sterile forage sorghums will have higher energy content than other hybrids with grain.

Dry Stalk: Dry stalk hybrids allow growers to ensile or bale at reduced moisture levels with less opportunity for spoilage. When harvested at the soft dough stage, dry stalk sorghums have approximately 64-69% moisture content. Dry stalk sudangrass hybrids can be stored much sooner as baleage or haylage than non-dry stalk types and can be harvested as hay.

Photoperiod Sensitive (PS) Sorghums: PS sorghums have a wide window for harvest. The PS sorghums initiate flowering in response to day length and will remain vegetative from mid-March through September, adding new leaves and maintaining very high quality forage. The flexible harvest window of PS sorghum helps growers manage weather or custom harvest scheduling.

EMPYR™ PREMIER FORAGES

The best of the best. EMPYR Premier forages are Alta's top-of-the-line, carefully selected hybrids to consistently outperform and outproduce others in their class in field and in feed.

These forages offer high yield, excellent standability and strong performance even in extreme environments.

Seed Treatments

Vertix CORE Seed Treatment is the standard treatment applied to Alta Seed products. It controls a variety of diseases including seed rots like *Aspergillus spp.* and seedling blights such as *Fusarium spp.* and *Rhizoctonia solani.*

Vertix SELECT Seed Treatment builds on the Vertix CORE by adding flurazole as a safener to allow pre-emergent Group 15 herbicides to be safely applied without damaging the seed.

Industry-leading protection against seed- and soil-borne diseases and early-season insects.

aphix™ SCA Tolerance

The best-in-class option for combating pressure from sugarcane aphids.

Forage Sorghum

Forage sorghums are generally taller, produce more leaves, and are later maturing than typical grain sorghum hybrids. Forage sorghums can produce very high biomass yields, but have limited re-growth potential making them excellent choices for single-cut silage and standing green chop production uses. For optimum forage with grain, harvest should begin when 80% or more of heading has occurred and 50% of the grain reaches the soft dough stage.
Seeding rate: 5 to 7 lbs/acre, drilled 1" to 1-1/2" deep.

ADV AF7232

- Medium - Early Brachytic Dwarf
- Great yield for maturity
- Harvest 95-100 days after emergence
- Brachytic dwarf genetics provide stout stalks for excellent standability
- Exceptional digestibility from **BMR-6**
- Excellent silage choice

ADV AF8322

- Medium season silage with grain
- Harvest 100 days to soft dough
- Sugarcane aphid high tolerance
- Standard non-BMR
- Excellent yield, standability and silage choice

AF7201

- Medium - Early silage with grain
- Harvest 90-95 days after emergence
- Great on dryland or limited irrigation
- Dry stalk for quick dry down
- **BMR-6** provides excellent nutrition

AF7401

- All-Star full season silage with grain
- High yielding performance
- Harvest 110-115 days after emergence
- **BMR-6** for superior forage quality
- Brachytic dwarf genetics provide stout stalks for excellent standability
- Economical performance and efficiency

AF8301

- Medium non-BMR silage with grain
- Harvest 100 days after emergence
- Tremendous drought tolerance and yield potential
- Good nutritional quality for standard midrib hybrid
- Excellent plant uniformity
- Not recommended north of I-80

Sorghum x Sudangrass

Sorghum x sudangrass hybrids characteristically reach heights over six feet, have smaller stalks than forage sorghum, strong tillering, and produce more tonnage than sudangrass. They have excellent regrowth potential, but less than sudangrass. The regrowth ability of sorghum x sudangrass hybrids make them well suited for multiple harvest systems. Recommended seeding rate is 30 to 40 lbs. per acre, drilled 1" deep into soil temperatures > 60 degrees.

AS5201

- Medium maturity (standard non-BMR)
- 65 days to boot stage
- Ideal for dryland or limited irrigation production
- Thin stemmed plant type
- Versatile crop usage for hay, silage and grazing

AS6201

- Medium-Early maturity
- 60 days to boot stage
- Economically priced BMR-6
- Exceptional drought tolerance
- Excellent regrowth for multiple quality cuts

AS6401

- Late maturity, BMR-6
- North 65/South 100 days to boot stage
- Versatile hybrid for hay, silage or grazing
- Highly disease resistant
- Superior forage quality with high palatability and forage fiber digestibility

AS6501

- Late maturity
- Varied days to boot stage
- Excellent regrowth after harvest
- Exceptional drought tolerance
- BMR-6 provides high-quality nutrition

AS6402

- Late maturity
- 70 days to boot stage
- Brachytic dwarf characteristic provides high leaf-to-stem ratio
- Superior standability and excellent regrowth
- Superb tonnage under multiple harvest systems
- BMR-6 provides high-quality nutrition

ADVS6504

- Photoperiod sensitive
- Extended harvest window
- High sugar content, varied days to boot stage
- Excellent regrowth after harvest
- Exceptional drought tolerance
- BMR-6 provides high-quality nutrition

Dense Tonnage BMR BD

- Late maturity
- Varied days to boot stage
- Excellent regrowth after harvest
- Exceptional drought tolerance
- BMR-6 provides high-quality nutrition

Sweet Six BMR Dry Stalk

- BMR-6 gene
- Fine stemmed, highly palatable
- Available in conventional or organic
- Dry stalk gene for reduced plant moisture

Sudangrass

Sudangrass has finer stalks, more tillers, and produces more leaves than typical forage sorghum. It possesses excellent regrowth with quick recovery following cutting or grazing. Total biomass tonnage for a single harvest generally will be less than yields of forage sorghum. Sudangrass is primarily utilized for grazing and hay production and can serve as an excellent cover crop. Recommended seeding rate is 25 to 50 lbs./acre, drilled 1"-2" deep after soil temperatures are > 60 degrees. Heavier rate if trying to dry for dry hay (stem diameter is smaller on thicker seeded crops).

AS9301

- Medium maturity
- 60 days to boot stage
- Dry stalk for quick dry down
- Excellent regrowth after harvest
- Exceptional drought tolerance
- Available in organic and conventional
- BMR-6 for high digestibility

AS9302

- Medium maturity
- 55-65 days to boot stage
- Dry stalk for quick dry down
- Brachytic dwarf trait provides stout stalks for excellent standability
- Excellent for dry hay and rotational grazing
- Exceptional regrowth and BMR-6 for high digestibility

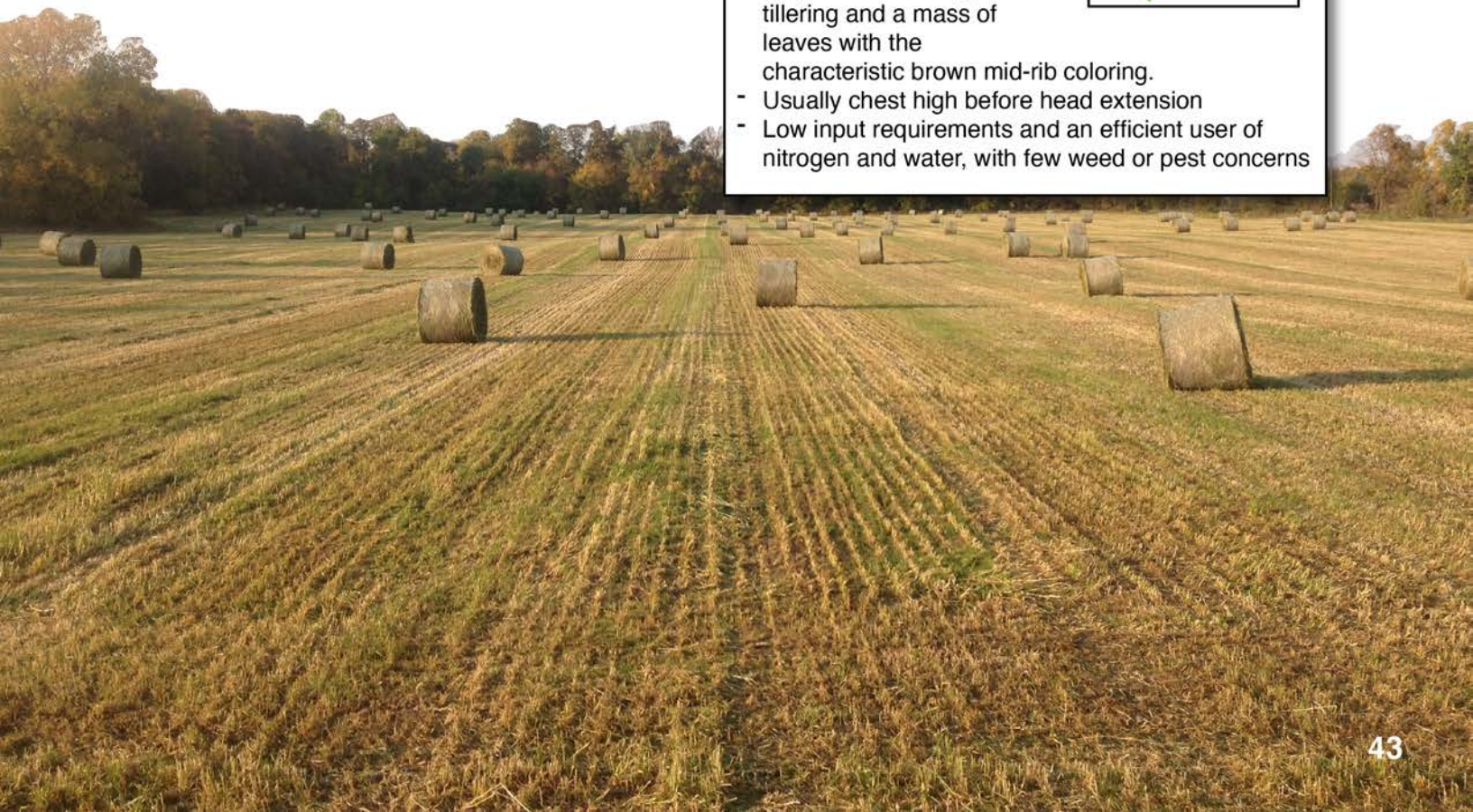
Harvest tips:

For the best quality and yield under a multi-cut program, harvest sorghum x sudangrass or sudangrass at 40 days or 40" of growth. Open the swather for a wide windrow to promote faster drying. Due to the compressed internode lengths, mechanical harvesters should be set to leave 2 nodes or 4" of stubble for Brachytics or 6" of stubble for non-Brachytics, whichever is higher. Harvesting at this height will promote more rapid regrowth. At the latest, harvest when 50% of the plants have reached the flag leaf stage for a one cut program.

For graziers, begin grazing Brachytic dwarf sorghum-sudangrass and sudangrass at about 18" of growth (24" for non-Brachytics), and stop when height is reduced to 6" to promote regrowth.

HayKing II

- Hi-Gest® BMR-12
- A fast growing hybrid with very fine stems, aggressive tillering and a mass of leaves with the characteristic brown mid-rib coloring.
- Usually chest high before head extension
- Low input requirements and an efficient user of nitrogen and water, with few weed or pest concerns



	Sorghum x Sudangrass						Sudangrass		Millet
Characteristics	**5201**	**6201**	**6401**	**6402**	**6501**	**6504**	**9301**	**9302**	**Wonderleaf**
Days to Boot Stage	65	60	65-100	70	Varies	Varies	60	55-65	62
Approx. Seeds/lb. (1,000) (check bag)	15-17	15-17	14-16	14-16	13-15	13-15	21-24	22-25	80-110
Yield for Maturity	1	3	1	1	2	1	1	1	2
Forage Quality Potentiial	4	1	1	1	1	1	1	1	4
Palatability	4	1	1	1	1	1	1	1	4
Digestibility	4	1	1	1	1	1	1	1	4
Seedling Vigor	2	3	3	3	4	3	1	2	2
Recovery after Cutting	1	1	1	1	1	2	1	1	1
Plant Uniformity	3	4	3	3	3	1	2	1	3
Standability	1	4	3	1	3	1	3	1	5
Downy Mildew	4	4	2	3	3	2	3	4	-
Anthracnose	4	4	2	3	6	2	3	4	-
Fusarium Wilt	4	4	2	3	6	4	-	-	-
Crop Use	1 = Excellent, 10 = Poor								
Silage	3	3	1	2	4	3	2	2	1
Dry Hay (Not recommended in the Midwest)	1	1	1	1	1	1	1	1	1
Rotational Grazing	1	1	1	1	1	1	1	1	1
Field Positioning	HS=High Suitability, S=Suitable, MA=Manage Appropriately, X=Poor								
Tough Dryland	HS	S	MA	S	S	S	MA	MA	HS
High Yield Dryland	S	S	S	HS	HS	HS	HS	HS	HS
Irrigation	S	S	S	HS	S	HS	HS	HS	S
No-Till	S	S	S	S	S	HS	MA	MA	S
Poorly Drained Soils	S	S	S	S	S	S	S	S	S
Anthracnose Prone Area	MA	MA	HS	S	X	HS	MA	MA	-
Fusarium Prone Area	MA	MA	HS	S	X	S	X	X	-

Teff Grass

Teff grass is a summer annual forage for livestock and commercial hay producers who need a fast growing, high yielding crop with competitive forage quality. Teff is planted in late spring when soil temperatures are greater than 60 degrees F with multiple harvests during the hot summer months. Teff germinates quickly and is usually ready for first harvest at the early boot stage in about 45 days. Teff is the easiest summer annual to make into dry hay. Very soft, palatable hay. Recommended seeding rate for new stand is 8-12 lbs. per acre, 6 lbs. per acre if inter-seeding into thin alfalfa stand. Seeding depth is 1/8" because Teff is very small seed, smaller than timothy.

Moxie

- High palatability & high yields
- Drought tolerant
- Wide adaption
- Coated with Yellow Jacket seed coating for quick germination and emergence
- No nitrate or prussic acid issues

Reprieve® XL

- Superior quality - Ideal for horses & most livestock
- Quick growth with excellent tonnage potential
- Well adapted to dry climates
- No prussic acid concerns

Pearl Millet

Pearl Millet has the highest yield potential among millets because of its hybrid heterosis. Pearl millet does best on sandy, well drained soils and does not like heavy clay or wet soils. Because millet has no prussic acid potential, it is preferred under grazing conditions where prussic acid is a concern. Millets, like any plants, can still accumulate nitrates and should be tested if high nitrates are a potential concern. Pearl millet is safe for horses.
Recommended seeding rates is 20 to 25 lbs. per acre.

Wonderleaf

- Bush type hybrid with high yield potential
- Tall, upright and heavy tillering
- Excellent for warm season pasture or hay
- Widely adapted to many diverse geographic regions
- No prussic acid concerns

PM Hercules BMR BD

- Increased leaf-to-stem ratio with a brachytic dwarf plant structure
- Improved standability
- Adapts to heavier grazing pressure
- Rapid regrowth and regrowth after cutting
- Excellent disease resistance
- BMR-6: improved palatability, feed intake, digestibility and animal utilization
- No prussic acid concerns

Summer Forage Mixtures

High & Mighty Forage Mix

- A one cut, annual forage mix using BMR-6 forages
- Harvest in 70-100 days before heading out
- High forage yield requires wide swath to wilt
- Seeding rate 20 lbs./acre, drilled 1/2" to 1" deep when soils are 60 degrees or warmer

- 75% PPS BMR SxS
- 25% BMR Forage Sorghum

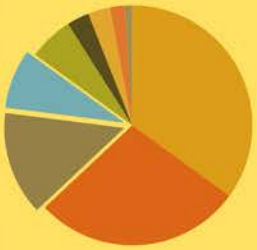
Summer Pro Forage Mix

- Harvest in 40-55 days before SxS heads out
- Excellent after wheat harvest or other small grains
- High yielding annual crop for silage or baleage
- Seeding rate 100-125 lbs./acre, drilled 1/2" to 1" deep when soils are 60 degrees or warmer

- 70% VNS Soybeans
- 20% BMR SxS
- 10% Cowpeas

Summer Grazing Mix

- Maximizes solar energy collection due to various leaf sizes and shapes
- Diverse root types & depths quickly build organic matter, provides forage during summer slump
- Flowers attract beneficial insects
- Graze with cattle at 36", use high stocking density, graze only 50% to allow quicker regrowth
- Seeding rate 35 lbs./acre, drilled 1/2" to 3/4" deep when soils are 60 degrees or warmer



- 35% BMR SxS
- 28% Cowpeas
- 14% Mung Beans
- 8% Hybrid Pearl Millet
- 6% Buckwheat
- 3% Annual Sweetclover
- 3% Sunn Hemp
- 2% Sunflowers
- 1% T-Raptor Hybrid

Northern Summer Forage Mix

- Great seeded alone or inter-seeded into a thin alfalfa stand
- Best performance in northern IN, northern OH, MI
- Can be grazed when >18" tall or mechanically harvested for silage or baleage at 40 days, then every 30-40 days thereafter
- Leave 4" residue for quicker regrowth
- Seeding rate 35-40 lbs./acre, drilled 1/2" to 3/4" deep when soils are 60 degrees or warmer

- 55% BMR SxS
- 30% Italian Ryegrass
- 5% Berseem Clover
- 5% Medium Red Clover
- 5% Hairy Vetch

Oats

Laker Forage Oats

- Newest release of a true forage oat in 2018
- 6 days earlier than Forage Plus oats
- 4 inches shorter than Forage Plus to aid in standability
- very high yields comparable to any current forage oat on the market
- Tall, late maturing oat matches maturity well with Arvika forage peas
- Used as a nurse crop or stand alone forage in 50-60 days
- Recommended for spring or fall planting
- High forage quality, similar to Forage Plus in terms of Relative Feed Quality (RFQ) and Crude Protein (CP%)

Haywire Forage Oats

- High yielding, high quality forage oat
- About 58 days to boot stage
- Excellent standability
- Lead 2014 Pennsylvania trial in forage quality

EverLeaf 126 Forage Oats

- True forage spring oat
- Taller and much leafier than other varieties
- Produces high levels of forage dry matter
- Very late maturing
- Extended harvest window
- Prefer fertile soils with adequate moisture
- Not prone to lodging
- Seeding rate 80 - 100 lbs. per acre, 1.5" to 2" deep

Cosaque Black Winter Oats

- Great yield, can match cereal rye yields
- Great for breaking up disease cycles
- Works well for forage, cover crop or biomass
- Cold tolerant

Oats

Seeding Rate: 100 lbs./acre for forage
64 lbs./acre for grain
32 lbs./acre for cover

Seeding Depth: 1/2" deep

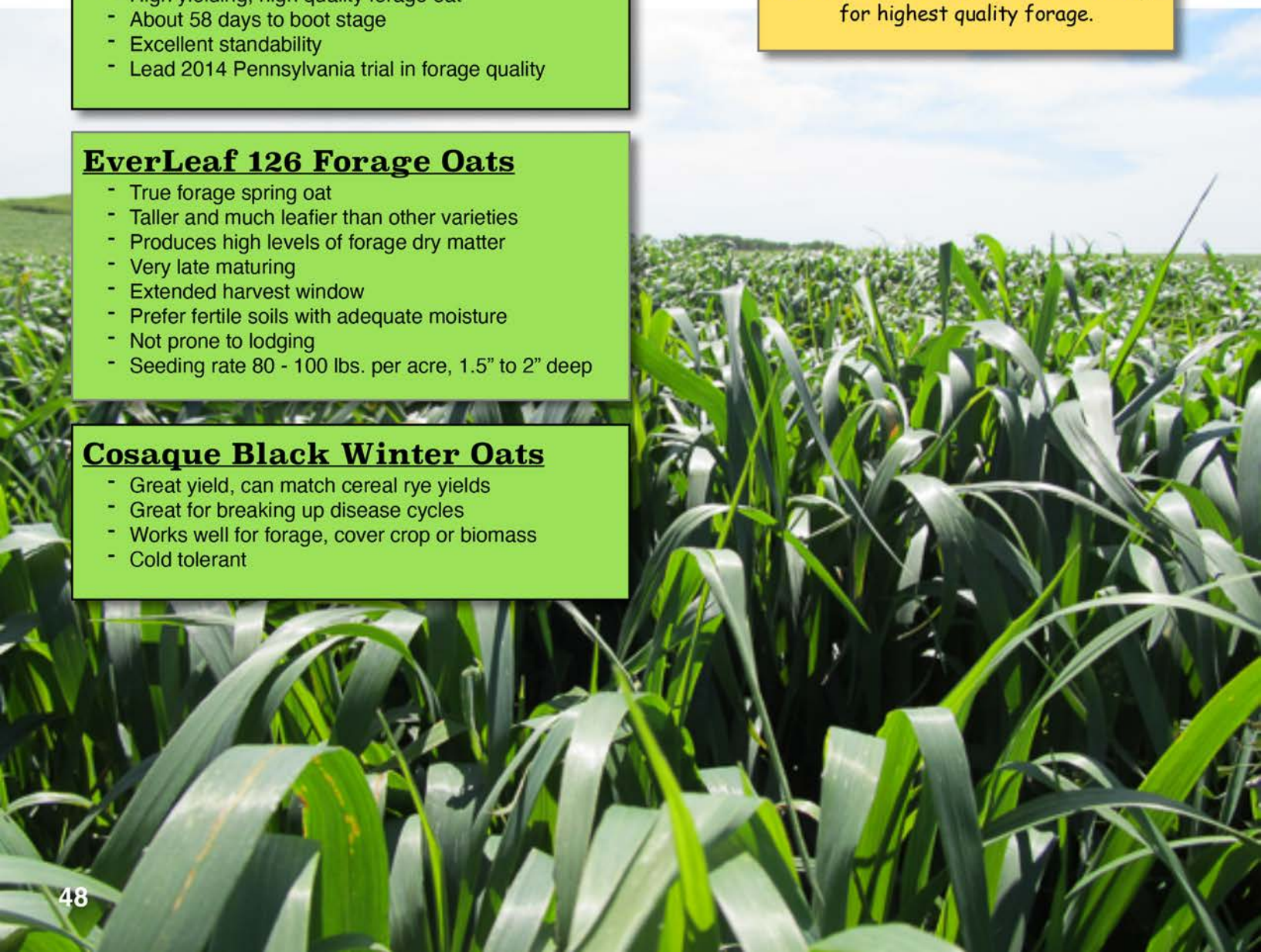
Preferred Soils: Wide range of soils

Best Use: Grain, forage, or cover crop

Management:

Best planted in early spring (March - early April) or late summer (late July through early August).

Harvest in 55-60 days at late boot stage for highest quality forage.



Jerry Oats

- Dual purpose grain/forage oat
- Great as a cover crop
- Great as a fall forage crop planted in early Aug.
- Good lodging resistance
- Good yields and straw production
- Available in conventional or organic

Esker Oats

- Mid-season oat which has consistently high grain yields
- Crown resistance is good
- Stem Rust is excellent
- Plant height about 33 inches and test weight of 37.5 lbs./bu.

Reins Oats

- Moderately early grain oat
- High yield potential with great test weight
- Uniform plant characteristics and disease resistance
- Great lodging resistance
- Moderately short plant height
- Good tolerance to barley yellow dwarf and loose smut

Ron Oats

- Mid-Late season maturity grain oat
- Heads about 3 days later than Esker with similar test weights
- High average grain yield, high percent protein, high oil content
- Excellent resistance to crown rust, good tolerance to BYDV

Robust Spring Barley

- Six row malting barley
- High yielding
- Semi-smooth awns
- Drought tolerant

Barley

- Planting dates are early spring or late summer
- Seeding rate: 125 - 150 lbs/acre
- Seeding depth: 3/4" to 1", use large box

Valor Winter Barley

- Six-rowed, short awned barley
- Excellent winter-hardiness, disease resistance
- High quality, high yielding forage
- Winter barley needs to be seeded early fall
- Early to mature in spring, about 2 weeks before wheat for grain, similar to cereal rye

Sungold Ultra Max Spelt

- 2-3 days earlier than Champ, 2-3" shorter
- Medium brown chaff
- Better yielder and standability than Sungold
- Well adapted to Midwest growing conditions
- Excellent yield and straw

Spelt

- Planting dates similar to winter wheat
- Seeding rate 125 lbs/acre
- Seeding depth: 1" to 1-1/2" deep

Maverick Spelt

- Food grade, excellent for baking
- Tall with good standability
- White chaff, dehulls very easily
- Much improved winter survival and test weight over other varieties

Triticale

Triticale (trit-ah-KAY-lee) is a hybrid cross of wheat and rye developed in the late 19th century in Europe. A hybrid of wheat and rye, triticale combines the beneficial properties of wheat - - high yield potential, good grain quality, and disease resistance - - with the beneficial properties of rye - - harsh climate tolerance, and low requirements for soil fertility. Since its development triticale has been utilized for its high quality feed potential both as a grain crop and as a forage crop. High in digestible fiber.

Trical 2700 Spring Triticale

- widely adapted spring triticale for grazing, silage, and boot stage hay
- Outstanding digestibility (IVTD), crude protein content
- can be used as a nurse crop with alfalfa due to a stall phase in the growth pattern to not overshadow the under-seeded crop
- superior tolerance to disease, lagoon water, and can withstand tough early season growing conditions
- can be planted alone or matches very well maturity wise with Arvika forage peas to increase palatability and protein levels

Trical Surge Spring Triticale

- used in the spring
- for silage, grazing, and hay
- similar to Trical 2700, but fully awnless and higher yielding
- late maturity, high silage yield with good quality

Spring Triticale

Seeding Rate: 100-120 lbs./acre alone
50-60 lbs. in a mix

Seeding Depth: 1.25-1.5" into firm seedbed

Preferred Soils: Well drained with high fertility

Management: 110-160 lbs. of N at planting

Best Use: Silage or baleage

Best planted in early spring (late March - early April) or late summer (early August). Harvest in 55-60 days at flag leaf for highest quality.

Forerunner Winter Triticale

- awnless forage variety
- excellent for silage, hay or grazing
- broad, long leaves with very good leaf-to-stem ratio
- soft stems, highly palatable

Nitrous Winter Triticale

- Improved winter hardiness with outstanding forage yield with a greater leaf:stem ratio
- Reduced awns for greater palatability
- Strong Fusarium resistance

LA CROSSE SEED

Winter Triticale

Seeding Rate: 100-125 lbs./acre alone
70-75 lbs. in a mix

Seeding Depth: 1.5" deep

Preferred Soils: Well drained soils with high fertility

Management: 20 lbs. N at planting
100-110 lbs. N in early spring

Best Use: Silage or baleage

Best planted in late Aug. through Sept.
Harvest early May at flag leaf for highest quality.

Trical 815 Winter Triticale

- awned variety, very high leaf-to-stem ratio
- dense canopy of long leaves
- excellent in double cropping system with corn silage
- will extract and assimilate large amounts of nitrogen and phosphorus making it an excellent tool for managing dairy waste products
- our #1 selling winter triticale variety

Trical Gainer 154 Winter Triticale

- early maturity, awned variety
- short plant height, good straw length
- excellent leaf-to-stem ratio
- very good winter hardiness, good fall seedling vigor
- tolerant to rust, prostrate fall growth habit
- high silage yields, good silage quality
- expected to replace Trical 815 as #1 variety

Cereal Rye

KWS Propower Hybrid Rye

- Dedicated hybrid for forage - new benchmark for yield, very high tillering, very vigorous growth
- Silage yields (20+ wet tons/acre)
- Shorter maturity than wheat or triticale
- Great double crop option
- Significant yield improvement over conventional cereal ryes
- Seeding rate is 1 bag per acre

TriCal® Superior Forage

Cereal Rye

Seeding Rate: 150 lbs./acre for forage
1 bag/acre - hybrid rye
Use 30-100 lbs./acre for cover crop

Seeding Depth: 1" to 1-1/2" deep

Preferred Soils: Wide range of soils

Management:

Best Use: Forage or cover crop

When used as a cover crop, burn down before 12-16" tall otherwise Nitrogen may be tied up. Can be rolled at 20-24" (milk or soft dough stage)

Guardian Fall Rye

- Screened for purity & cleanliness
- Excellent germination & early vigor
- Strong winter hardiness
- Guardian is your choice when quality is expected
- Reliable seed from a trusted, weed-free source

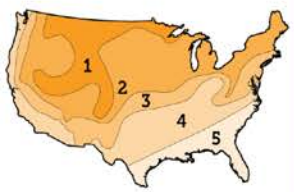
LA CROSSE SEED

VNS Cereal Rye

- Very winter hardy, early to mature in spring
- High yielding, fall seeded forage or cover crop
- Forage quality declines rapidly with maturity
- Harvest in boot stage for optimal quality

Planting Window

1. No later than September 25
2. No later than October 5
3. No later than October 15
4. No later than October 25
5. No later than November 1



PLANTING WINDOW DATES ARE FOR FALL RYE, TRITICALE AND BARLEY

Wheat

LW 2867

- Proven! Beautiful, awnless, medium full maturity wheat with excellent test weight
- Excellent lodging tolerance for high input management producers
- Strong FHB1 scab tolerance and hessian fly resistance

LW 2937

- Proven! Awned, medium early maturity wheat with good agronomics and FHB1 scab resistance
- Excellent for double cropping with low field residue after an early harvest
- Top end yield potential but will still perform under stress

LW 2958

- Proven! Strong scab and leaf package, medium maturity awned wheat
- This consistent high yielding workhorse performs across soil types
- Heavy hitter test weight even under adverse conditions

Peas

Forage Peas

- very high crude protein and forage quality
- huge leaves, excellent palatability
- excellent companion for triticale, oats, and barley
- inoculate prior to planting
- Seeding rate 120-150 lbs/acre drilled 1" to 2" deep

Cowpeas

- Warm season annual legume more drought tolerant than soybeans
- Grows well in dry, hot conditions
- Mix with sorghum sudangrass for pasture or baleage
- One harvest crop, great wildlife crop
- Inoculate to enhance nitrogen (N) production
- Produces 70-150 lbs/acre N
- Seeding rate: 30-90 lbs/acre drilled 1" to 1-1/2" deep, broadcast 70-100 lbs/acre till lightly to cover seed

Winter Peas

- top nitrogen producer, yield up to 90-115 lbs. N/acre, and at times up to 300 lbs. N/acre
- can be sown with winter barley, triticale or wheat to improve forage quality
- excellent as a cover crop, may winter kill in cold winters without snow cover
- easy to terminate with herbicides or light cultivation
- Seeding rate: 60-80 lbs/acre drilled 1" to 3" deep, 90-100 lbs/acre broadcast and worked in

Early Season Forage

Spring Triticale & Pea Mix

- A mix of spring triticale and forage peas
- Superior palatability & crude protein %
- Very versatile, plant in spring or late summer
- General rule of harvest is 55-60 days after planting for dairy quality silage or baleage
- Seeding rate 125 lbs./acre alone, for a nurse crop with alfalfa 75 lbs./acre

- 50% Spring Triticale
- 50% Forage Peas

Spring Triticale Plus

- A mix of spring triticale, forage peas and ryegrass
- superior palatability and crude protein levels
- very versatile, plant in spring or early fall
- harvest approximately 55-60 days after planting for dairy quality forage
- Seeding rate 100 lbs/acre

- 50% Spring Triticale
- 25% Forage Peas
- 25% Annual Ryegrass

Spring Barley & Pea Mix

- A mix of spring barley and forage peas
- Ideal as a nurse crop or for straight forage
- Can be planted early spring or early fall
- Seeding rate 100-150 lbs/acre, 100 lbs/acre as a nurse crop

- 60% Forage Oats
- 40% Spring Barley

Forage Oat & Pea Mix

- A mix of forage oats and forage peas
- Ideal as a nurse crop or for straight forage
- Can be planted early spring or early fall
- Harvest in approx. 55-60 days from emergence, typical yield is 2.5 to 3 ton DM
- Seeding rate 125-150 lbs/acre, 75 lbs/acre as a nurse crop

- 60% Forage Oats
- 40% Forage Peas

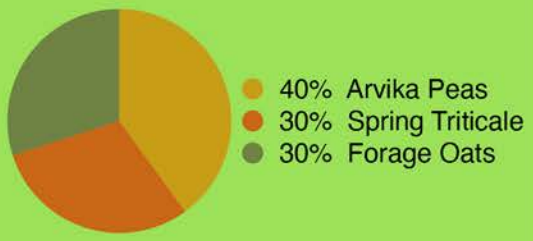
Forage Oat & Clover Mix

- A mix of forage oats and berseem clover
- Ideal as early forage and then a green manure crop to provide nitrogen for the following crop
- Can be planted mid-spring or early fall
- Harvest in approx. 55-60 days from emergence
- Seeding rate 140-150 lbs/acre drilled 1/4" deep

- 90% Forage Oats
- 10% Berseem Clover

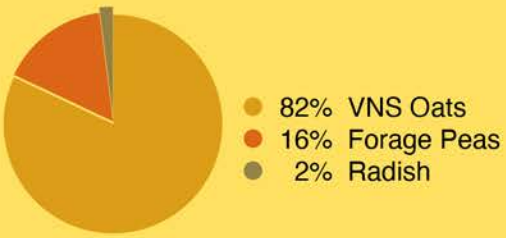
OPT Mix

- Take advantage of the yield of forage oats and the higher protein level of the triticale and peas
- Harvest 55-60 days after planting, mid to late boot stage of the triticale
- Overall harvest window for maximum quality is 5-7 days, yields of 2.5 to 4.5 ton DM with good fertility
- Seeding rate 125 lbs./acre



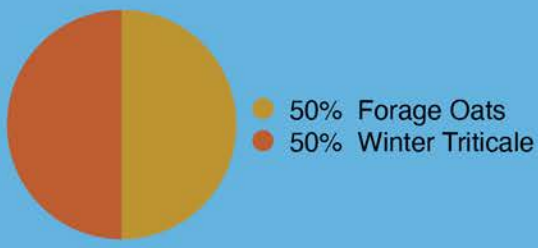
Fall Oat Silage Mix

- A mix of VNS spring oats with winter peas and radishes
- Peas add palatability and crude protein along with adding nitrogen to the soil
- Radish leaves add protein (up to 40%) to the mix and the roots improve soil structure and capture leftover nutrients for the next crop
- Plant late July/early August, harvest in early October
- Seeding rate 110 lbs./acre



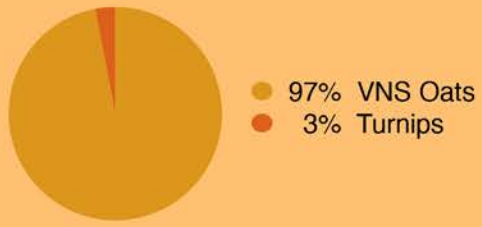
Forage Oat/Trit Double Crop Mix

- A mix of forage oats and winter triticale
- Adequate forage for non-lactating cows, heifers or beef cows
- Best to plant in early August
- Two crops in one seeding
- Harvest oats approximately 55-60 days from emergence, leave 4" stubble, harvest triticale the following spring
- Seeding rate 150 lbs./acre, 1" to 1-1/4" deep



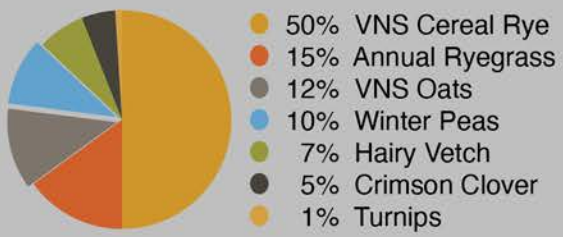
Oat & Turnip Grazing Mix

- A mix of oats and turnips for grazing cattle or sheep
- Best to plant in late summer (late July/early August)
- Leaves field clean for early planting next spring
- Graze approximately 55-60 days from emergence
- Seeding rate 100 lbs./acre, drilled 1/2" deep



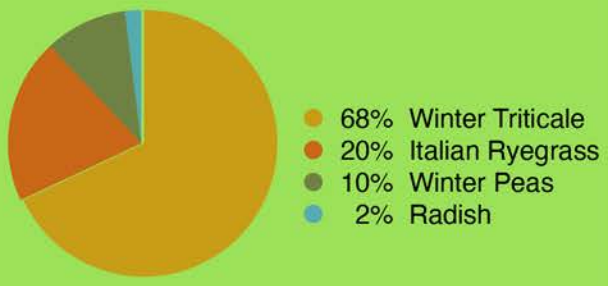
Winter Grazing Mix

- A cool season mix of small grains, legumes, grasses & brassicas
- A mix designed for late fall grazing and then again in the early spring
- Seeding rate 100 lbs./acre, drilled 1/2" deep



Green Winter Mix

- Highest yielding & highest quality forage of the winter triticale mixes
- High in digestible fiber
- Superior palatability & crude protein %
- Radish gives nice yield bump in spring
- Plant in late August through September, harvest in early May
- Seeding rate 110 lbs./acre alone



One of our favorite options for double-cropping with corn silage.

Feed Analysis Report	Dry Matter Basis	Small Grains (Silage)	
		60 Day Ave	4 Yr Ave
Crude Protein	*16.91*	*14.07*	*13.40*
ADF	*26.7*	*37.12*	
aNDF	*50.42*	*53.69*	*54.73*
Lignin	*1.21*	*4.06*	*4.63*
Sugar (ESC)	*6.93*	*3.52*	*4.66*
NDFD 24 %NDF	*33.62*	*22.90*	*30.31*
NDFD 30 % NDF	*63.88*	*60.50*	*56.29*
NDFD 48, % NDF	*64.80*	*51.82*	*56.44*
TTNDFd, % NDF	*55.55*	*46.91*	*42.15*
Milk/Ton, lb	*3001*		

Feed analysis report from Rock River Labs on the Green Winter Forage Mix with Italian Ryegrass

According to the TTNDFd numbers, the **Green Winter Mix** has the potential to increase milk production 3-5 lbs /cow/day compared to other small grain silages

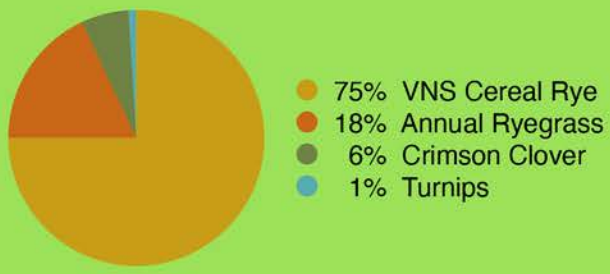
Green Winter Forage Mix w/Italian Ryegrass

Extend the grazing Season on both ends!

Graze late this year, start early next year

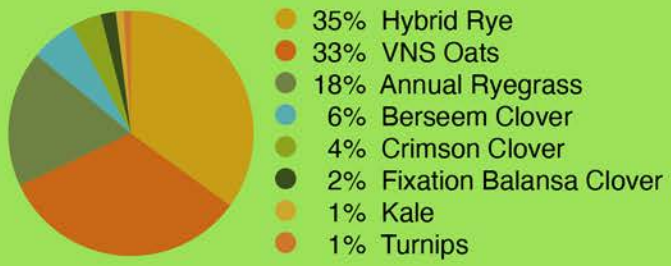
Basic Extender Grazing Mix

- A mix of cereal rye, annual ryegrass, crimson clover and turnips
- Plant in early August, graze Oct. - Dec.
- Graze cereal rye, ryegrass and clover again in early spring, late March - May
- Greatly extends the grazing season
- Extremely low cost per lb. of dry matter
- Seeding rate 110 lbs./acre



8-Way Extender Grazing Mix

- Plant in early August, graze Oct. - Dec.
- Graze hybrid rye, ryegrass and clovers again in early spring, late March - May
- Allow 60+ days after planting until grazing
- Greatly extends the grazing season
- Builds organic matter
- Extremely low cost per lb. of dry matter
- Seeding rate 80 lbs./acre



Brassicas

Forage brassicas are useful for extending the grazing season when other forages are less productive. Brassicas can provide higher crude protein and digestibility at half the cost of hay or other harvested forages. Brassicas have extremely high yield potential when grown on high fertility soils and properly managed. Brassicas can produce as much as 40 tons (wet) per acre. Cold, drought and heat tolerant, these crops commonly provide valuable feed when other crops are less productive. Planting brassicas in the same field more than 2 consecutive years is not recommended due to possible plant disease and pest problems.

Vivant Hybrid

- known for its quick regrowth, even under close grazing, very little bulb development
- as opposed to turnips, most of the energy of the plant is contained in the leaves
- high digestibility - suitable for dairy, beef, and sheep
- first grazing in 40-45 days, subsequent grazings every 25-30 days when grazed no less than 4"
- Seeding rate 4-6 lbs. per acre, 2-3 lbs. in a mix

Dwarf Essex Rape

- can start grazing 8-10 weeks after seeding, works well with oats
- large leaves, high quality forage for grazing
- not suited for hay or silage due to high moisture content in plant
- frost increases sugar concentration in leaves
- great cover crop and for wildlife
- Seeding rate 6-8 lbs. per acre, 1-2 lbs. in a mix

T-Raptor Hybrid BARENBRUG

- Graze in 40-60 days
- High forage yields
- Multiple grazing
- Good plant vigor
- Good club root resistance
- Rapid regrowth
- Suitable for all grazing stock

T-Raptor is an early maturing hybrid brassica, a cross between a forage turnip and a forage rape, with 50-70 day crop duration. T-Raptor exhibits a leafy growth habit (higher leaf-to-bulb ratio) and is well-suited to grazing. T-Raptor is an excellent late-summer feed source, and a good supplement for late-summer periods when cool-season forage grasses slow in production.

Brassicas

Seeding Rate: 3-5 lbs./acre alone
2-3 lbs. in a mix

Seeding Depth: 1/8" into firm seedbed

Preferred Soils: Well drained with high fertility

Management: 60 lbs. of N at planting

Best Use: Grazing only

Strip grazing prevents both yield & quality losses due to trampling and polluting. Introduce gradually to diet supplementing with other forages. Brassicas should never constitute 100% of the diet.

Barsica Forage Rape

- Graze in 80-120 days BARENBRUG
- Excellent multiple graze forage with high tonnage
- Excellent feed values
- Highly palatable and nutritious
- Great source of protein and energy
- Anti-parasitic properties, enhancing animal health
- Great for extending grazing into the summer

Barsica rape is a multiple-grazing forage crop that can be sown for summer, fall, or winter feed. It has higher protein (up to 30% in the leaves) and dry matter content than turnips. While typically sown in pure stands, it can be sown in combination with other forages. For a summer feed crop it can be sown in the early spring and grazed in 70-110 days. For winter feed, it can be sown mid-late summer and ready to graze in 80-120 days. Barsica is a tall variety with high yields and resistant to lodging. Leave a 10" stubble to allow for rapid regrowth.

Barkant Forage Turnips

- Graze in 60-90 days
- Vigorous white turnip
- Good leaf & root yield
- Ideal for grazing
- High-energy feed (80% TDN, 0.8 NEl), 30% C.P.
- High sugar & dry matter content
- Multiple harvest potential with yields up to 4-6 tons/dry matter per acre
- Low seed costs, high return
- Our #1 selling forage turnip

Appin Turnips

- Vigorous establishment and quick maturity, 60-100 days
- High leaf production
- Multiple grazings, leaves and tubers
- Mixes well with oats
- Plant late summer/early fall

Appin forage turnips was bred to provide multiple grazings and for fast, vigorous establishment with quick maturity. Appin has a significantly higher proportion of leaf yield compared to other turnip varieties and is multi-crowned for improved regrowth potential. The tops on Appin have tested as high as 30% CP with a RFV of over 340.

Winfred Turnips

- Graze in 70-90 days
- Great for winter grazing
- Retains leaf and stem quality in cold conditions
- Tolerant of dry conditions

Winfred turnips are a cross between a turnip and a kale. Winfred turnips are slower growing than the Barkant turnips but have better cold tolerance for very late season grazing.

Purple Top Turnips

- High quality, high bulb yielding turnip
- Grow with the "globe" exposed
- Can utilize in summer or fall
- Used for livestock or wildlife
- Mixes well with cereal grains, especially oats

Kale

- dark green, leafy brassica with short stems
- high digestibility - suitable for dairy, beef, sheep, hogs, poultry, goats, and deer
- commonly used to extend the grazing season, as a cover crop, or in wildlife food plots
- Seeding rate 3-10 lbs. per acre, 1 lb. in a mix

Plan on approximately 6 acres of turnips per 100 cows to have enough for 60 days of feeding. With a crop yield of 5 dry matter tons per acre, this will allow approximately 10 lbs. dry matter/cow/day.

Control Radish

- Oilseed type radish
- Up to 90% nematode control (sugar beet cyst nematode)
- Alleviates soil compaction vertically and horizontally
- Suppresses weed growth
- Excellent at scavenging residual nitrogen and other nutrients
- Reduced odor when decomposing

Tillage Radish

- Daikon type radish
- Multiple years voted "Best Product of the Year" by no-till farmers
- Reduces compaction & improves drainage and air/water movement (through rapid spring decay)
- Soaks up and releases nitrogen and other nutrients in spring when cash crops need it most
- Dense seed makes for easy planting, typically reaching full growth in 6-8 weeks (about 900 GDD)
- Shades out winter annuals and suppresses spring annual weeds
- Winterkills with temperatures in the teens

Tillage Radish® was selected based on performance in the field. This daikon type radish was evaluated across many different soil types and environments from the Northwest to across the Midwest and Transition Zone. A superior, deep, penetrating taproot is one characteristics that separates Tillage Radish® from other radish varieties - growing to a level of 3-6', based on soil type, region and planting date. The upper portion of the taproot (or tuber) can grow to a length of 12-24". Tillage Radish® germinates in just 2 to 3 days when moisture is present.

Radish

Seeds per lb.: 30,000-40,000

Emergence: 3-6 days

Seeding Rates: 6-8 lbs./acre drilled
8-10 lbs./ac. aerial or broadcast
10-12lbs./ac. max. weed suppression
4-5 lbs./ac. precision planted
1-4 lbs./acre in a mix

Seeding Depth: 1/4-1/2" into firm, moist seedbed, up to 1" deep in light soils to reach moisture

Seeding Date: 3 to 10 weeks before 1st killing frost

Preferred Soils: Well drained with high fertility, grows best in pH 6.0 - 7.5

Management: Plant 3-10 weeks prior to 1st killing frost. Benefits from N application (30-60# N). Depending on goals, adding N & other nutrients may or may not be needed.

Best Use: Cover crop - Cool Season Broadleaf

Notes: C:N Ratio for tops = 9:1, Comparable seed on drill chart is alfalfa (reduce by 20%). Radish will winterkill with 3 nights in the mid-teens. If no winterkill, control with mowing, grazing or burndown methods. Radishes produce a compound when decaying that omits an odor similar to natural gas.

Highly Digestible, High Yielding Silage Corn Hybrids

Top 5 Factors to Producing Top Yields

1. Soil conditions at planting
2. Seed placement
3. Seed quality
4. The right variety in the right field
5. Post-planting management

Partners Brand

Partners Brand (Corn & Soybeans)

- Corn hybrids for silage & grain
- Large selection of conventional corn hybrids
- Big selection of corn hybrids with traits
- Several waxy corn hybrids
- Several high oil corn hybrids
- Good selection of economically priced corn hybrids
- Unique High Row Count Hybrids (HRC)
- Large selection of conventional & traited soybeans

Request a catalog or visit our website at www.bestforage.com

Local Seed Co.

Local Seed Company offers two brands of seed corn. The Local Seed line offers the latest Genuity® trait families as well as a strong performing conventional seed corn products. The Zone Select brand offers seed corn from the Agrisure® trait family.

Both brands are rigorously tested through their LIFT program and are carefully produced to exceed performance expectations in the markets they serve for both grain and silage production.

Request a catalog or visit our website at www.bestforage.com

MASTERS CHOICE

SEEDCORN.COM

Masters Choice Corn Hybrids

Masters Choice is an independently owned and operated seed corn provider, headquartered in southern Illinois. It is their firm belief that the key to feeding a growing global population is increasing the efficiency of farms across the world. To help accomplish this, they believe that corn crops should be bred and developed specifically for their end-use which is why they have pursued hybrids that demonstrate superior feeding quality on livestock operations.

Request a catalog or visit our website at www.bestforage.com

Cover Crops

Don't forget to inoculate your legumes.

Typical Cover Crop Budgets

1. **Low (less than $20 per acre)**
   low seeding rates - very few legumes
2. **Medium ($20 - $30 per acre)**
   average seeding rates - some legumes
3. **High ($30 - $40 per acre)**
   high seeding rates - high legume %
4. **Higher ($40 - $60 per acre)**
   grazing mixtures, organic N production, nematode control, perennials, etc…

LINK Cover Crop Inoculant

- Link inoculant is provided with all Soil First cover crop mixes that include legumes (on orders ≥ 500 lbs.)
- Link is available individually for custom mixes and other legume products
- Link is offered in a package that treats 500 pounds of seed, matching up well with both 50# bags as well as 2,000# bulk bags
- Link can be used effectively on over 500 legumes making it a super convenient option for forage plantings
- Link will stay viable for 24 hours after it is applied
- Link is not a GMO product

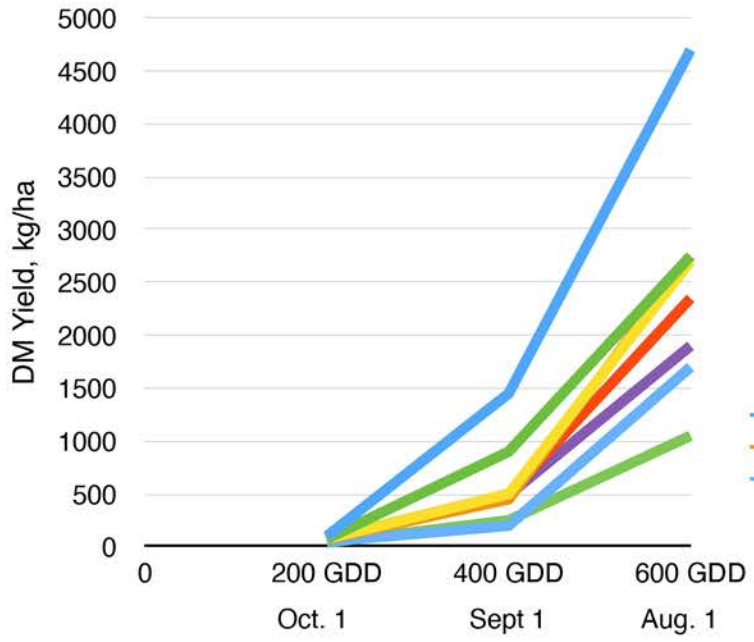
Healthy Soil, Healthy Plants, Healthy Animals

5 Things to get Right with Cover Crops:

1. **The right species**
2. **The right inoculants**
3. **The right seeding rates**
4. **The right seeding times**
5. **The right termination methods**

The Five Principles of Soil Health

1. **Limit Disturbance**
2. **Armor the Soil Surface**
3. **Build Diversity**
4. **Keep Living Roots in the Soil**
5. **Integrate Animals**



Finding a Planting Window for Cover Crops

We know that if we can add 2 to 3 weeks growing time to our cover crops they will provide so much more value and benefit.

Reduce the growing days of your main crop to allow a few more days for growing your cover crops will typically pay for itself.

- Tillage Radish
- Barley
- Ryegrass
- Phacelia
- Winter Pea
- Crimson Clover
- Rye
- Oats

Cover Crops

Cool Season Grasses

Annual Ryegrass

- Don't use non-certified seed as it can be harder to terminate
- Easy to establish, great for erosion control, improves soil structure and drainage, adds organic matter, suppresses weeds and scavenges nutrients, good for grazing & forage
- Seeding rate 10-20 lbs/acre drilled 1/4 to 1/2" deep

Cereal Rye

- One of the best for outcompeting weeds
- Rye can be planted later in fall than other cover crops, terminate in spring before it matures
- Good for scavenging excess N, preventing erosion, adding organic matter and suppressing weeds
- Seeding rate 60-120 lbs/acre drilled 3/4" to 1" deep

	Annual Ryegrass	Cereal Rye
Seed Size & Weight	*Similar size to grass seed, 26#/bu.*	*Similar to wheat seed, 56#/bu.*
Seeding Date	*3-10 weeks before killing frost*	*August - October*
Termination Timing	*Burndown at 6-12" tall before jointing in spring, Soil temps >45° F & climbing, middle of day application*	*Burndown before 12-16" tall otherwise nitrogen may be tied up. Can be rolled at 20-24" (milk or soft dough stage)*
Rooting Depth	*Breaks up hard fragipan soils, root depths depend on planting date, fertility*	*Less root mass and less penetration in compact soils*
Nitrogen	*Starts releasing N within a few weeks of termination*	*Taller cereal rye can tie up N for several weeks, terminate when short*

Oats

- Low cost, reliable fall cover that winterkills
- Good at suppressing weeds, preventing erosion, scavenging excess nutrients, adds biomass
- Outperforms other cereal grains as a nurse crop for a legume
- Seeding rate 80-100 lbs/acre drilled 1/2" to 1" deep

Barley

- Tolerates alkaline soils better than other cereals
- Less winter hardy than wheat, triticale or rye
- Prevents erosion, suppresses weeds, scavenges excess nutrients, and adds organic matter
- Easy to establish
- Seeding rate 30-50 lbs/acre drilled 3/4" to 1" deep

Triticale

- Excellent to graze or harvest for forage
- Later maturity than cereal rye which allows a larger window for spring termination
- Good for scavenging excess N, preventing erosion, adding organic matter, suppressing weeds
- Seeding rate 75-100 lbs/acre drilled 1" to 1-1/2" deep

Wheat

- Good grazing potential
- Prevents erosion, suppress weeds, scavenge excess nutrients, add organic matter
- Less likely than barley or rye to become a weed, and is easier to kill
- Seeding rate 30-50 lbs/acre drilled 3/4" to 1" deep

Cover Crops

Cool Season Broadleaves & Brassicas

Phacelia

- Catches and stores nitrogen for the next crop
- Low residue, winter kill cover crop
- Great root structure breaks up clay soils
- Great pollinator, attracts bees and other insects
- Good for grazing, biomass production
- Seeding rate 5-6 lbs/acre drilled 1/4" deep

Turnip

- Primarily used for forage
- Deep taproot creates root channels for plant roots to follow
- Excellent at taking in residual nitrogen
- Seeding rate 2-6 lbs/acre drilled 1/4" to 1/2" deep

Flax

- Overall nutrient demand is low and very little nitrogen is needed for flax
- Water use is considered moderate, shallow root structure
- Seeding rate 30-50 lbs/acre drilled 3/4" deep

Kale

- Deep rooted with good winter hardiness and palatability
- Great for grazing, wildlife plots
- Good for nutrient scavenging and reducing soil compaction
- Seeding rate 4 lbs/acre drilled, 1/4" to 1/2" deep

Rapeseed

- Good nutrient scavenger
- Good grazing potential
- Excellent, deep penetrating tap root with dense fibrous root mass surrounding the tuber
- Seeding rate 4-6 lbs/acre drilled 1/2" deep

Daikon Radish

- Rapid fall growth, quick residue breakdown in spring, good weed suppression
- Allows the soil to dry out and warm faster in spring
- Massive root capable of penetrating plow pans or compaction layers, great channels for following crop roots to follow
- Excellent at scavenging nutrients such as N, P, K, S, Ca and B and releasing them back into the soil profile in the spring
- Seeding rate 5-10 lbs/acre drilled 1/4" to 1/2" deep, plant in late summer or early fall

Mustard

- Bio-fumigates the soil during decomposition which is toxic to many soil pathogens and pests
- Can tolerate low fertility soils, good drought tolerance
- Seeding rate 5-8 lbs/acre drilled 1/4" to 3/4" deep, plant 5 weeks before first frost date

Cover Crops

Cool Season Legumes

(should be inoculated)

Balansa Clover

- Cool season legume
- Nitrogen fixing potential of 50-100 lbs/acre
- Tolerates wet soils, shade, heat and grazing
- Great for grazing or forage harvest, very attractive to pollinators
- Disadvantage is it can be prone to hard seed
- Very small seed, requires less seed than other clovers
- Seeding rate 5-6 lbs/acre drilled 1/4" deep, 4-8 weeks before a killing frost

Berseem Clover

- Cool season legume
- Nitrogen fixing potential of 100-200 lbs/acre
- Spring planted berseem can produce rapid, competitive growth
- Not as drought tolerant as alfalfa, does not do well on sand
- Good for suppressing weeds, prevent erosion, green manure, grazing and forage harvesting
- Seeding rate 8-20 lbs/acre drilled1/4" deep, plant after risk of frost is past in spring

Hairy Vetch

- Cool season legume
- Big nitrogen producer, 80-200 lbs. N/acre
- More winter hardy than common vetch
- Lowers C:N ratio in mixes
- Very good for surface compaction, weed control, pollinators/beneficials, grazing
- Seeding rate 15-20 lbs/acre drilled 1/2" to 1" deep, 2-10 wks before killing frost

Winter Peas

- Cool Season legume
- Nitrogen fixing potential of 90-150 lbs/acre
- Excellent forage and high water use efficiency
- Good for surface compaction, weed control
- Won't tolerate droughty or poorly drained soils
- Seeding rate: 50-80 lbs/acre drilled 1-2" deep, plant 4 to 8 weeks before killing frost

Common Vetch

- Cool season legume
- Nitrogen fixing potential of 50-100 lbs/acre
- Tolerates wet soils, shade and heat
- Good for surface compaction, weed control, grazing and erosion control
- Seeding rate 20-25 lbs/acre drilled 1/4" deep

Crimson Clover

- Cool season legume
- Nitrogen fixing potential of 75-150 lbs/acre
- Shade tolerant with excellent spring growth
- Excellent for grazing or forage harvest
- Reaches maximum N production sooner than hairy vetch
- Attracts many pollinators and beneficial insects
- Seeding rate 10-20 lbs/acre drilled 1/4" deep, 6-8 weeks before first killing frost

Hubam White Sweet Clover

- Annual cool season legume
- Nitrogen fixing potential of 70-90 lbs/acre
- Great attractant for beneficial insects, especially honeybees
- Much faster establishing and blooming than biannual sweet clover, very heat tolerant
- Seeding rate 15-30 lbs/acre drilled 1/4" to 1/2" deep

Cover Crops

Warm Season Legumes

(Should be inoculated)

Mung Beans

- Similar heat & drought tolerance as cowpeas
- Plant after wheat harvest
- Mostly upright growth, slightly spreading
- Low water use, good for grazing
- Crude protein ranging from 16-22%
- High Nitrogen fixing potential
- Seeding rate: 20-25 lbs/acre drilled, 1-2" deep

Sunn Hemp

- warm season legume
- produces significant amounts of nitrogen in 60 days depending on conditions
- tolerates dry conditions and low fertility
- can add up to 5,000 lbs. of biomass per acre in 7 to 8 weeks
- plant in soil temps > 60° F, winter kills at first frost
- Seeding rate 15 lbs/acre, 5-8 lbs. in a mix

Cow Peas

- Nitrogen fixing potential of 100-150 lbs/acre
- Upright growth habit
- Very good for surface compaction and for forage
- Seeding rate: 50-60 lbs/acre drilled, 1-2" deep

Cover Crops

Warm Season Broadleaves

Buckwheat

- Similar heat & drought tolerance as cowpeas
- Plant after wheat harvest
- Mostly upright growth, slightly spreading
- Low water use, good for grazing
- Crude protein ranging from 16-22%
- High Nitrogen fixing potential
- Seeding rate: 20-25 lbs/acre drilled, 1-2" deep

Safflower

- drought tolerant, warm season broadleaf
- Exceptional at breaking hard pans, encouraging water and air movement into the soil profile
- scavenges nutrients from deep in soil
- Impressive taproot, up to 10' deep
- Spineless, suitable for grazing livestock
- Seeding rate 15-20 lbs/acre, 1" to 1-1/2" deep

Sunflower

- Nitrogen fixing potential of 100-150 lbs/acre
- Upright growth habit
- Very good for surface compaction and for forage
- Seeding rate: 50-60 lbs/acre drilled, 1-2" deep

Cover Crops

Warm Season Grasses

Sorghum Sudangrass

- BMR varieties more digestible, can be used for grazing or forage harvesting
- Good soil builder, weed and nematode suppressor, and subsoil loosener
- Drought tolerant
- Seeding rate 15-40 lbs/acre drilled 3/4" to 1" deep, plant early-mid summer when soil temps are >60 degrees

Teff Grass

- Very small seed, shallow root system
- Good for forage harvesting
- Seeding rate 6-12 lbs/acre drilled 1/8" to 1/4" deep after soil temps are >60 degrees

Forage Sorghum

- Good for forage harvesting, BMR is preferred
- Good for nutrient scavenging and subsoil loosener
- Seeding rate 5-7 lbs/acre drilled 3/4" to 1" deep, plant early-mid summer when soil temps are >60 degrees

Sudangrass

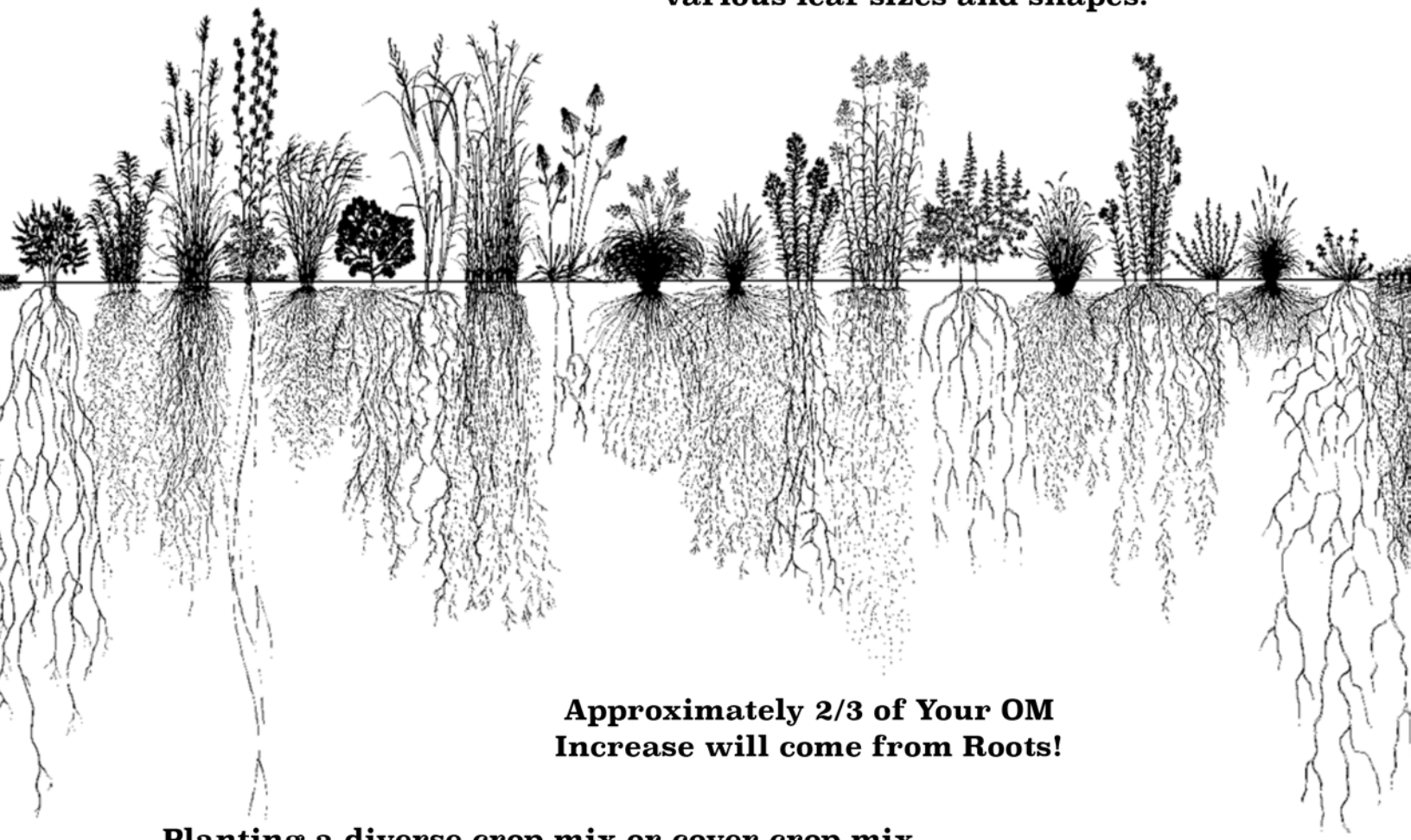
- Good for grazing or forage harvesting
- Good for nutrient scavenging and subsoil loosener
- Seeding rate 15 lbs/acre drilled 3/4" to 1" deep, plant early-mid summer when soil temps are >60 degrees

Pearl Millet

- Highest yield potential among millets
- Good for grazing or forage harvesting, no prussic acid risk, safe for horses
- Good for weed control, biomass production, erosion control
- Seeding rate 15-20 lbs/acre drilled 1/2" to 3/4" deep after soil temps are >60 degrees

The Benefits of Plant Diversity

Maximize solar energy collection with various leaf sizes and shapes.



Approximately 2/3 of Your OM Increase will come from Roots!

Planting a diverse crop mix or cover crop mix with various sizes and shapes of root structures will grow your organic matter the fastest.

Every 1% increase in OM raises soil's water-holding capacity by as much as 27,000 gallon per acre.

(Ohio State University - 2014)

The Value of 1% Organic Matter (OM)

Each 1% of Organic Matter contains:

10,000 lbs. of C @$4/ton = $20
1,000 lbs. of N @ $.50/lb. = $500
100 lbs. of P @ $.70/lb. = $70
100 lbs. of K @ $.40/lb. = $40
100 lbs. of S @ $.50/lb. = $50
0.3" - 1" of H20

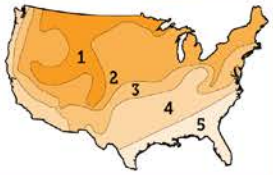
Using average fertilizer prices that's about $680

Cover Crops

Soil First® Mixes

Planting Window

1. No later than August 15
2. No later than August 25
3. No later than September 5
4. No later than September 15
5. No later than October 1



Benefits

Compaction Alleviation	5
Weed Suppression	5
Biomass Production	5
Erosion Control	4
Disease/Pest Control	3
Pollinator/Beneficials	2
P & K Cycling	4
Ease of Establishment	4

SF 101 Cover Starter

- Perfect for the 1st time cover cropper; radish winterkills in many regions and winter rye is fairly easy to control
- Works well in marginal soil environments
- Nutrient scavenging, erosion control, weed suppression, and soil building
- Ideal after silage harvest or before/after manure application
- Seeding rate: 30-35 lbs./acre drilled, 30-40 lbs/acre aerial, 35-40 lbs/acre broadcast, 40-50 lbs/acre for forage

- 91% Guardian Fall Rye
- 9% Tillage Radish

Soil First® PREMIUM COVER CROP SEED

Planting Window

1. No later than August 15
2. No later than August 25
3. No later than September 5
4. No later than September 15
5. No later than October 1

Benefits

Compaction Alleviation	5
Weed Suppression	5
Biomass Production	4
Erosion Control	5
Disease/Pest Control	3
Pollinator/Beneficials	2
P & K Cycling	4
Ease of Establishment	4

SF 102 Cover Starter +

- Crimson clover allows entire mix to decompose quicker, conserve water and decrease nitrogen immobilization
- Crimson clover is fairly quick to establish, adding biomass and additional root structure
- Nitrogen is maximized at clover flowering, however spring management will need to be considered
- Seeding rate: 30-35 lbs./acre drilled, 30-40 lbs/acre aerial, 35-40 lbs/acre broadcast, 40-50 lbs/acre for forage

- 72% Guardian Fall Rye
- 20% Crimson Clover
- 8% Tillage Radish

Cover Crops

Soil First® Mixes

SF 125 N-Hancer

- Designed as a nitrogen booster in front of grass cash crops: decreased spring management needed
- Oats work as a carrier, but also keep nitrogen from leaching or leaving the system
- Heavy legume mix will work in grazing environments, supplying high protein and digestibility
- Seeding rate: 35-40 lbs./acre drilled, 40-50 lbs/acre for forage, broadcast and aerial seeding not recommended

- 30% Defender Oats
- 25% Spring Peas
- 20% Balansa Clover
- 20% Crimson Clover
- 5% Tillage Radish

Planting Window

1. No later than August 10
2. No later than August 20
3. No later than September 1
4. No later than September 10
5. No later than September 20

Benefits

Compaction Alleviation	4
Weed Suppression	4
Biomass Production	4
Erosion Control	5
Disease/Pest Control	2
Pollinator/Beneficials	3
P & K Cycling	4
Ease of Establishment	4

Soil First® PREMIUM COVER CROP SEED

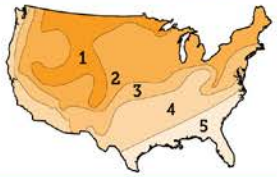
SF 140 Multi-Purpose

- Great option after silage or small grain harvest
- Good option to seed on acres where leftover nutrients exist
- Formulated ideally for maximizing forage through multiple grazing cycles
- Seeding rate: 35-40 lbs./acre drilled, 40-50 lbs/acre broadcast, 40-50 lbs/acre for forage, aerial seeding NR

- 50% Nitrous® Winter Triticale
- 38% Winter Peas
- 6% Tillage Radish®
- 6% Forage Brassica

Planting Window

1. No later than August 10
2. No later than August 20
3. No later than September 1
4. No later than September 10
5. No later than September 20



Benefits

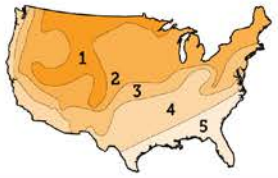
Compaction Alleviation	4
Weed Suppression	5
Biomass Production	5
Erosion Control	3
Disease/Pest Control	3
Pollinator/Beneficials	2
P & K Cycling	3
Ease of Establishment	5

Cover Crops

Soil First® Mixes

Planting Window

1. No later than August 20
2. No later than September 1
3. No later than September 10
4. No later than September 20
5. No later than October 1



Benefits

Compaction Alleviation	4
Weed Suppression	3
Biomass Production	3
Erosion Control	3
Disease/Pest Control	3
Pollinator/Beneficials	3
P & K Cycling	4
Ease of Establishment	4

SF 142 Classic

- Ideal for acres going to corn or other grass crops: research shows positive results in V3 - V6 corn interseeding
- Simple mix to use where excess moisture can be an issue
- Low seeding rates work well in aerial seeding
- Seeding rate: 12-15 lbs./acre drilled, 20-25 lbs/acre aerial, 20-25 lbs/acre broadcast

- 70% Crimson Clover
- 30% Tillage Radish®

Soil First® PREMIUM COVER CROP SEED

Planting Window

1. No later than August 20
2. No later than September 1
3. No later than September 10
4. No later than September 20
5. No later than October 1

Benefits

Compaction Alleviation	5
Weed Suppression	5
Biomass Production	4
Erosion Control	3
Disease/Pest Control	3
Pollinator/Beneficials	2
P & K Cycling	3
Ease of Establishment	5

SF 150 Field Fit

- Simple cover crop mix; will completely winterkill in many northern climates
- If sequestering leftover nutrients is the goal, this is the mix to use
- Seeding rate: 30-35 lbs./acre drilled, 30-40 lbs/acre aerial, 35-40 lbs/acre broadcast, 40-50 lbs/acre for forage

- 90% Defender Oats
- 10% Tillage Radish®

Cover Crops

Soil First® Mixes

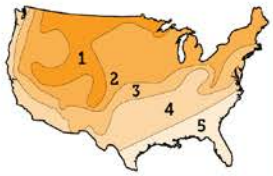
SF 160 Rooting

- Best combination of species for breaking up hard pans and retaining leftover nutrients
- Flexible mix to use in front of corn, soybeans and many other cash crops
- Works well with fall manure applications
- Annual ryegrass requires spring management planning
- Seeding rate: 15-20 lbs./acre drilled, 20-25 lbs/acre aerial, 20-25 lbs/acre broadcast, 20-25 lbs/acre for forage

- 88% Annual Ryegrass
- 12% Tillage Radish

Planting Window

1. No later than August 20
2. No later than September 1
3. No later than September 10
4. No later than September 20
5. No later than October 1



Benefits

Compaction Alleviation	5
Weed Suppression	4
Biomass Production	4
Erosion Control	4
Disease/Pest Control	4
Pollinator/Beneficials	3
P & K Cycling	4
Ease of Establishment	4

Soil First® PREMIUM COVER CROP SEED

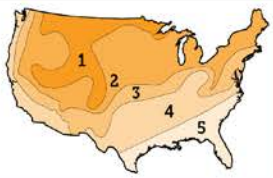
SF 175 Accuspread

- Traditional "three-way" combination of species for breaking up compaction, sequestering leftover nutrients, and building soil structure
- Flexible mix to use in front of corn, soybeans and many other cash crops
- Coated seed to aid in ballistics, spread patterns and more consistent germination
- Annual ryegrass requires spring management planning
- Seeding rate: 20-25 lbs./acre drilled, 25-30 lbs/acre aerial, 25-30 lbs/acre broadcast, 25-30 lbs/acre for forage

- 80% Annual Ryegrass*
- 12% Crimson Clover*
- 8% Tillage Radish*

Planting Window

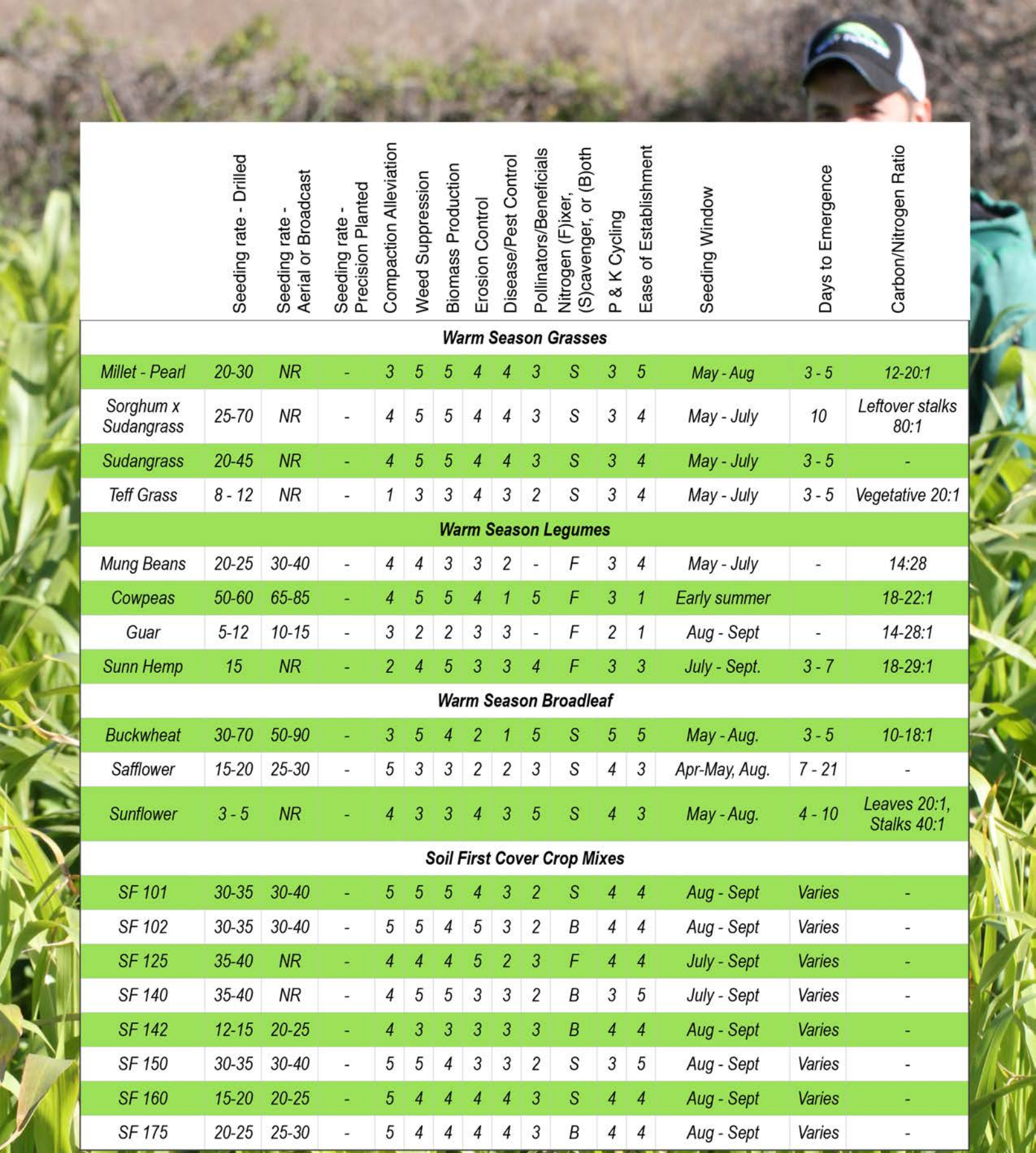
1. No later than August 20
2. No later than September 1
3. No later than September 10
4. No later than September 20
5. No later than October 1



Benefits

Compaction Alleviation	5
Weed Suppression	4
Biomass Production	4
Erosion Control	4
Disease/Pest Control	4
Pollinator/Beneficials	3
P & K Cycling	4
Ease of Establishment	4

	Seeding rate - Drilled	Seeding rate - Aerial or Broadcast	Seeding rate - Precision Planted	Compaction Alleviation	Weed Suppression	Biomass Production	Erosion Control	Disease/Pest Control	Pollinators/Beneficials	Nitrogen (F)ixer, (S)cavenger, or (B)oth	P & K Cycling	Ease of Establishment	Seeding Window	Days to Emergence	Carbon/Nitrogen Ratio
Cool Season Grasses															
Annual Ryegrass	10-20	20-30	15-35	5	5	3	5	3	2	S	3	5	3-10 weeks before 1st killing frost	Varies	Vegetative 20:1
Barley	30-50	NR	-	1	4	5	4	3	2	S	3	4	Mar-Apr, Aug-Sep	6-8	20-80:1
Cereal Rye	30-50	20-60	-	4	5	4	5	3	1	S	4	4	Aug - Oct.	5-8	20-70:1
Oats - Spring	30-50	20-60	-	2	4	5	4	3	1	S	3	4	Mar-Apr, Aug-Sep	5-8	20-80:1
Winter Wheat	30-50	20-60	-	3	4	4	5	3	1	S	4	4	Aug - Oct.	6-10	20-80:1
Cool Season Legumes															
Balansa Clover	3-6	3-6	-	3	4	4	4	3	5	F	3	4	Feb - March, Aug - Sept	14	15-20:1
Berseem Clover	8-20	6-15	-	2	4	3	4	1	3	F	4	4	Mar - April, Aug - Sept	5-8	15-20:1
Crimson Clover	10-15	6-15	-	2	4	3	3	3	3	F	3	4	Feb-Mar, Aug-Sep	7-10	15-20:1
Medium Red Clover	8-12	4-10	-	4	4	4	3	2	4	F	4	3	Feb - May, Aug - Oct	7-10	12-16:1
Sweet Clover	8-15	10-20	-	5	5	3	3	2	4	F	5	3	Jan - Apr	7-10	-
Lupins	70	-	-	-	-	-	-	-	-	F	-	-	Spring - North	-	-
Peas - Winter	30-80	NR	-	2	4	3	3	3	4	F	2	4	Aug - Sept	9	15-20:1
Vetch - Hairy	15-30	NR	-	3	4	4	3	3	5	F	4	3	Aug - Sept	14	10-15:1
Cool Season Broadleaf															
Phacelia	5-8	8-10	-	2	5	3	3	4	5	S	2	4	June - Sept.	10-14	12-18:1
Daikon Radish	3-8	3-8	-	5	5	4	4	3	2	S	4	5	Late July - Sept	3-5	Tops 9:1
Oilseed Radish	8-12	6-12	-	4	5	4	4	4	3	S	4	5	Late July - Sept	3-5	Tops 9:1
Flax	30-50	55-60	-	3	1	1	1	1	3	S	2	1	Early Spring- Aug	-	20-50:1
Kale	3-4	3-4	-	-	-	-	-	-	-	S	-	-	July - Aug	5-7	-
Turnips (tops)	2-6	2-6	-	3	5	4	3	3	3	S	3	5	Aug - Sept	4-10	Tops 9:1
Vivant Brassica	4-6	5-6	-	3	4	4	3	3	3	S	3	5	July - Sept	4-6	10-15:1
Forage Collards	5-12	8-12	-	3	4	4	4	3	3	S	3	5	Mar - April, Aug - Oct	4-10	15-25:1
Rape	4-6	5-8	-	5	3	4	4	4	4	S	4	5	April - May, Aug - Sept	4-10	20-22:1
Yellow / White Mustards	6-15	10-15	-	4	3	4	3	4	5	S	3	5	April - May, Aug - Sept	5-7	20-30:1



	Seeding rate - Drilled	Seeding rate - Aerial or Broadcast	Seeding rate - Precision Planted	Compaction Alleviation	Weed Suppression	Biomass Production	Erosion Control	Disease/Pest Control	Pollinators/Beneficials	Nitrogen (F)ixer, (S)cavenger, or (B)oth	P & K Cycling	Ease of Establishment	Seeding Window	Days to Emergence	Carbon/Nitrogen Ratio
Warm Season Grasses															
Millet - Pearl	*20-30*	*NR*	-	*3*	*5*	*5*	*4*	*4*	*3*	*S*	*3*	*5*	*May - Aug*	*3 - 5*	*12-20:1*
Sorghum x Sudangrass	*25-70*	*NR*	-	*4*	*5*	*5*	*4*	*4*	*3*	*S*	*3*	*4*	*May - July*	*10*	*Leftover stalks 80:1*
Sudangrass	*20-45*	*NR*	-	*4*	*5*	*5*	*4*	*4*	*3*	*S*	*3*	*4*	*May - July*	*3 - 5*	-
Teff Grass	*8 - 12*	*NR*	-	*1*	*3*	*3*	*4*	*3*	*2*	*S*	*3*	*4*	*May - July*	*3 - 5*	*Vegetative 20:1*
Warm Season Legumes															
Mung Beans	*20-25*	*30-40*	-	*4*	*4*	*3*	*3*	*2*	-	*F*	*3*	*4*	*May - July*	-	*14:28*
Cowpeas	*50-60*	*65-85*	-	*4*	*5*	*5*	*4*	*1*	*5*	*F*	*3*	*1*	*Early summer*		*18-22:1*
Guar	*5-12*	*10-15*	-	*3*	*2*	*2*	*3*	*3*	-	*F*	*2*	*1*	*Aug - Sept*	-	*14-28:1*
Sunn Hemp	*15*	*NR*	-	*2*	*4*	*5*	*3*	*3*	*4*	*F*	*3*	*3*	*July - Sept.*	*3 - 7*	*18-29:1*
Warm Season Broadleaf															
Buckwheat	*30-70*	*50-90*	-	*3*	*5*	*4*	*2*	*1*	*5*	*S*	*5*	*5*	*May - Aug.*	*3 - 5*	*10-18:1*
Safflower	*15-20*	*25-30*	-	*5*	*3*	*3*	*2*	*2*	*3*	*S*	*4*	*3*	*Apr-May, Aug.*	*7 - 21*	-
Sunflower	*3 - 5*	*NR*	-	*4*	*3*	*3*	*4*	*3*	*5*	*S*	*4*	*3*	*May - Aug.*	*4 - 10*	*Leaves 20:1, Stalks 40:1*
Soil First Cover Crop Mixes															
SF 101	*30-35*	*30-40*	-	*5*	*5*	*5*	*4*	*3*	*2*	*S*	*4*	*4*	*Aug - Sept*	*Varies*	-
SF 102	*30-35*	*30-40*	-	*5*	*5*	*4*	*5*	*3*	*2*	*B*	*4*	*4*	*Aug - Sept*	*Varies*	-
SF 125	*35-40*	*NR*	-	*4*	*4*	*4*	*5*	*2*	*3*	*F*	*4*	*4*	*July - Sept*	*Varies*	-
SF 140	*35-40*	*NR*	-	*4*	*5*	*5*	*3*	*3*	*2*	*B*	*3*	*5*	*July - Sept*	*Varies*	-
SF 142	*12-15*	*20-25*	-	*4*	*3*	*3*	*3*	*3*	*3*	*B*	*4*	*4*	*Aug - Sept*	*Varies*	-
SF 150	*30-35*	*30-40*	-	*5*	*5*	*4*	*3*	*3*	*2*	*S*	*3*	*5*	*Aug - Sept*	*Varies*	-
SF 160	*15-20*	*20-25*	-	*5*	*4*	*4*	*4*	*4*	*3*	*S*	*4*	*4*	*Aug - Sept*	*Varies*	-
SF 175	*20-25*	*25-30*	-	*5*	*4*	*4*	*4*	*4*	*3*	*B*	*4*	*4*	*Aug - Sept*	*Varies*	-

Wildlife - Upland Game Birds

Final Flush™

- provides a diverse, year long food source necessary for chick and adult pheasant survival.
- provides excellent winter habitat and hunting cover.
- contains Red & White Milo, Oats, Sunflower, White Proso Millet, Buckwheat, Forage Sorghum, Mustard, Flax, Phacelia, Crimson Clover and Sunn Hemp
- plant after soil temps reach 60-65 F
- height ranges from 2' to 7'
- maturity in 70-80 days
- Seeding rate: 20 lbs/acre, drilled 1/2" deep

Double Barrel™

- contains Red Milo and White Milo
- plant after soil temps reach 60-65 F
- height ranges from 3-1/2' to 5'
- maturity in 70-95 days
- Seeding rate: 8 lbs/acre, drilled 1/2" deep

Wildlife Sunflowers

- preferred by dove, quail, turkey, pheasant and other species of upland game birds
- drought tolerant crop
- plant in late May through June
- Seeding rate: 10-15 lbs./acre drilled 1" to 1-1/2" deep

Upland Gamebird Mixture

- Contains Black Oil Sunflowers, German Strain R Foxtail Millet, Hybrid Pearl Millet, and Iron & Clay Cowpeas
- Plant after soil temps reach 60-65 F
- Seeding rate: 25 lbs/acre, drilled 1/2" deep

Forage Soybeans

Big Fellow®

- Extremely tall, large leafed forage variety
- Up to 10 tons of food per acre
- Can produce up to 42% leaf protein
- Huge leaf area, up to 3 times larger
- Up to 2x the nodes of average soybeans meaning more branches, more height and more leaves

Large Lad®

- Most popular variety known for its excellent seed yield, tonnage and height
- Can reach up to 84" in height
- Up to 64% TDN (Total Digestible Nutrients)
- Up to 4 weeks longer green time
- Full season variety that may get frosted before pod set, in Midwest use Wildlife Manager's Mix for optimal results

Wildlife Manager's Mix®

- 5 varieties including Large Lad®, Big Fellow®, Whitetail Thicket®, and 2 early maturing types
- More months of green leaves and more pods
- Excellent for late fall and winter hunting
- Glyphosate tolerant blend
- #1 selling forage soybean blend for plots

Pod Haven®

- Economical, glyphosate tolerant blend of earlier maturing varieties
- Superior shatter resistance and seed quality
- Excellent pods for more food per acre
- Excellent with a fall food plot, consider planting in wider rows to allow for a broadcast seeding in early fall

Big Buck 6™

- Premium **non-GMO** forage soybean blend
- Easy to establish, large, high protein leaves, very tall, and has excellent forage yield
- Conventionally bred, capable of reaching 6' tall
- Among the available non-gmo forage soybeans, this blend has higher tonnage in University trials

EAGLE SEEDS

Order your soybeans early, it's not uncommon for us to be sold out by spring!

Forage Soybeans

Seeding Rate: 1 bag per acre in late May or early June

Seeding Depth: Drill 3/4 to 1" deep in moist soil

Preferred Soils: Well drained w/good fertility

Management: Plant at soil temps > 65° F at 1", pH 6.0-7.0, **Inoculate** seed before planting. If no soil test, use 100 lbs of 0-40-70 to fertilize

Best Use: Wildlife plots, Silage or baleage

Use deer deterrents for the first 4-8 weeks, especially in areas of heavy deer pressure.

Start with a clean, weed-free seed bed. If you want to plant corn with the soybeans, it is generally best to plant soybeans and corn in separate patches. If you prefer to inter-seed then 3-5 lbs corn with 1 bag of soybeans.

Deer love forage soybeans!

Wildlife - Big Game

Final Stand™

- Protein content up to 18%
- Highly attractive late into the hunting season
- Contains Forage Winter Wheat, Winter Triticale, Rye Grain, Forage Oats and Winter Peas
- Plant at least 50 days before the first frost
- Seeding rate: 100 lbs/acre, drilled 1/2" to 1" deep

Hideout™

- Use as a privacy screen around food plots
- Height ranges 6' to 10'
- Contains Pearl Millet, Egyptian Wheat and Specialty Hybrid Forage Sorghum
- Plant at late spring or early summer
- Seeding rate: 15 lbs/acre, drilled 1/2" deep

Buck Country Buffet

- High protein, perennial forage plot mix
- Highly attractive spring through fall
- Contains Alfalfa, Italian Ryegrass, Frosty Berseem clover, Fixation Balansa Clover, Chicory, White Clover, and Red Clover
- Plant spring or late summer
- Seeding rate: 30 lbs/acre, drilled 1/2" deep

Killzone™

- Protein content up to 34%
- Highly attractive late into the hunting season
- Contains New Zealand Brassicas, Forage Collards, Forage Turnips, Forage Radish, Rape and Rutabaga
- Plant at least 50 days before the first frost
- Seeding rate: 8 lbs/acre, drilled 1/4" deep

Wildflowers - Beneficial Pollinators

With the declining population of pollinators, the use of native wildflowers is becoming increasingly important.

Shady Wildflower Mix

- Blend of annuals & perennials that tolerate partial shade with at least 4 hrs of filtered sunlight
- Not suitable for densely shaded locations
- Reaches height of 24-36”
- Contains Annual Baby’s Breath, Annual Candytuft, Baby Blue-Eyes, Chinese Forget-Me-Nots, Chinese Houses, Corn Poppy, Clarkia, Dwarf Columbine, Giant Columbine, Johnny Jump Up, Lance-Leaved Coreopsis, Purple Cornflower, Rocket Larkspur, Shasta Daisy, Spurred Snapdragon, Sweet William Pinks, and Tussock Bellflower
- Mix may vary due to availability of species
- Seeding rate is 4 oz. per 1,000 sq. ft.

Midwest Wildflower Mix

- Blend of annuals & perennials that are well-suited to grow in the upper Midwest
- Formulated to bloom spring, summer and fall
- Reaches height of 24-40”
- Contains Annual Baby’s Breath, Annual Candytuft, Black-Eyed Susan, Clasping Coneflower, Corn Poppy, Dwarf Cornflower, Indian Blanket, Lance-Leaved Coreopsis, Mexican Hat, New England Aster, Plains Coreopsis, Purple Coneflower, Purple Prairie Clover, Scarlet Flax, and Shasta Daisy
- Mix may vary due to availability of species
- Seeding rate is 6 oz. per 1,000 sq. ft.

Color Iowa Wild Wildflower Mix

- Contains annuals & perennials specifically formulate for across the Midwest
- Rainbow of colors throughout spring, summer and fall
- Reaches height of 20-40”
- Contains Annual Baby’s Breath, Annual Candytuft, Black-Eyed Susan, Blue Cornflower, Blue Flax, Catchfly, Clarkia, Crimson Clover, Columbine Dwarf, Corn Poppy, Dame’s Rocket, Dwarf Evening Primrose, Dwarf “Fairy Banquet” Snapdragon, Gayfeather, Lance-Leaved Coreopsis, New England Aster, Prairie Aster, Prairie Coneflower, Perennial Gaillardia, Red Corn Poppy, Purple Coneflower, Rocket Larkspur, Scarlet Flax, Shasta Daisy, Sweet William Pinks and Tall Evening Primrose
- Mix may vary due to availability of species
- Seeding rate is 5 oz. per 1,000 sq. ft.

Knee-Hi Wildflower Mix

- Popular wildflower mix
- Provides a neater appearance than taller mixes
- Reaches height < 24””
- Contains African Daisy, Annual Baby’s Breath, Annual Candytuft, Blanketflower, Black-Eyed Susan, Blue Flax, California Poppy, Catchfly, Chinese Forget-Me-Nots, Corn Poppy, Dwarf Cornflower,Dwarf Plains Coreopsis, Dwarf Godetia, Dwarf Red Coneflower, Lance-Leaved Coreopsis, Moss Verbena, Rocket Larkspur, Siberian Wallflower, Scarlet Flax, Sweet Alyssum, Sweet William Pinks
- Mix may vary due to availability of species
- Seeding rate is 5 oz. per 1,000 sq. ft.

Sweet Corn

Variety	Maturity	Color	Qualities
Ambrosia	75 days	Bicolor	Ambrosia is a bicolor, 8" ear known for its superior eating quality. Ambrosia has amazing seedling vigor and fast early growth while still having high tolerance to Stewart's Wilt. This mid-day variety is a homozygous sugary enhancer; a little salt and butter and you've just made Ambrosia the highlight of your BBQ!
Bodacious RM	75 days	Yellow	Bodacious RM is your mainstay for a consistent product that you need come August. This popular yellow corn will give you a sturdy 8" ear that will be dependable for your roadside stand or local market. With disease resistance to Common Rust, Maize Dwarf Mosaic, and Stewart's Wilt, you can count on Bodacious to fill an ear every year.
Delectable	84 days	Bicolor	Delectable will be your top seller when you show up to the fresh market! Delectable is a bicolor, with large well-filled ears, and deep dark green husks. Tenderness and taste will keep your customers coming back, and with resistance to Common Rust, Stewart's Wilt, and Northern Corn Blight, you can be at ease about producing a crop.
Incredible	85 days	Yellow	Incredible is the most popular, gourmet homozygous sugary enhanced sweet corn in the world. This yield topper has beautiful tight kernels that will explode with sweetness at every bite. It is disease resistant to Common rust, Maize Dwarf Mosaic, and Stewart's Wilt.

Freedom Bale Net Wrap

- Works in all brands of balers
- Extra high UV for 12 month protection
- Guaranteed length for every roll
- Great price for premium net wrap
- Red, white & blue
- 48" x 9,840' available, other sizes upon request

Wasted Hay, Silage or other stored feed is costly!

Silage & Grain Bags

- Tri-extruded, blown triple-layer polyethylene film for superior strength
- larger lay flat bags that are easier and faster to fit onto any bagger tunnel
- more usable space per bag means more tonnage packed per bag and reduced costs
- UV stabilized to protect against feed degradation for approx. 18 mo.
- White outside for maximum sun reflectivitiy, black inside for opacity, superior tear resistance
- 8', 9', 10', 12' & 14' bags available in different lengths ranging from 100' to 500'
- silage bags available in 7.5 mil, 8, 8.5, and 9 mil
- grain bags available in 8, 8.5, 9, and 9.5 mil

Cordex NETEXX Bale Net Wrap

- side to side bale coverage
- premium polyethylene with UV protection
- minimum length guarantee
- easy reloading, reusable handles
- 48" x 9,840' and 64" x 8,800' available

Freedom Bale Net Wrap

- Works in all brands of balers
- Extra high UV for 12 month protection
- Guaranteed length for every roll
- Great price for premium net wrap
- Red, white & blue
- 48" x 9,840' available, other sizes upon request

Silage Bale Wrap

- Sigma Ultra 5 stretch film along with other brands, colors & thicknesses
- premium film composed of 5 layers
- high puncture resistance, excellent adhesive properties allowing for a superior seal
- top of the line UV protection
- high tack for wrapping in all temperatures
- 30" x 5,000', 1.0 mil

Bale Wrap End Caps

- End caps are used to effectively seal off your row of bales when using bale wrap.
- white, 4-millimeter-thick, UV stabilized flat bags
- 93" x 72" is ideal for 4' to 4-1/2' bales
- 110" x 72" is ideal for 5' bales

Silage Plastic Repair Tape

Vinyl Repair tape made specifically for quick and easy, yet long-lasting repairs to silage bags, grain bags, bunker covers and bale wraps.

- provides good vapor barrier protection
- resists wear, UV radiation, water and corrosive chemicals
- available in 3" or 6" rolls x 108'

Twine

- multiple Cordexagri & Amjay twines available if ordered by 1/31

Place orders by Jan. 31st to receive biggest discounts!

Protect those high quality forages from spoilage

Black & White Bunker Covers

- manufactured by Klerks, one of the leading international producers of high-quality agricultural plastic.
- unique co-extruded, 3 ply high tensile design
- comes in both 5 mil and 6 mil thicknesses
- available in widths of 24', 32', 40', 50', 56', 60' and 65'
- available in lengths of 100', 150', 200', 500' and 1150'

Oxygen Barriers

- 2 mil oxygen barrier
- unique layer of melted nylon, making this barrier second to none
- forms snug to the contours of your pile, eliminating up to 20 times more oxygen than just the bunker covers
- available in 40', 50', 60' and 65' widths
- available in 200', 500', and 1150' lengths

HytiDouble (2-in-1 Bunker Covers)

- 2 mil oxygen barrier and 6 mil bunker cover folded into 1 cover
- does not use any adhesive between oxygen barrier and bunker cover which conforms better to your feed pile, a patented folding process holds it together
- available in 40', 50' & 60' widths, lengths of 200' & 500'

Black Wall Liner

- use between silage and bunker walls to limit erosion from silage acids
- quality, co-extruded, center folded liner
- available in 24', 32', 40' with lengths of 100', 150', 200' and 500'. Also 32'x1150', 40'x1150' and 50'x100'

Lawn & Turf

Type	Pro's	Con's	Best Use
RPR - Regenerating Perennial Ryegrass	- sun & shade - tolerates heavy traffic - disease & insect resistance - good regenerative abilities - better drought tolerance than other ryegrasses - stoloniferous roots - germination: 4-6 days - turf establishment: 8-10 weeks - seeding rate: 7 lbs/1000 sq ft.	- poor shade tolerance compared to RTF	- Sports purposes and lawns with heavy traffic - sun and part shade areas
RTF - Rhizomatous Tall Fescue	- sun & shade - self-repairing - most drought tolerant of all species - lush, thick, soft turf - good in sun and shade - disease & insect resistance - rhizomatous root structure - 50% less fertilizer needed than KBG - germination: 8-12 days - turf establishment: 8-10 weeks - seeding rate: 9 lbs/1000 sq ft.	- not as hardy for high traffic areas as RPR	- areas of low maintenance due to drought tolerance - shaded areas - rough, sloped and hard to reach areas - all soil types including acidic soils

RPR® REGENERATING Perennial Ryegrass

Turf Star RPR is the turf in the Rose Bowl stadium.

Regenerating Perennial Ryegrass or RPR is a creeping perennial ryegrass variety that stands up to heavy traffic while keeping its good looks. RPRs regenerating ability is what really sets it apart from traditional ryegrass varieties. RPR develops determinate-stolons, which allow it to self-repair, making it ideal for sports fields and home lawns with heavy traffic.

Turf Saver RTF is the most advanced tall fescue blend on the market, featuring a unique combination of high quality turf-type tall fescues and RTF, Rhizomatous Tall Fescue. RTF provides Turf Saver the added benefit of repairing damaged or worn turf with the added value of improved uniformity and density.

RTF, it's a distinctly unique tall fescue; often mimicked, but never matched.

RTF Water Saving Blend

the ONLY sod you'll ever need

*30% water savings**

RTF®

Rhizomatous

Tall Fescue

Turf Saver RTF

Rhizomatous Tall Fescue

- Self repairing tall fescue turf
- Ideal for residential and commercial lawns
- An excellent turf for recreation and play including low-impact sports
- Once established, forms an extensive, deep root system
- Saves 30% water over comparable turf grasses
- Great for sun and moderately shaded areas / up to a half-day's shade
- Excellent disease and insect resistance
- Produces a dense, uniform, durable lawn

Custom Seed Mixing

Trade Shows

- Michigan Shepherds Weekend
- Fort Wayne Farm Show
- Northern Indiana Grazing Conference
- IDP - Dairy Forum
- IDP Regional Dairy Meetings
- Great Lakes Forage Conference
- Northern OH Dairy Conference

Dealers

Our dealers receive quarterly training from a variety of agronomists, nutritionists, university experts, plant breeders and experts in livestock, crops, forages and cover crops. This is training they use on their own farms and businesses and the knowledge that they share with their customers. The topics we cover in training range from improving soil health, the differences between varieties and how to place them for optimum profitability, to writing cropping plans and crop rotations designed to increase yields and digestibility and ultimately our customer's profitability. Some of our Amish dealers have declined to be listed below.

Indiana

Josh Cage
Midwest Turf & Forage
6962 N 400 W
Anderson, IN 46011
765-617-3928

Lucas J. Schwartz
LJ Schwartz Seed Sales
2362 E. State Road 218
Berne, IN 46711

Bill Werling
Werling Farms
1234 W 1200 N
Decatur, IN 46733
260-442-4333

Bob Eash
Best Forage, LLC
11325 E 550 S
Hudson, IN 46747
260-351-4227

Posey County CO-OP
James Glover
817 W. Fourth Street
PO Box 565
Mt. Vernon, IN 47620
812-838-4469

Michigan

Henry Heim
Rocky Oak Farm
6850 Hoag Road
Albion, MI 49224
734-368-2900

Brad Ritter
Ritter Farms
13542 New Lothrop Rd
Byron, MI 48418
586-405-4749

Menno Delagrange
5320 Austin Road
Camden, MI 49232

Dick Lowe
Triple-R-Ranch
11585 Round Lake Rd
Horton, MI 49246
517-688-3030

Levi Miller
7834 Cannonsville Rd.
Lakeview, MI 48850

Karl Sauter
Sieger's Seed Co.
13031 Reflections Drive
Holland, MI 49424
800-962-4999

Tom Cook
Cook Dairy Farm
11454 Parks Rd.
Pewamo, MI 48873
517-449-0322

Jonas Delagrange
1164 Litchfield Road
Quincy, MI 49082

Scott Peterson
Peterson Farms
11163 Strawberry Ave.
Marion, MI 49665
231-429-7670

Ohio

Walter Amstutz Jr.
A to Z Farm
12079 Hackett Road
Apple Creek, OH
44606
330-714-2972

Kevin Steele
Canaan Supply
740 E. Easton Road
Creston, OH 44217
330-465-0962

Mike Diekman
1782 Nissen Road
Martin, OH 43445
419-266-4747

Want to sell our products?

We'd love to discuss your business and how we can help.

Seeder Calibration

Seed sizes and flowability can vary from lot to lot and also from year to year due to the growing conditions in which that seed was produced. Using just the chart inside of the lid on the seeder is just a starting point and can be off by several pounds per acre which can lead to costly seeding errors. To accurately measure your seeding rate you will need a calculator, measuring tape, a small accurate scale and something to collect the seed being dispensed. Take the time, every time you seed, to calibrate the seeder by following the steps below.

Steps to calibrate a drop seeder:

1. Securely mount a tray or a half PVC pipe under the seed dispenser.
2. Engage seeder and drive 100 feet.
3. **Measure the amount** of seed dispensed in grams or ounces. Then **convert to pounds**.
4. **Calculate the area covered**.
   1. Width of seeder x distance traveled (100 ft)
   2. On a 10' seeder, this would be 10' x 100' = 1,000 sq. ft.
5. **Calculate the seeding rate in pounds per acre**.

   Seeding rate (lbs/acre) = Step 3 Calculation (lbs) x 43,560 divided by Step 4 Calculation (sq. ft.)

Steps to calibrate a drill:

1. **Remove some drop tubes** from the bottom of drill box. The more tubes you remove, the more accurate your results will be. Do not remove all the tubes, leave some connected so that seeding depth can be checked.

2. Where the tubes were removed, **attach a sandwich bag** to collect the seed dispensed with a rubber band to hold it in place.

3. Take the **number of tubes removed** and multiply it by the row spacing and then **divide that number by 12.**

   Example: 5 tubes x 7.5" spacing / 12 = 3.13

4. Divide 435.6 by the number in calculated in step 3.

   Example: 435.6 / 3.13 =139.17

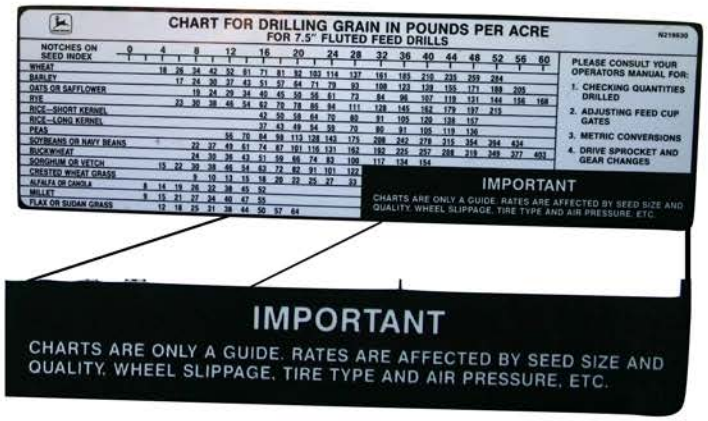
5. Take the number calculated in step 4 and drive that distance with the drill engaged and collect the seed dispensed with the sandwich bags.

   Example: You need to travel 139.17' to collect seed

6. **Weigh the seed collected** in step 5 and convert to pounds. **Multiply this number by 100**. This calculation is your seeding rate in pounds per acre.

   Example: if you collected 0.25# of seed then 0.25 x 100 = 25 lbs of seed per acre

7. **Check your seeding depth** on the rows where the tubes were left connected. Re-attach the tubes used to calibrate drill.



Seed	Approx. Seeds/lb.	Seeding Depth (Inches)	Planting Rate (lbs./acre)	Planting Rate (lbs./acre) in Mixes	Emergence Time (Days)	Suggested Planting Dates
Alfalfa	227,000	1/4 to 1/2	15 to 22	8 to 12	7	Mar-May, Aug-Sep
Barley	14,000	1 to 2	90 to 120	60 to 90	7	Mar-Apr, Aug-Oct
Birdsfoot Trefoil	370,000	1/4	8 to 10	2 to 8	7	Feb-May, Aug-Sep
Bluegrass, Kentucky	2,177,000	1/4	10 to 15	4 to 10	28	Feb-May, Aug-Sep
Brome, Alaskan	70,000	1/4	35 to 40	15 to 35	-	Apr-May, Aug-Sep
Brome, Meadow	93,000	1/4	15 to 20	5 to 10	14	Mar-May, Aug-Sep
Brome, Smooth	140,000	1/4	15 to 20	5 to 10	14	Mar-May, Aug-Sep
Buckwheat	15,000	1	40 to 50	-	7 - 10	June - July
Chicory	426,000	1/8 to 1/4	4 to 5	1 to 2	7 - 21	Apr-May, Aug-Oct
Clover, Berseem	207,000	1/4	10 to 15	3 to 6	7	May-Jun, Aug-Oct
Clover, Crimson	150,000	1/4	20 to 30	8 to 10	7 - 10	Aug - Oct
Clover, Ladino	800,000	1/8 to 1/4	4 to 6	2 to 4	7 - 10	Feb-May, Aug-Oct
Clover, Mammoth	272,000	1/4	10 to 12	2 to 6	7 - 10	Feb-May, Aug-Oct
Clover, Medium Red	272,000	1/4	10 to 12	2 to 6	7 - 12	Feb-May, Aug-Oct
Fescue, Meadow	227,000	1/4	18 to 20	4 to 10	7 - 14	Mar-May, Aug-Sep
Fescue, Tall	227,000	1/4	25 to 30	6 to 10	10 - 14	Mar-May, Aug-Sep
Festulolium	227,000	1/4	35 to 40	15 to 20	10 - 14	Mar-May, Aug-Sep
Hairy Vetch	16,000	1/4	20 to 25	8 to 15	10 - 14	Aug - Oct
Millet, Pearl	60,000	1/2	15 to 25	-	7 - 10	June - July
Oats, Spring	16,000	1/2 to 1	90 to 120	60 to 90	10	Mar-Apr, Aug-Sep
Orchardgrass	416,000 to 654,000	1/4	15 to 20	3 to 6	18 - 22	Mar-May, Aug-Sep
Peas, Austrian Winter	2,000 - 3,500	1/2	30 to 50	20 to 30	7 - 10	Aug - Sep
Peas, Cow	1,600 - 4,300	1/2	75 to 120	10-75	7 - 10	May - July
Rape	120,000 - 157,000	1/4	6 to 8	2 to 4	7	Apr-May, Aug-Sep
Reed Canarygrass	480,000	1/4	10 to 14	6 to 8	21 - 28	Mar-May, Aug-Sep
Rye, Cereal (Grain)	18,000	1 to 1.5	90 to 120	60 to 90	7 - 10	Mar-Apr, Aug-Oct
Ryegrass, Annual	210,000 - 227,000	1/4	30 to 40	6 to 10	7	Mar-Apr, Aug-Oct
Ryegrass, Italian	190,000 - 227,000	1/4	35 to 40	3 to 20	7	Mar-May, Aug-Sep
Ryegrass, Perennial	227,000 - 277,000	1/4	30 to 40	6 to 10	7 - 14	Mar-May, Aug-Sep
Sorghum, Forage BMR	12,000 - 20,000	1	6 to 8	-	7 - 10	June - July
Sorghum, Grain	10,000 - 18.000	1	4 to 20	-	7 - 10	June - July
Sorghum Sudangrass	13,000 - 20,000	1	30 to 40	-	7 - 10	June - July
Sudangrass	21,000 - 25,000	1/2	25 to 50	-	7 - 10	June - July
Sunflowers, Peredovik	7,000	1	8 to 40	-	7	May - Aug
Sweetclover	259,000	1/4	12 to 15	6 to 8	7 - 10	Feb-May, Aug-Oct
Timothy	1,200,000	1/8 to 1/4	10 to 15	2 to 6	10 - 14	Mar-May, Aug-Sep
Teff Grass	1,300,000	1/8 to 1/4	10 to 12	6	5 - 7	June - July
Triticale	15,000 - 20,000	1 to 1.25	100 to 125	50 to 70	7 - 10	Mar-Apr, Aug-Oct
Turnips	200,000 - 240,000	1/8 to 1/4	5 to 6	1 to 3	7	Aug - Sep

BEST FORAGE

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