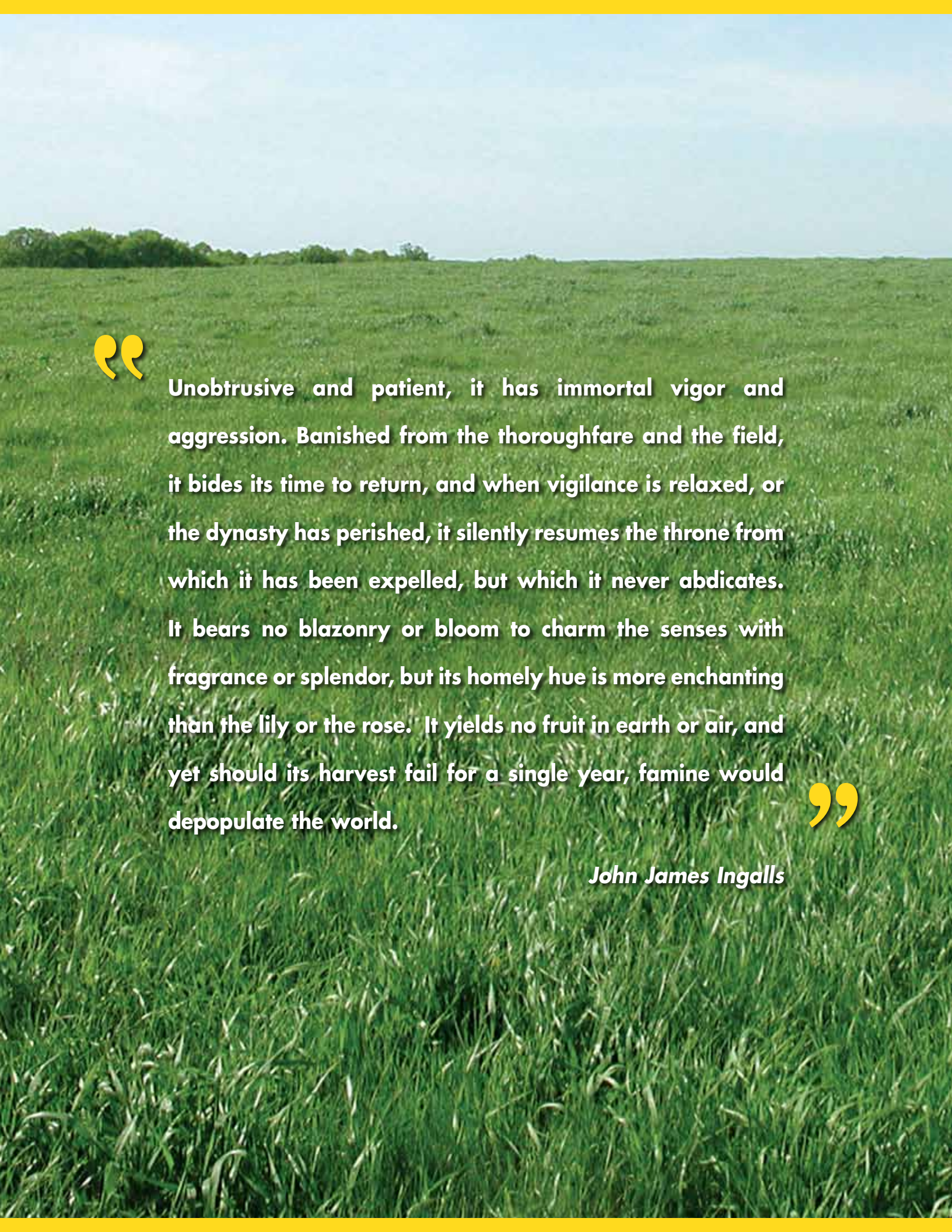
FORAGE PRODUCT GUIDE

Great in Grass®

BARENBRUG®



"Unobtrusive and patient, it has immortal vigor and aggression. Banished from the thoroughfare and the field, it bides its time to return, and when vigilance is relaxed, or the dynasty has perished, it silently resumes the throne from which it has been expelled, but which it never abdicates. It bears no blazonry or bloom to charm the senses with fragrance or splendor, but its homely hue is more enchanting than the lily or the rose. It yields no fruit in earth or air, and yet should its harvest fail for a single year, famine would depopulate the world."

John James Ingalls

BARENBRUG®
FORAGE

Whether it is animal nutrition or nutrient uptake, forages play an integral role in our natural cycle. The preceding excerpt was written by John James Ingalls in 1872 and was part of the introduction to our founder Joseph Theodore Barenbrug's book "Money in Grasses" published in February of 1908. The sentiment written by Mr. Ingalls, as with grass, holds the test of time.

For more than a century our research and plant breeding has been unrivaled. Each variety that we offer was selected to improve forage quality and animal performance, resulting in more yields. Whether it is milk production or weight gain, the result is more profit to you.

Our products are available exclusively through authorized Barenbrug dealers. Seeding rates available on page 32. For help finding the nearest authorized dealer, please contact your local Barenbrug Territory Manager listed on the inside back cover.

Highlighted products in this catalog have a code letter listed to the right of their name. Each letter indicates how the product can be used. For example, 'g' indicates that the product is suited for grazing. Likewise, the 'c' stands for cutting (silage or green chop) and so on. See Legend, below.

Legend

g – grazing	h – hay
c – silage & green chop	a – companion with alfalfa

Note: highlighted products are ones we recommend, based on their availability and planned usage.

Table of Contents

INTRODUCTION 1
HIGHLY DIGESTIBLE FIBER FOR DAIRY 2
SPECIES SELECTION FOR PASTURE 4
FORAGE MIXTURES 6
TALL FESCUE 7
ORCHARDGRASS 10
BROMEGRASS 11
ITALIAN RYEGRASS 12
ANNUAL RYEGRASS 14
TIMOTHY 15
PERENNIAL RYEGRASS 16
MEADOW FESCUE 17
FESTULOLIUM 18
KENTUCKY BLUEGRASS 18
ALFALFA 19
RED CLOVER 20
WHITE CLOVER 20
BRASSICAS 21
CHICORY 21
ENDOPHYTES 22
FORAGE ANALYSIS TERMINOLOGY 23
RESEARCH AND DEVELOPMENT 24
YELLOW JACKET ENHANCED SEED COATING 26
METHODS FOR ESTABLISHMENT OF GRASSES & CLOVERS 27
ESTABLISHING & MAINTAINING SOIL FERTILITY 28
MANAGING NEWLY SEEDED GRASSES & CLOVERS 29
DESCRIPTIONS OF KEY VARIETIES 30
EQUINEMASTER PROGRAM 31
SPECIES CHARACTERISTICS 32
BARENBRUG FORAGE SPECIALISTS IBC

NutriFiber™

The Highly Digestible, Effective Fiber for Dairy Rations

Today's high-producing dairy cows require both Non-Fiber Carbohydrate (NFC) and Neutral Detergent Fiber (NDF). Properly balancing NFC and NDF is critical for animal health and profitable production. Table 1 below presents ration guidelines.

Table 1: Fiber guidelines for high producing cows

	NFC	NDF	peNDF*	TTNDFD
	% of DM	% of DM	% of NDF	% of NDF
Ration Guidelines	≤40	28 to 30	75	≥43

Commonly formulated rations, however, frequently contain too much NFC and too little highly digestible physically effective fiber. Unlike commonly utilized feedstuffs (table 2), NutriFiber is ideally composed to properly balance high energy rations for today's high-producing dairy cows.

Ruminants fed a diet high in water-soluble carbohydrates (sugars and starches) from grain and other pre-processed feeds, can suffer in a number of ways. A lack of highly digestible, physically effective NDF (peNDF) plus an excess of rapidly fermenting grains and sugars can cause chronic lactic acidosis in dairy cows and other ruminants. Issues such as hoof problems, milk fat depression, high cull rates, transient diarrhea, unexplained death loss, clostridial infections or liver abscesses can be caused by Subacute Ruminal Acidosis (SARA).

Forages low in Neutral Detergent Fiber Digestibility (NDFD), such as mature alfalfa and grasses, corn stalks or even wheat straw, will provide fiber but can limit feed intake due to slow passage rate. The NDFD of commodities like corn gluten feed and beet pulp are high, but their total NDF content is relatively low and their NFC content is high (see Table 2), making it difficult to achieve the ration target shown in Table 1. Soy hulls do contain a relatively high amount of NDF that is highly digestible and have a low content of NFC, but they are low in the physically effective NDF (peNDF) that cows need for cud chewing and proper rumen function.

Unfairly penalized

Plant fiber is a complex material that varies greatly in its digestibility. NDF is a forage test that measures the total amount of fiber in a feed. It has been understood for a long time that NDF is a measure of the "bulky," slow-to-digest feed component. The higher the NDF value, the less an animal could consume and the lower the forage quality. Some forages, such as cool season grasses, have higher NDF content than alfalfa, and have been considered lower quality as a result. This, it turns out, is an over-simplification.

Table 2: Feeds used to add fiber lower NFC

	NDF	TTNDFD	NFC
	% of DM	(% of NDF)	% of DM
Wheat Straw	73	24	12
Corn Gluten Feed	35	51	31
Beet Pulp	46	70	36
Soy Hulls	60	75	18
NutriFiber Forages	40 - 50	45 - 60	18 - 25

The truth is that NDF values cannot be compared between forage species. Not all NDF is created equal. Optimizing forage utilization by dairy cattle requires knowledge of the NDFD and the rate at which it digests.

NutriFiber™ forages increase butterfat level, improve herd health and maintain milk production.

Table 3: Fiber digestibility varies in forages

NutriFiber Grasses are higher in fiber digestibility than other grasses with similar NDF Content*

Table 3	NDF range	TTNDFD
	%	% of NDF
Green Spirit^	46 - 56	59.5
Other grasses~	46 - 56	48.3

* Forage samples submitted to Rock River Labs, Watertown, WI in 2012
^ Values from 9 samples
~ Values from 448 samples

"Greater differences exist among grass varieties than among corn hybrids and soybean varieties."
- Dr. Dan Undersander, Univ. WI

A New Tool to Compare Forages

Relative Feed Value (RFV) has been widely used to rank forages for pricing, harvesting and allocation of forages to different groups of animals. It was largely influenced by Acid Detergent Fiber (ADF) and NDF values. Relative Forage Quality (RFQ) was developed as an improvement on RFV. The RFQ value incorporates digestible fiber, making it a better indicator of how an animal would perform on a given forage. But a basic limitation of RFQ is that NDF values from alfalfa, corn silage and grasses cannot be directly compared.

The Total Tract Neutral Detergent Fiber Digestibility (TTNDFD) procedure, developed at and licensed through the University of Wisconsin, provides estimates of quality that agree with in vivo literature across feeds.

This new forage quality assay can also be used in developing new varieties as a selection criteria in breeding programs. The NutriFiber trademark is your assurance that your forages have the highest genetic potential of producing the highest TTNDFD ration forage components for your high-producing cows.

Table 4: NutriFiber Compared to Typical Forage Analysis

	NFC	NDF	peNDF*	TTNDFD
	% of DM	% of DM	% of NDF	% of NDF
Alfalfa	25	40	67 - 80	47
Corn Silage	45	40	67 - 80	40
Grass Forage	18	45	98	47
NutriFiber	18	45	98	55

"Acidosis is the most important nutritional problem that feedlots face daily and is a major challenge for dairies as well."[1] [it is] "Caused by a rapid production and absorption of acids from the rumen when cattle consume too much starch (primarily grain) or sugar in a short period of time, acidosis causes cattle to be stressed. As long as cattle are finished on grain, cows are grazed on cornstalk fields (grain consumption) or high energy (grain) diets are fed to dairy cows, acidosis will be an important problem."[2]

"... grains are subject to microbial fermentation in the rumino-reticulum part of the stomach complex. ... The microbial fermentation of starches contained in grains can proceed too rapidly causing the rumen to become acidotic. The severity of the acidosis may range from mild to life threatening."[1]

REFERENCES:

1. Acute and Subacute Ruminal Acidosis, Dr. Clell V. Bagley, D.V.M., USU Extension Veterinarian.

2. Acidosis, Rick Stock, Extension Feedlot Specialist and Robert Britton, Ruminant Biochemist, University of Nebraska.

Products with NutriFiber Technology:

Green Spirit® – Highest Quality Cool Season Grass

- Short season forage crop
- Increase corn silage yields in rotation
- Ideal for inter-seeding into thinning alfalfa
- Can be planted as straight stands

E² – Hybrid Alfalfa + Soft Leaf Fescues

- Higher yield than straight stands of alfalfa
- Improved stand life
- Higher digestible fiber yield than straight alfalfa
- Components matched for maturity

Milkway – Meadow & Soft-Leaf Fescues

- Wide range of adaptation
- Highest quality perennial forage
- Traffic tolerant, ideal for multiple manure applications
- Improve butterfat and milk yield

STF-43™ – Soft-Leaf Fescue

- Widely adapted perennial
- 10-15% better digestibility than typical tall fescues
- Long lived
- Ideal for nutrient management needs on large dairies

SPECIES SELECTION FOR PASTURE




ANNUAL RYEGRASS ▫ TALL FESCUE ▫ PRAIRIE BROME ▫ ALFALFA ▫ CLOVERS ▫ ITALIAN RYEGRASS ▫ PERENNIAL

Which species and varieties should be planted in a pasture? These age old questions continue to occupy the thoughts and discussions of farmers and ranchers. Although these discussions are always site specific, Barenbrug offers some useful tools to help make the right decision. This article focuses on the Midwest and Northeast, but you can apply the same information to other geographical areas.

Often, people believe that planting a field with a mixture of many grasses and legumes will result in a good stand. It is thought that if you plant enough different species, most of them will establish and provide forage at different times throughout the year. This has resulted in many very complex mixtures, with 15 or more components and as little as two or three percent of certain ingredients. However, if you plant all the grasses and all the legumes in all the paddocks, you will end up with the ones that your pasture management dictates.

Andre Voisin, the father of Intensive Grazing Management (IGM), provides an example. He planted two pastures with white clover, orchardgrass and perennial ryegrass, then grazed them alternately every 10 days. He harvested the third pasture as hay. After a few years, the heavily grazed pastures were mostly perennial ryegrass and white clover; the pasture that matured as hay was predominately orchardgrass. The harvest management, soil type, fertility, drainage and forage species planted dictate the pastures you end up with.

Other theories state that you should not try to improve a pasture at all. "Whatever Mother Nature provides is best." Our experience is that, indeed, Mother Nature does provide. However, improving an old pasture can result in increased production and economic returns in as quick as one year.

Pasture Differentiation

Grass can be divided into four categories, based on your need: high-energy forage, drought and heat tolerant forage, a place for livestock to graze in wet weather and harvesting forage to store for the winter months. Below, we offer a bit more information about those types.

1. The need for high-energy paddocks is for dairy cow milk production and for high weight-gain of cattle and lambs. These paddocks will return the highest profit and they should be on your best land. This allows you to maximize production for the lowest cost. The grass species that fit this category are perennial ryegrass, meadow fescue and timothy. Add white clover and chicory and you have created a pasture that has high energy, high digestibility, high yields, good density and good palatability. The best management for these forages is to graze very tight and often. They have similar growing rhythms and will persist together.

2. Every farm also must have paddocks that are drought and heat tolerant. The high energy paddocks suffer in the summer heat, so you need ones that tolerate heat and lack of moisture. Tall fescue is drought-tolerant because it sends its roots deeper to reach moisture. Orchardgrass is also heat tolerant. In a hot summer with enough rain, orchardgrass grows rapidly. In a summer with low rain and high temperature, tall fescue lasts longer. Alfalfa is a very drought-tolerant, high quality legume. In soils that are more subject to drought and heat, plant alfalfa with tall fescue or orchardgrass.

RYEGRASS ▫ TIMOTHY ▫ MEADOW FESCUE ▫ ORCHARDGRASS ▫ BROMEGRASS ▫ BRASSICAS ▫ CHICORY

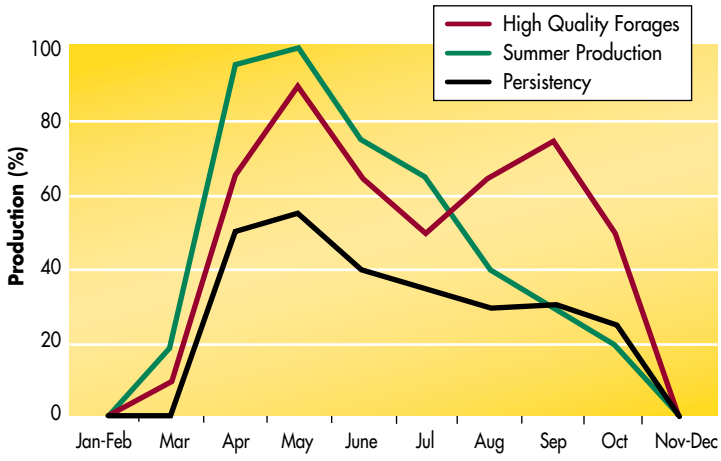
3. Every farm is subject at times to too much rain. If you have a farm with sandy soils, it is not hard to deal with excessive rain, but if you have poorly drained soils, it can be a big problem. Grazing when excessively wet may permanently damage high energy and drought-tolerant paddocks. To minimize this, plant some paddocks that create a dense sod for wet weather grazing. Bluegrass, smooth brome and reed canary grass regenerate after being plugged because they are rhizomatous (a rhizome is an underground stem), so they quickly reform sod. Tall fescue also forms a durable sod. If it is dryer than normal, you can harvest these species for hay and silage.

4. A great number of forages which are harvested and stored are annuals, such as corn, sorghum-sudan millets and brassicas. These are designed to fill in holes of forage production throughout the year and to be used for winter feed. Some farms don't grow any annuals, rather choosing to purchase any forage that their pastures do not provide.

Total Farm Concept

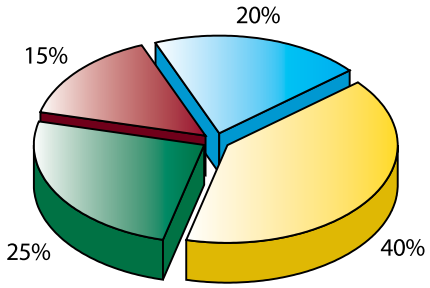
Diversity of species on a grass farm is an absolute must. However, we want them to be in simple, complimentary mixtures and in different paddocks as described above. This way, the species can be best managed for obtaining optimum animal performance. You must look at your entire farm and plant forage species accordingly. We call this the "Total Farm Concept" approach to forage species selection.

DRY MATTER PRODUCTION CURVES

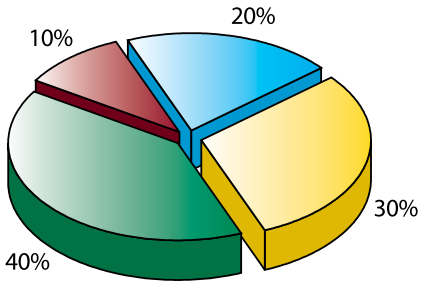


The above chart depicts production peaks throughout the production year, based on the type of forage planted. The pie charts represent possible land allocation available to the producer.

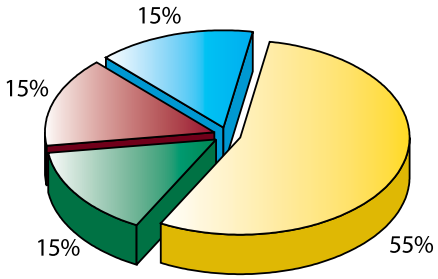
LAND ALLOCATION



Dry Matter Production



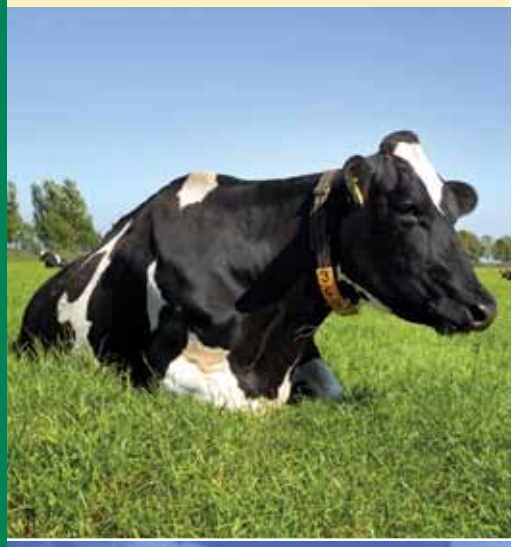
Same Farm on Lighter Soil



Same Farm with Irrigation

FORAGE MIXTURES

Barenbrug offers the ideal combination of high quality forage products suited for your specific animal needs. We understand that digestive systems work differently between species. Even within the same species, different results are desired. With this in mind, Barenbrug is proud to offer our Master Series products. While choosing the correct product can be a daunting task, we have made it very simple so you can **plant with confidence**.



Beefmaster®

Premier Pasture Mix — g

Beefmaster is a special formulation of forage grasses for raising stocker cattle, as well as beef cows and calves. Beefmaster contains highly digestible, soft-leaf tall fescue varieties which increases overall dry matter intake compared to rough-leaf tall fescues. In addition to the soft-leaf tall fescues, Beefmaster's orchardgrass varieties maintain their productivity even under close grazing. Highly productive, high energy forage varieties in Beefmaster provide rapid weight gains in beef cattle. Beefmaster also contains new, persistent varieties of perennial ryegrass which further improve the forage quality of the pasture.

Dairymaster®

Very High Energy — g,c

Dairymaster is an exciting mixture, scientifically formulated to provide a quality pasture ideal for dairy applications. It is very suited for replacement heifers, lactating beef cows and stocker operations. Dairymaster contains the best of all species: perennial ryegrass, very soft-leaf tall fescue and meadow fescue. All varieties used are winter-hardy, persistent and high in energy and protein. Dairymaster also contains Alice white clover. Alice will fix nitrogen as well as improve protein and energy levels of the sward.

Horsemaster®

Formulated Specifically For Horses — g,h

Horsemaster is a mixture made specifically for horse pastures. Because horses have both upper and lower teeth, they graze the grass close to the soil. Also, horses are very active animals and put a lot of traffic pressure on grass. Horsemaster mixtures have been designed to alleviate the close grazing and traffic pressure from horses. Barenbrug has developed different mixtures for different climates, but all mixtures include at least timothy, orchardgrass and ryegrass. Horsemaster is guaranteed endophyte-free.

Stockmaster®

General Use Pasture Mixture — g,h

Stockmaster pasture mixtures are formulated with the top varieties for each region of the USA. These regional mixes contain improved varieties that allow for highly digestible, vigorous and persistent pastures suited for all classes of livestock. The complex formulas allows them to be used even under less than ideal conditions. Stockmaster is a perfect mixture for smaller acreage fields that require a long lasting, high quality pasture. Stockmaster pastures may also be used for hay fields after establishment.

Browsemaster®

Premium Goat Mixture — g

Browsemaster is a new grass seed mixture from Barenbrug for goat pastures. Research has indicated that the productivity of goats is higher in a pasture with a diverse array of forage species rather than a mono-stand. Browsemaster has the optimum combination of browse, forbes and grasses to improve the meat and milk production in goats. Regionally adapted, Browsemaster mixtures are available for the transition zone and southern United States. The primary component of Browsemaster is Barenbrug's high quality chicory. Browsemaster also contains red clover, alfalfa and forage brassica varieties for protein and forage grass for digestible fiber.

| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

BarOptima PLUS E34®

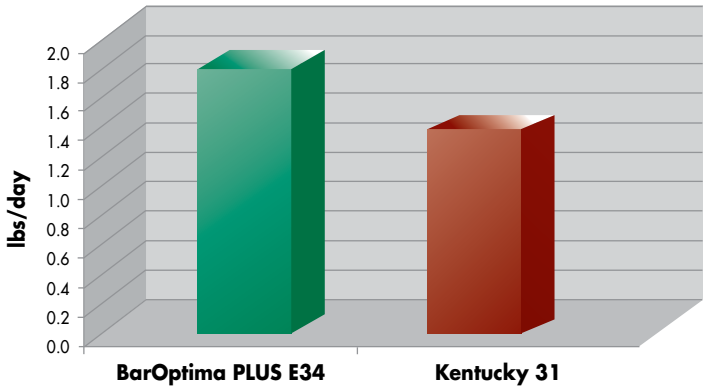
The most widely grown forage tall fescue (Kentucky 31) is also known to be toxic to cattle. Endophytes in the plant create alkaloids which produce higher temperatures, less weight gain, lower pregnancy rates and less milk production in cattle. Yet, the endophyte responsible for these toxic effects also gives tall fescue great persistence and high yield.

After years of research, Barenbrug has developed a beneficial endophyte that eliminates toxicity but retains the traits of persistence and high yield. This endophyte is E34.

Barenbrug has introduced E34 into the elite, soft-leaf tall fescue BarOptima. BarOptima PLUS E34 is the newest generation of forage grass, containing three desirable tall fescue traits: a high quality forage with high yield and persistence. This is a revolutionary tall fescue that improves palatability while eliminating toxicity and increasing animal productivity.

BarOptima PLUS E34 represents Barenbrug's commitment to the livestock industry with a program of total forage energy. Traditionally, forage grasses have been defined by two traits: yield and persistence. Barenbrug places a strong emphasis on a third trait – forage quality. After all, forage quality has a direct effect on animal performance and ultimately on your profits.

AVERAGE DAILY GAIN



University of Arkansas, Hope • Average of Two Years

FORAGE YIELD (Dry Matter tons/acre)[3]

	Maturity	3 yr. Total
BarOptima PLUS E34	**43.5**	**10.6**
Kentucky 31	51.0	9.4
Bull	57.0	8.8
Select	54.5	8.6
Jesup Max-Q	54.5	8.5
Texoma Max-Q II	53.5	8.2
Bronson	56.0	7.6
LSD (0.05)	3.5	1.7

Maturity Rating on May 6, 2008; Scale: 37=Flag leaf emergence, 45=boot swollen, 50=Beginning of inflorescence emergence, 58=complete emergence of inflorescence, 62=beginning of pollen shed.
[3]University of Kentucky, Lexington

TALL FESCUE

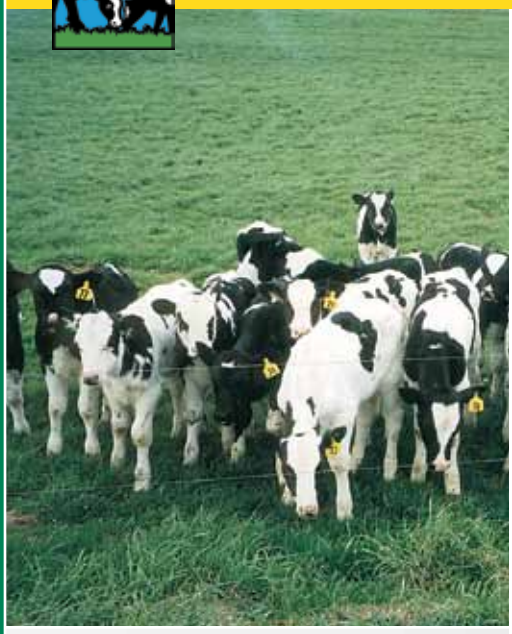
Tall Fescue is a highly adaptable species which grows well in dry or wet conditions. It is also winter-hardy and persistent. Tall fescue grows early in the spring and has the potential for high dry matter production with nitrogen fertilization.

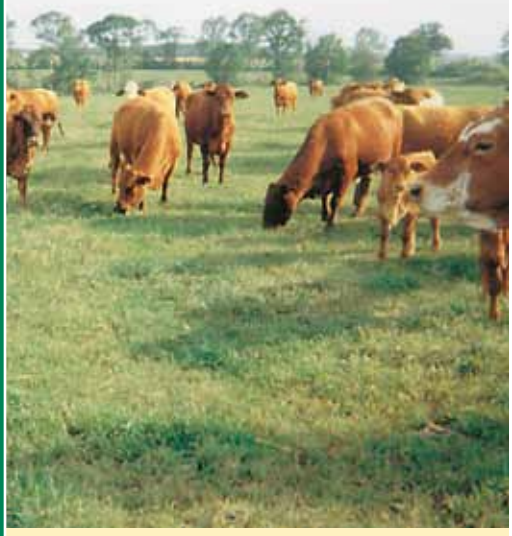
Some tall fescue can, however, be unpalatable due to rough leaves and high lignin content. Barenbrug's breeding activities have led to soft leaf, higher yielding varieties with significantly improved palatability and digestibility.

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's forage varieties contain harmful endophytes.

Soft Leafed Fescue *Tall Fescue*

TALL FESCUE *Festuca arundinacea*





Photos: Common Tall Fescue

STF-43

High Energy — c,h,a

STF-43 is a premium blend of late maturing, soft-leaf tall fescues. This blend is formulated with varieties that provide exceptional levels of dry matter. STF-43 is highly digestible, therefore promoting rumen health and productivity. STF-43 is well-suited for cutting systems and an excellent selection for planting with legumes.

NEW

Prosper

Drought Tolerant, Winter Active — g,h

Prosper is a truly summer dormant variety with an erect growth habit and fine, soft leaves. Prosper has good winter and spring growth, excellent rust resistance and is suited to summer dry environments. It is suited for areas in the southern plains where other tall fescue varieties cannot persist due to low rainfall and high heat. Prosper is the perennial alternative to graze-on wheat. It is more persistent and high yielding than tall wheatgrass. Prosper is on the NRCS recommended list for pasture renovation.

Barolex

High Intake — g

Barolex is a quick establishing, soft-leaf variety with exceptional dry matter yields. This variety produces a dense sod and the leaf quality is similar to perennial ryegrass. Barolex is an outstanding variety selection for grazing applications.

Drover

Rapid Establishment — g,c,h

Drover is an early maturing variety selected for heat and cold tolerance under drought conditions. It is a very high dry matter producing variety. Drover has good seedling vigor and very rapid establishment. It has an upright growth habit making it highly suitable for hay production. Drover is endophyte-free but still persists well under grazing in harsh environments. Drover is suited for stockpiling and fall grazing.

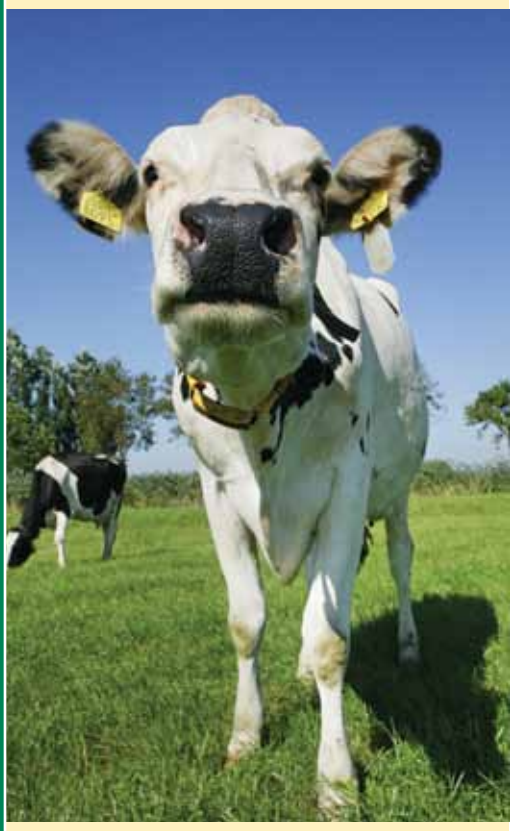
| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

		Maturity	Palatability	Digestibility	Winter Hardiness	Suitability for Grazing
BarOptima	Very soft leaf	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓✓
STF-43	Soft leaf	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓
Barolex	Very soft leaf	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓✓
Drover	Rough leaf	✓	✓✓	✓	✓✓	✓✓
Bariane	Soft leaf	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓
BarElite	Soft leaf	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓
Barcarella	Semi-soft leaf	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓
Kentucky-31	Rough leaf	✓✓	✓✓	✓✓	✓✓✓	✓
Prosper	Soft leaf	✓	✓✓	✓✓	✓	✓✓✓
Fawn	Very rough leaf	✓	✓	✓	✓✓	✓

ORCHARDGRASS *Dactylis glomerata*

ORCHARDGRASS

Orchardgrass is suited for light textured soils due to its outstanding drought tolerance. Varieties have varying degrees of winter-hardiness. The species is rather slow to establish but has good persistency if managed properly. Orchardgrass is ideal for hay, silage and grazing. Once growth starts in the spring, orchardgrass tends to head very quickly. Late-heading varieties, therefore, can provide more flexibility in management options. Late maturing orchardgrass is also popular as a companion grass for alfalfa.



NEW

HLR Orchardgrass

High Leaf Ratio — g,c,h,a

Years of breeding efforts go into improving the forage quality and simultaneously the forage yield of orchard grass varieties. HLR Orchardgrass contains the best and latest orchardgrass varieties from Barenbrug's breeding program. The varieties have been selected for high leaf to stem ratio which means more leaves for improved digestibility and energy, with less stems that reduce the palatability of the pasture. New diseases keep appearing in the orchardgrass pastures. Barenbrug breeders are continuously selecting for disease tolerance and HLR Orchardgrass is tolerant to rust and other leaf diseases. The intermediate to late heading varieties in HLR are ideal for interplanting with alfalfa.

Baridana

Late Maturing & Winter-Hardy — g,c,h

Baridana is a late maturing orchardgrass. It is a very winter-hardy variety with excellent rust resistance. Baridana produces a dense sward with few of the typical orchardgrass clumps. This makes Baridana well-suited for pastures, as well as being high in digestibility and protein.

Baraula

Very Late Maturing — g,c,h,a

Baraula is a high yielding, very late maturing orchardgrass variety. Baraula exhibits a high leaf-to-stem ratio, high palatability and digestibility. With its late maturity, Baraula is the orchardgrass of choice to grow with alfalfa, for either a new planting or to extend the life of an existing field.

Intensiv

Very Late Maturing and Winter-Hardy — g,c,h,a

Intensiv is a very late maturing variety from Barenbrug. Intensiv is winter-hardy and has excellent disease tolerance (fusarium and leaf spot) making it quite persistent. Intensiv has a high leaf-to-stem ratio and the hay produced from Intensiv has excellent digestibility. With very late-heading and high dry matter yields, Intensiv is highly suited for planting with alfalfa in mixed stands.

	Maturity	Palatability	Rust Resistance	Density	Winter Hardiness
Baridana	✓✓✓	✓✓✓	✓✓✓✓✓	✓✓✓	✓✓✓✓
Baraula	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓
HLR	✓✓✓✓	✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓✓
Intensiv	✓✓✓✓	✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓✓
Potomac	✓	✓✓	✓	✓	✓✓

Matua

High Yields

g,c,h

Matua prairie brome (*Bromus willdenowii Kunth*) is a widely adapted prairie bromegrass. It has a great track record as a grazing species under irrigation in the arid Southern US. Farther north, it does well as a grass companion in hay fields. In addition, its role in wastewater management is well established. Matua seed is treated to prevent headsmut and processed to ensure that seed is free flowing during planting. Certified Matua is easily recognized by its pink color.

Hakari

Winter-Hardy

g,c,h,a

Hakari Alaska brome (*Bromus sitchensis*) is considered the Matua for the colder climates of North America. It is very fast to establish and re-grow. The feed quality is high and it can be used as a companion with alfalfa. Hakari is a late maturing, very high yielding variety that is not susceptible to smut.

| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

BROMEGRASS

The Brome genus is a large family of varied grasses. Some species are extremely winter-hardy and persistent. Others exhibit an indeterminate seeding habit and persist through frequently dropped seed. Bromegrasses require high fertility levels and well-drained soils. Bromegrasses, in general, do well when planted as a companion with alfalfa.

Hakari is later heading compared to other bromegrass.

ITALIAN RYEGRASS *Lolium multiflorum*

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. This results in high quality forage production without the low quality stems and seed heads during the first year. Recently, Italian ryegrass has been recognized as the perfect rotation crop for plow down or emergency feed. Crops that follow a stand of Italian ryegrass also show higher yields, compared to other green manure crops.

As with perennial ryegrass, the tetraploid varieties of Italian ryegrasses have higher fresh-yield, high moisture content, broader leaves and are often more disease resistant, where as diploid varieties are more persistent and winter-hardy.

Green Spirit®

Diploid/Tetraploid

g,c

Use this perfect blend of diploid and tetraploid Italian ryegrasses as a rotation crop for fall planting. When planted in the spring, seed heads do not emerge during the first year. Green Spirit is a perfect high quality emergency feed. Compared to small grains, Green Spirit offers higher yields of higher quality forage for a lower seed cost.

Green Spirit produces impressive forage yields of exceptional high quality feed.

The varieties used in Green Spirit require prolonged periods of cold weather for vernalization. Once vernalized, the plant has the ability to produce seed heads which result in the loss of forage quality. Inferior products that imitate Green Spirit vernalize with much shorter periods of cold, producing seed heads soon after planting when spring nighttime temperatures drop.

Short Lived Forage Trial, 2011-2012, PA, Fall Sowing

	DM Yield Tons/Acre			
	Cut 1	Cut 2	Cut 3	Total
Green Spirit (Var. Barmultra II)	1.83	2.40	1.79	6.02
Green Spirit (Var. Barextra)	1.91	2.19	1.72	6.82
Marshall Annual Ryegrass	1.86	2.29	1.57	6.71
Trical 815 Triticale	2.91			2.91
W1566 Wheat	2.55			2.55
Aroostock Rye	2.35			2.35
FS 501 Barley	1.61			1.61

Short Lived Forage Trial, 2011-2012, PA, Fall Sowing

	Average of All Cuttings			
	CP %	ADF%	NDF %	NDFd 30
Green Spirit (Var. Barmultra II)	17.5	29.8	49.7	52.8
Green Spirit (Var. Barextra)	17.6	27.3	47.3	54.7
Marshall Annual Ryegrass	17.6	30.3	51.0	52.0
Trical 815 Triticale	16.9	28.4	48.2	50.1
W1566 Wheat	16.5	26.7	46.3	44.3
Aroostock Rye	16.3	32.2	53.7	47.1
FS 501 Barley	17.5	28.1	47.5	55.8

"The dairy quality feed produced by Green Spirit is significant to our dairy nutrition program.

We have added it to existing alfalfa, planted it as straight stands and added it to our triticale to improve quality and tonnage.

We have seen better water retention and increase in soil organic matter following Green Spirit.

Green Spirit works very well in our nutrient management plan."

Denis Petrissans • Jai Alai Dairy

		Maturity	Winter Hardiness	Grazing Tolerance
Green Spirit	Diploid/Tetraploid	✓✓✓	✓✓✓	✓✓✓
Bardelta	Diploid	✓✓✓	✓✓	✓✓✓
Barextra	Tetraploid	✓✓✓	✓✓	✓✓✓
Barmultra II	Tetraploid	✓✓✓✓	✓✓✓	✓✓
Barprisma	Diploid	✓✓✓	✓✓	✓✓✓

| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

ANNUAL RYEGRASS *Lolium multiflorum westerwoldicum*

ANNUAL RYEGRASS

Annual Ryegrass establishes quite rapidly, which gives high productivity in the planting season. This species is mainly used for overseeding warm season pastures in the fall. Annual ryegrass is capable of producing high forage yields in a very short period of time.

Maximus

Tetraploid — g,c

Maximus is a tetraploid annual ryegrass from Barenbrug. Maximus is a medium maturing variety with substantial winter growth resulting in high dry matter production. Maximus exhibits an erect growth habit with large leaves making it ideally suited for mechanical harvesting. Maximus has good rust resistance and is suitable for production in the Gulf Coast states as well as California.

Jumbo

Rust Resistant and Late Maturing — g,c

Jumbo is a late maturing tetraploid annual ryegrass, developed by Dr. Gordon Prine at the University of Florida. The superior rust resistance of Jumbo in varied environments is legendary. Jumbo has consistently performed well in forage trials throughout the annual ryegrass growing regions of the US. Jumbo exhibits cold tolerance, vigorous growth habit and high forage yields. The variety is suitable for mechanical harvesting (silage) as well as grazing.

Ribeye

Early Spring Production — g,c

Ribeye is a diploid annual ryegrass variety for overseeding bermudagrass pastures in the southern US. Ribeye is also suitable for overseeding crop fields in the Midwest to provide winter feed for beef cattle as well as erosion control. Ribeye is an early maturing variety with good rust resistance and cold tolerance. Ribeye is highly suited for grazing.

Hercules

Tetraploid, Winter-Hardy — g,c

Hercules outperforms other popular cultivars in the transition zone where winter hardiness in a variety is critical. Hercules is late maturing and very leafy, making it suitable for greenchop and grazing. If spring planted, it has low seed formation early in the season and hence better forage quality compared to other varieties.

		Maturity	Winter Hardiness	Resistance to rust	Tolerance to grazing
Maximus	Tetraploid	✓✓✓	✓	✓✓✓✓	✓✓
Jumbo	Tetraploid	✓✓✓	✓✓	✓✓✓✓✓	✓✓✓
Ribeye	Diploid	✓✓	✓✓✓	✓✓	✓✓✓
Hercules	Tetraploid	✓✓✓✓	✓✓✓	✓✓	✓✓
Gulf/VNS	Diploid	✓✓	✓	✓	✓

| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

Barfleo

Spring Production g,h,a

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. Although timothy is not widely used for grazing, Barfleo has improved grazing tolerance and performs well in horse grazing trials. Barfleo can be used for pastures in high mountain regions and areas with deep snow cover in winter.

Barpenta

Very Late Maturing g,h,a

Available in 2008-09, Barpenta is the latest improved timothy variety from Barenbrug. Despite being a very late-heading variety, it is a high dry matter yield producer. Barpenta is suited for timothy hay producers who like to diversify their acreage with varieties maturing throughout the season. This aids in spreading the hay swathing and baling workload throughout the season.

	Maturity	Palatability	Digestibility	Winter Hardiness	Suitability for Grazing
Barfleo	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Barpenta	✓✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓
Tenho	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Climax	✓✓✓	✓✓	✓✓	✓✓	✓

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. Barenbrug varieties perform well under grazing. Late maturing varieties are better suited for grazing. Barenbrug varieties perform very well under a grazing management system.

PERENNIAL RYEGRASS *Lolium perenne*

PERENNIAL RYEGRASS

Perennial Ryegrass is the most widely grown cool season forage grass in the world. In the past, perennial ryegrass use in North America was limited because existing varieties were only adapted to regions with mild climates. In the last few years, Barenbrug has successfully introduced more productive and more persistent varieties into North America.

Perennial ryegrass is persistent if soil fertility is high. It also tolerates intensive grazing and cutting, re-growing quickly after defoliation. Since different varieties exhibit a wide range of characteristics such as maturity, winter-hardiness, disease resistance, digestibility, dry-matter production and persistency, perennial ryegrass fulfills the needs of many different farming systems. Careful management and variety selection ensure the best results.

Perennial ryegrass is ideal for making high quality grass silage, cut and carry and grazing. It can also be planted with alfalfa.

Barenbrug offers straight perennial ryegrass varieties as well as blends. The benefit of blends is their wider adaptability in different areas. In past years, these blends have proven their value to US farmers and ranchers.

BG-24T

Persistent and Productive — g,c

BG-24T is a unique, innovative blend of early and intermediate maturing diploid and tetraploid perennial ryegrass varieties. Nearly a decade ago Barenbrug released BG-34, a blend with late maturing perennial ryegrass varieties. Since then Barenbrug breeders have selected new, more heat and cold tolerant 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 of the cooler regions of US. BG-24T consists of mainly diploid perennial ryegrass varieties which provide stand density along with some tetraploid perennial ryegrass varieties which improve the overall palatability and productivity of the grass field.

BG-34

Winter-Hardy and Late Maturing — g,c

BG-34 is a blend of the best late maturing winter-hardy varieties of perennial ryegrass. BG-34 is the standard of high quality pastures and hay fields throughout the northern US. Dairy farmers report milk production increases of up to 10 pounds of milk per cow per day when feeding BG-34 perennial ryegrass. Used in a pure stand or in a mix with white clover, BG-34 provides extremely high quality forage.

Tetra-Plus

Tetraploid Blend — g,c

Tetra-Plus has been revised and now consists of all tetraploid perennial ryegrass varieties. The new varieties were selected for improved stand density and winter-hardiness. Tetra-Plus contains Remington which is very persistent, even at extremely cold temperatures. Tetra-Plus is a unique combination of good forage quality, high productivity and stand longevity which make it ideal for green-chop and silage.

| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

		Maturity	Winter-Hardiness	Density	Grazing Tolerance
BG-24T	Diploid	✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓✓
BG-34	Diploid	✓✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓✓
Barnhem	Diploid	✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓✓
Mara	Diploid	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓
Bargala	Tetraploid	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓✓
Remington	Tetraploid	✓✓✓✓	✓✓✓✓✓	✓✓✓	✓✓✓✓✓
Barsprinter	Diploid	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓✓
Linn	Diploid	✓	✓	✓	✓✓

NEW

Milkway®

Effective Fiber and High Energy

Milkway contains fescue varieties that test and perform well in TMR of high producing dairy cows at University of Wisconsin.

Research by numerous agronomist and dairy scientists indicates Barenbrug forage fescues are ideally suited for the TMR of high producing dairy cows in Northern USA. Barenbrug has created the ideal product so that dairymen can take advantage of benefits of Barenbrug forage fescues. Milkway contains high yielding meadow fescue and extremely digestible soft leaf tall fescue cultivars. 'Pradel' meadow fescue provides exceptionally high NDFd and thus improved rate of digestion. It does not cause 'rumen fill' as it is one of the lowest NDF grasses that can be grown in Northern USA. 'BarElite' and 'Bariane' soft leaf tall fescues are world renowned for their suitability for dairy TMR due to their low NDF and high NDFd values. Milkway is the ideal grass blend for TMR silage production; it provides stable NDF and NDFd throughout the season so the dairyman can pack different cuttings in the same bunk. Research shows that using Milkway grass blend in dairy TMR can improve milk production 5–15 percent over traditional wheat straw diets.

Milkway is planted as a monostand and produces high dry matter yields under manure application or with nitrogen fertilizer applications. It is traffic tolerant and can sustain multiple manure applications. Milkway is ideally suited for interplanting with alfalfa as its growth rhythm matches the growth rhythm of alfalfas grown in Northern US. Unlike traditional grasses, it is not too competitive with alfalfa and will not take over the alfalfa nor does it disappear after a couple of years in an alfalfa stand.

NEW

HDR Meadow Fescue

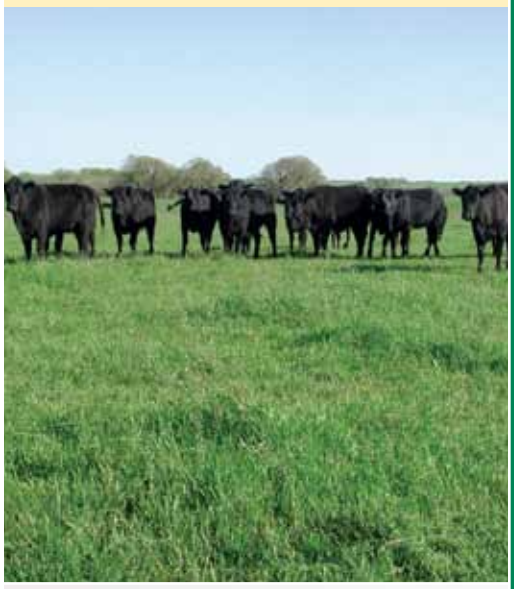
Yield, Energy, Strength

HDR (**H**igh yielding, **D**igestible and disease **R**esistant) meadow fescue is developed for dairy and beef producers who are interested in providing the best energy grass for their livestock. HDR has varieties that are selected for high yields in the United States. HDR is the most digestible and high energy forage grass that can be grown in the continental climate of U.S. that is characterized by very hot summers and very cold winters. HDR contains *Pradel* the most disease resistant meadow fescue variety on the market.

Barenbrug probably has the biggest breeding program for development of meadow fescue in North America and YES, with it we are proud to bring to you the most advanced meadow fescue blend on the market.

MEADOW FESCUE

Although very popular in Canada, meadow fescue is seldom used in the US. It grows under cool, moist conditions, tolerating wet and sometimes flooded soils. Once established, it also performs well under drier conditions for making hay or silage. On good soils, meadow fescue surpasses perennial ryegrass in summer production. Meadow fescue is also a good companion to grow with alfalfa.



FESTULOLIUM *Lolium x festuca pratense*

FESTULOLIUM

Varieties of festulolium are obtained by crossing perennial or Italian ryegrass and meadow fescue. Festulolium combines winter-hardiness and forage quality. It establishes quickly and produces good forage in the spring.

Barfest

Winter-Hardy, Less Heading

g,c

Barfest is a late maturing festulolium variety developed for better persistence. Barfest is winter-hardy and highly palatable. It produces excellent dry matter yields in forage trials in the northern US as well as the transition zone. Barfest also exhibits excellent rust resistance and performs well in heavier soils.

KENTUCKY BLUEGRASS *Poa pratensis*

KENTUCKY BLUEGRASS

Kentucky bluegrass is one of the most common species in natural pastures of temperate climates. It is highly palatable, except at the advanced-maturity stage. It spreads with rhizomes to form a sod and thus is very persistent under heavy grazing. This feature makes Kentucky bluegrass highly suitable for horse pastures.

Barderby

High Dry Matter Yields

g

Barderby is Barenbrug's first Kentucky bluegrass forage variety. It produces high dry matter yields and is very persistent in grazing trials. It also exhibits excellent winter-hardiness. Barderby has fine leaves and small stature, but in frequent cutting trials it out-produces the broad leaf, taller varieties.

| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

NEW

E²®

Energy X Energy

Alfalfa is the mainstay forage for confinement dairies all around the United States. It is rich in protein and is much sought after for its forage yields. After many years of research in collaboration with university scientists and parallel grass breeding efforts, Barenbrug has made the King of Forages even more supreme. Barenbrug has perfected the synergistic combination of alfalfa with grass by identifying the cultivars and proportions that provide the maximum yield when planted together as well as improving the energy value and nutritional properties of the silage.

Barenbrug, Great in Grass®, has partnered with Dairyland Seeds, the exclusive developers of hybrid alfalfa technology (msSUNSTRA®) in bringing this unique product to the market.

E² contains grasses that grow in the same rhythm as alfalfa.

E² contains grasses and alfalfa that have very high energy values, ideal for high producing dairy cows.

In E², alfalfa and grasses are formulated for sowing in a single pass in one drill box.

Above all, E² increases yield and stand longevity compared to alfalfa alone.

NEW

E² 631

High Energy Hay h

E2 631 is formulated for dry hay production. Besides hybrid alfalfa, it contains very late heading STF-43 (soft leaf tall fescue) and very late heading HLR (high leaf ratio) orchardgrass. This combination results in high tonnage per acre throughout the season with a good balance of grass and alfalfa in the hay.

NEW

E² 640

High Energy Silage c

Formulated for high quality dairy silage, E² 640 contains hybrid alfalfa along with very late heading STF-43 (soft leaf tall fescue). E² 640 is formulated for high energy silage from all cuttings throughout the season.

	Dormancy	Winter Hardiness	Persistency	Disease resistance	Yield
E² 631	4	3	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓
E² 640	4	3	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓
Baralfa 53 HR	5	3	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓
Baralfa X42	4	3	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓
Baralfa 32 IQ	3	2	✓✓✓✓	✓✓✓✓	✓✓✓
Baralfa 42 IQ	4	2	✓✓✓✓✓	✓✓✓✓	✓✓✓✓
Vernal	2	2	✓✓	✓	✓✓

ALFALFA

Alfalfa is the legume known as the "Queen of forages." It deserves this name because it supplies millions of animals with high quality feed throughout the world. Its taproot makes it heat and drought tolerant. Some of the problems with alfalfa are its lack of persistence, susceptibility to diseases and insects, as well as its ability to create bloat. Except for the latter, these problems can be controlled with selecting the right variety. Alfalfa is less suited for grazing because extensive livestock traffic can kill the crowns.

Alfalfa, while high in protein, is relatively low in energy due to cell walls that are not easily digested by animals. Adding a high energy grass (e.g., perennial ryegrass, orchardgrass or tall fescue) will increase energy levels in the hay.

E² Products are coated exclusively with:

YELLOW JACKET
ENHANCED SEED COATING

RED CLOVER *Trifolium pratense*

RED CLOVER

This legume is often used in grass mixtures predominantly for a cutting regime. Red clover is one of the fastest establishing legumes and can be grown on more acid soils. All Barenbrug varieties are bred for improved persistence and winter-hardiness.

Freedom!

Faster Drying — g,c,h

Freedom! red clover is the latest release from the University of Kentucky. It was selected for increased dry matter production and faster drying. Freedom! has finer stems and less pubescence (hairs) on the stem which gives this variety its unique characteristic and ability for faster water evaporation.

Freedom! MR

Mildew Resistant — g,c,h

Freedom! MR is selected from Freedom! for mildew resistance. Six cycles of selection were conducted from Freedom! to develop Freedom! MR. Freedom! MR also has lower pubescence than Kenland but more pubescence than Freedom!. Freedom! MR is adapted to upper transition zone, midwestern USA and northeastern USA where mildew can be a concern. Freedom!MR shows the same high yields as Freedom!

Barduro

Durable in the South — g,c,h

Barduro is a mid-dormancy variety developed for high resistance to root knot nematode. Its is exemplarary in its drought tolerance for surving three years of drought in the southeastern US where no other red clover survived. Barduro is suited for southern US.

WHITE CLOVER *Trifolium repens*

WHITE CLOVER

White clover is a perennial legume, which spreads by branching stolons. Like all other legumes, it produces its own nitrogen. Recently, farm trials have shown that these newer varieties release higher levels of nitrogen to the companion grass than older varieties. White clover is mainly used in grazing pastures for its high protein and energy values. Current studies show an increased dry matter intake of two pounds per cow, per day when white clover is added to the grass. A good mixture of grass and white clover can yield as much as pure grass receiving 175 pounds of nitrogen fertilizer per acre.

Alice

Large-Leafed, Winter-Hardy — g,c

Alice has large leaves and grows to medium height. Alice exhibits tremendous nitrogen-fixing capacity that benefits its companion forage varieties. It is persistent and winter-hardy, making it the perfect companion for pastures in the northern US and Canada. Alice is aggressive enough to achieve a good balance with grass, while not overtaking the stand.

Barblanca

Large-Leafed, Heat Tolerant — g,c

Barblanca is a large-leafed white clover with excellent persistence under intensive grazing. Barblanca was developed from heat tolerant germplasm and is a highly suitable cultivar for the transition zone and southern US. Barblanca has an aggressive growth habit and is perfect for inter-seeding into tall fescue and ryegrass pastures. This variety is also ideal for overseeding toxic endophyte-infected tall fescue pastures, thus reducing the effects of toxic alkaloids on grazing livestock.

| **g** - grazing | **c** - silage and green chop | **h** - hay | **a** - companion with alfalfa |

Barenbrug Clovers are Available with:

YELLOW JACKET
ENHANCED SEED COATING

STUBBLE TURNIP *Brassica rapa ssp. rapa*

Barkant Turnip

High Dry Matter-Production g

Barkant is a very vigorous diploid turnip variety with a purple tankard root (50 percent of the bulb is on top of ground). Barkant has high bulb yield with good top growth. It also has high sugar content which provides winter-hardiness and increased palatability. Barkant has good tolerance to bolting and under a correct grazing management system can provide multiple harvests with up to 4-6 tons/acre of dry matter production in 60-90 days. Barkant is also suitable for stockpiling or strip grazing with sheep and cattle.

"For a winter plot for wildlife or livestock, I would highly recommend Barkant turnips, either straight or mixed with oats or wheat."

Lance Cote • Hondo, Texas

T-Raptor Hybrid

High Leaf to Bulb Ratio g

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. Under ideal management, it can be grazed once a month. 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. T-Raptor can be sown in spring or summer.

FORAGE RAPE *Brassica napus ssp. biennis*

Barsica

desease tolerant g

Barsica is forage rape suitable for either grazing by livestock or cutting and feeding. It is high energy and has high digestible crude protien (upto 30% in leaves). It is a tall variety with high yields and resistant to lodging. It is resistant to powdery mildew making it highly palatable.

CHICORY *Cichorium intybus*

NEW

Forb Feast

Improve Pasture Nutrients g

New! A high quality, reduced bolting chicory blend. Reduced bolting equates to higher feed value. Leafiness of Forb Feast is impressive. It is an excellent source of digestible energy, protein and minerals. In addition, chicory has been shown to have key anti-parasitic properties in small ruminants. Forb Feast has proven itself in livestock and wildlife programs. Its deep taproot lends persistence and production in extreme heat and moisture stress. It also exhibits winter-hardiness. Forb Feast is ideal as a component in a mixture with both warm and cool season grasses and legumes. Adapted from north to south.

FORAGE BRASSICAS

Forage brassicas are very useful for extending the grazing season when other forages are less productive. Forage brassicas provide high crude protein and very good cell wall digestibility. Forage turnips (*Brassica rapa rapa*) can be grown as a monostand or in mixed stands with forage grasses in late spring or early fall. They develop rapidly (12 weeks) to produce highly palatable and nutritious feed, thus reducing the winter concentrate feeding period by months. Turnips can be grazed by cattle and sheep. Turnips can also be lifted or dug and used for silage, as they have comparatively high sugar content in their enlarged roots/bulbs. Turnips have good feeding value with high energy and digestible protein (15 percent). Dry matter accumulation in turnips in October is similar to that of field corn in August. Plant in late summer to extend the grazing season to late fall or early winter.

T-Raptor

CHICORY

Chicory is a very special plant and is best described as an herb. Its taproot makes it drought resistant. It is best used as a component in grazing pastures, increasing overall palatability and animal intake. Chicory is high in energy and protein (30 percent plus) and is very palatable.

ENDOPHYTES

What is Endophyte?

Endophyte is a fungus (*Neotyphodium spp.*) that can appear in fescues and ryegrasses. It lives completely within the plant and is only visible under a microscope. Endophyte is a natural fungus and can be found in grass plants in Europe, New Zealand, Australia and North America.

What does it do?

Endophytes produce several alkaloids which have a positive effect on the grass. Grasses with endophytes persist better than endophyte-free grass. However, forages with these endophyte alkaloids negatively affect animal performance and may cause reproductive problems with horses, according to livestock trials.

What toxins do endophytes produce?

Endophytes produce a range of chemicals. The three main ones are peramine, lolitrem B and ergovaline.

Peramine

An alkaloid that acts as an insecticide and is not known to have any effect on animals.

Lolitrem B

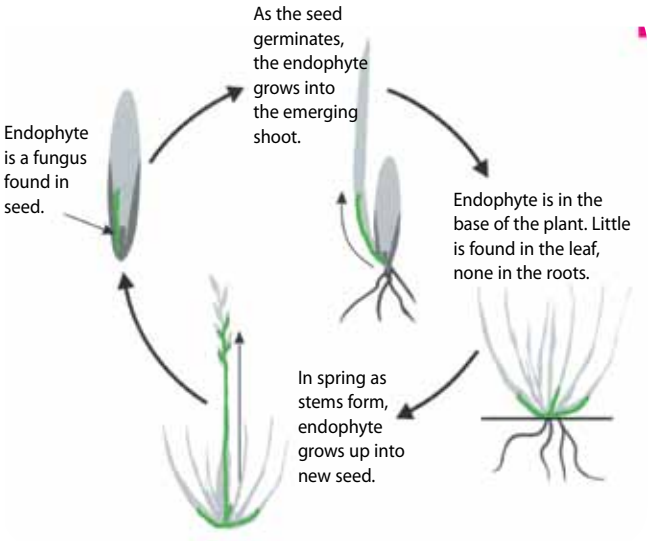
An alkaloid that causes staggers. Mainly produced by ryegrass endophytes.

Ergovaline

An alkaloid responsible for the increase of body temperature. Mainly produced by fescue endophytes.

Do all varieties have endophytes?

No, it is fairly easy to produce endophyte-free seed of both fescues and ryegrasses. In addition, seed can easily be tested for the presence of endophytes. Always look for novel endopyhte or endopyhte-free seed to ensure animal safety.



Endophyte life cycle

If you sow seed without endophyte, the resulting plants will never have endophyte. The fungus cannot transfer from plant to plant in the field. If a previously infected field is renovated with endophyte-free seed, some infected plants might appear in the field due to infected seed left in the soil, or brought in by animals or machinery.

What is the best way to eliminate endophyte infected grasses?

To completely eliminate endophyte-infected plants, spray the field with a glyphosate-based herbicide (e.g., Roundup®) in the fall. Let the sward die and decompose over the winter. The following spring, plant an aggressive forage crop on the field. After the crop is harvested, another application of glyphosate should be applied before planting the new endophyte-free grass in the fall.

ADF: Acid Detergent Fiber; the fraction of the feedstuff not soluble by acid detergent; roughly comparable to a crude fiber plus lignin.

Carbohydrate: Organic substances containing C, H and O, with H and O present in the same proportions as in water.

CP: Crude Protein; the total ammoniacal nitrogen X 6.25, based on the fact that feed protein contains 16 percent nitrogen; many nonprotein nitrogen compounds may be included.

DM: Dry Matter is the portion of a feed or tissue remaining after water is removed by drying in an oven.

Kcal: Kilocalorie; 1,000 calories.

Lignin: A biologically unavailable polymer that is a major structural component of the cell walls of plants.

Mcal: Mega calorie; 1,000 kcal or 1 million calories.

ME: Metabolized Energy is digestible energy minus the energy of the urine and combustible gases from the gastrointestinal tract.

NDF: Neutral Detergent Fiber; the fraction containing mostly cell wall constituents of low biological availability.

NE: Net Energy is metabolizable energy minus the heat increment.

NEl: Net energy for lactation.

NEp: Net energy for production.

NEm: Net energy for maintenance.

NFE: Nitrogen Free Extract consists primarily of readily available carbohydrates such as sugars and starches.

NPN: Nonprotein Nitrogen is any one of a group of N-containing compounds that are not true proteins that can be precipitated to form a solution; ammonia and urea are examples.

RFQ: Relative Forage Quality is relative forage value including digestible fiber.

RFV: Relative Feed Value is the estimated digestibility calculated from the estimations of ADF and NDF.

TDN: Total Digestible Nutrients are values that indicate the relative energy value of a feed for an animal.

TMR: Total Mixed Ration is the practice of weighing and blending all feedstuffs into a complex nutritional ration.

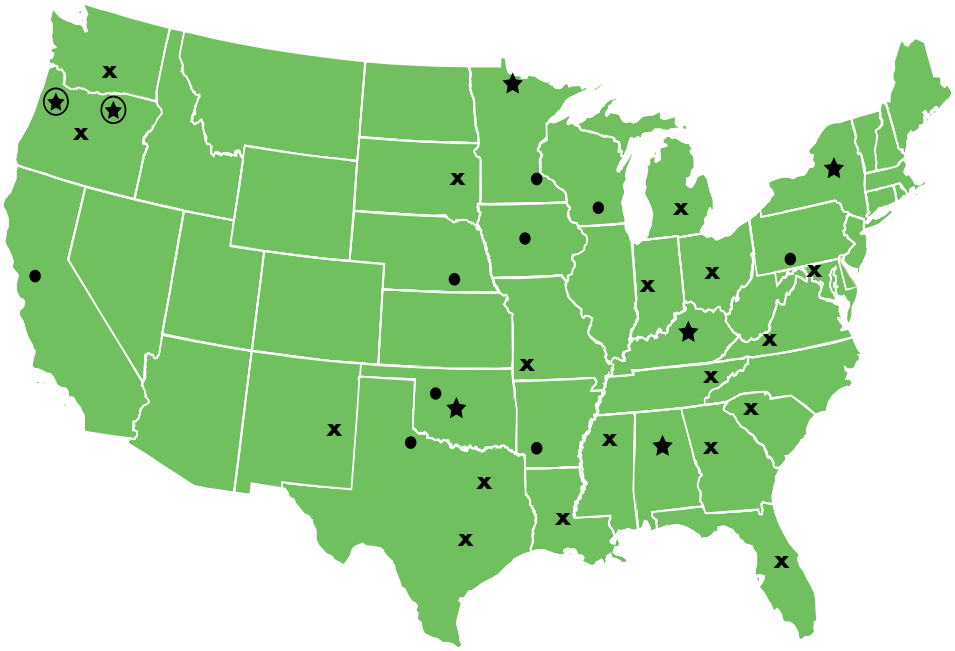
TTNDFd: Total Tract Neutral Detergent Fiber digestibility.

(Livestock Feeds and Feeding Fifth Edition, Copyright 2002)

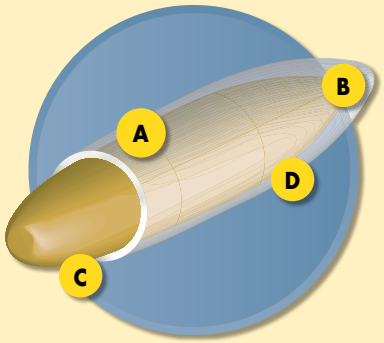
RESEARCH AND DEVELOPMENT

Barenbrug USA Research and Development has gone through a major transformation since the last forage catalog was printed. There have been significant increases in breeding activities: the establishment of a 110-acre research farm in western Oregon, for example, and another 15-acre growing site in eastern Oregon. A network of locations for selecting germplasm and variety testing has been established, in cooperation with universities and private researchers. The locations were selected to represent the major forage producing climatic zones in the US. Experimental varieties developed by Barenbrug breeders around the world are screened (via cutting and grazing trials) at these locations. Concurrently, Barenbrug personnel at these locations select plants and plant families from which to develop germplasm adaptable to stresses in the grower's local environment. These stresses include drought, freeze, severe heat, effluent water and severe grazing. The resulting germplasm is the foundation for new varieties being introduced in this forage catalog.

As the need and interest in planting forage grasses has increased among producers, the Barenbrug research and development team has gone beyond selection and testing of varieties. Barenbrug has initiated several projects around the country to develop a knowledge base for forage grass production. Our team is working on defining agronomic parameters such as fertility requirements, sowing rates, regionally-adapted mixtures and factors that affect the forage quality of grasses. Different forage quality parameters are being measured that best correlate to animal intake, health and productivity. We strive to provide our customers and end-users the best information to make their business more profitable.



- Barenbrug West Coast Research Centers
- Selection Stations
- Development Locations
- University Trial Sites



A Unmatched absorbency
Each Yellow Jacket® micro–granule holds 600 times its weight in water.

B Made from cornstarch
Environmentally friendly and biodegradable.

C Higher germination rate
Applicable to a wide range of turf seeds.

D Air permeable
Yellow Jacket® freely allows air exchange.

All Barenbrug forages are available with Yellow Jacket® Enhanced Seed Coating.

Yellow Jacket®
Enhanced Seed Coating

Barenbrug is an innovative, international leader in grass seed coatings. Working in worldwide research facilities, Barenbrug's first-rate scientists have the best tools to develop new coating solutions for the turf industry; enhancing seed and turf performance.

YELLOW JACKET
ENHANCED SEED COATING

Yellow Jacket® is a proprietary seed coating containing a totally natural product made from corn starch. Yellow Jacket® allows our seed to hold up to 600 times its weight in water and nutrients. Research at the University of New Mexico, the North Carolina State University and Texas A & M University proved conclusively that seed coated with Yellow Jacket® established faster and required less water. Yellow Jacket® simultaneously promotes seed growth while conserving water, at a time when water has become a precious asset globally. You can request Yellow Jacket® on all of Barenbrug's grass seed products.

Yellow Jacket® is like having an absorbent sponge around each individual seed. Once water is applied, the coating holds both moisture and nutrients around the seed – making them available as needed for germination and establishment. Without Yellow Jacket®, raw seed quickly dries out, resulting in a need for more frequent irrigation and added costs.

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

This 'spongy layer' of coating also provides additional benefits beyond moisture retention. Yellow Jacket® coated seed has increased density and size for improved, more uniform and accurate spreading of bentgrass seed. Yellow Jacket® coated seed stays in place and when over-seeded, quickly moves through the turf canopy to the soil.

University trials have also shown that Yellow Jacket® can both hold and absorb fungicides, protecting and minimizing seedling damage for up to three weeks after seeding. The Yellow Jacket® formulation contains Apron® (metalaxyl), a systemic fungicide specific for protection against *Pythium* sp. seedling diseases. Seed treated with only a fungicide treatment can quickly see protection move off and away from the seed and new root hairs, significantly reducing fungicidal effectiveness.

METHODS FOR ESTABLISHMENT OF GRASSES & CLOVERS

	CULTIVATION	SPRAY, NO TILL DRILL	NO TILL DRILL
METHOD	▶ Spray with glyphosate ▶ Plow; subsoil if needed ▶ Prepare seedbed ▶ Drill or broadcast seed ▶ Cultipack ▶ Control weeds after germination	▶ Harvest the grass ▶ Spray regrowth with glyphosate ▶ Graze or clip regrowth ▶ No till drill seed into sod	▶ Close graze or heavy cut ▶ Drill into the short stubble
TIMING	▶ Spring or fall or ▶ Plow in fall and plant in early spring	▶ Spring or fall	▶ Early spring or fall
ADVANTAGES	▶ Most consistent at giving good results ▶ Eliminates unwanted grasses or weeds ▶ Eliminates compaction ▶ Can level fields ▶ Allows for very effective lime application or correct mineral balance	▶ Usually successful ▶ Inexpensive ▶ Good control of unwanted grasses or weeds ▶ Quickly ready to graze or cut	▶ Cheap and simple ▶ Little loss of production ▶ Often used to introduce annuals
DISADVANTAGES	▶ Most expensive ▶ Loss of production ▶ Rocks can pose a problem	▶ Little opportunity to correct pH or mineral balance ▶ Does not eliminate soil compaction	▶ Good chance of failure due to competition of existing plants ▶ Does not work in dense fields ▶ Does not work in weedy fields

ESTABLISHING AND MAINTAINING SOIL FERTILITY

Figure 1. Adding fertilizer to a pasture makes a big difference in production.

Figure 2. Growing legumes, grasses and chicory together help make the whole sward healthier.

Figure 3. Growing legumes with grass adds nitrogen. Legumes must be inoculated to produce nitrogen.

Figure 4. This perennial ryegrass over-wintered much better where animals deposited urine during the last fall grazing.

When working with perennial forages, soil fertility is vital because it affects the quality of the forage. Animal health and production is related to the nutrients that the animal gets from the forage eaten.

The best way to determine the fertility level and fertilizer needs of a current or future pasture is from a soil test. Soil tests tell us the soil pH, nitrogen (N) recommendations, phosphorus (P) and potassium (K) levels and recommendations, as well as secondary and micronutrient status. For a new pasture, soil samples should be collected and analyzed well in advance to incorporate the types and quantities of recommended fertilizers into the soil at the time of field preparation. Simultaneously, lime should be applied to achieve a soil pH of at least 6.3. In addition to correcting pH, lime is a source of valuable calcium.

The pH of the soil is important, but determining why the pH is at a certain level is more important. The base saturation levels of calcium, magnesium, potassium, sodium and hydrogen determine the pH. You can have a high pH and still have a shortage of calcium in the soil. Calcium, however, is the one element that drives the production of quality forage. A good source of calcium is gypsum, which is calcium sulfate. Sulfur is also very important for creating high-quality proteins in forages. Most soils are low in this element.

All grasses need nitrogen (N) on a continual basis to attain and maintain optimum production. Nitrogen is a vital fuel component for the plant, consumed daily as the plant grows. This is true even when grasses are planted with clover or other nitrogen-fixing legumes. Legumes are a money saving source of nitrogen, especially during the summer, and should be used where possible. Alice white clover can provide up to 150 units of N/acre/year.

Even with clover, about 150-200 unit/lbs of supplemental N/acre/year is about right for optimum production. This assumes that the proper levels of phosphorus and calcium are present. Without these, the performance of nitrogen alone is greatly reduced. Apply 50 units of nitrogen in the spring, as soon as the soil is 50 degrees or warmer. The remainder should be applied in 3-4 equal doses throughout the growing season, but not later than mid-September. Nitrogen should be applied with moisture for best results, either from irrigation or rain. On established pastures, take a soil test every 2-3 years, then top dress the recommended levels of phosphorus and potassium in the fall, allowing winter action to incorporate.

Persistency of forages is related to balanced fertility. A healthy plant is more likely to thrive over winter or over summer. All plants and animals need balanced nutrition, including micronutrients. Constant removal of nutrients will leave some soils very low in copper, zinc, manganese, boron, etc. Do not let the word “micro” fool you. You do not need much, but you do need a sufficient amount.

First Weeks After Planting

Regularly check for emerging weeds. Spray to prevent weeds from becoming established. Clipping can also help control annual weeds.

First Harvest

Ideally, lightly graze a new stand of grass/clovers when conditions are dry. If the first harvest is going to be cut, do not cut too short. The new stand will have trouble coping with a short mowing first harvest.

First Spring

New stands of grass grow very rapidly in the spring. They NEED to be grazed or harvested frequently to keep leafy. Frequent cutting or grazing helps the grass to tiller and allows the clovers to establish.

Summer

Be gentle on new stands of grass in dry conditions and on established stands on low organic-matter soils. Allow a stubble of at least three inches to remain as grasses store their reserves above the ground in the basal stems. Keeping some length on the grass means better and faster recovery when rains come. Higher stubble heights also help protect soil and roots from high temperatures. Apply nitrogen periodically in conjunction with rain or irrigation. In addition, leaving slightly more base stem will improve the quality of the forage taken.

Fall

It is important to have grass stands go into the winter neither too short nor too long. Three inches is ideal for most grasses. Apply small amounts of nitrogen fertilizer after August in the Northeast US and upper Midwest. Elsewhere, the end of September is the appropriate time for nitrogen application. This allows the grass to slow down well before winter. If there is excessive growth in late fall, lightly graze the pasture when weather permits and do not allow the grass to grow too tall.

Winter

Only apply manure if the field is completely dormant or covered by snow. Applying manure on green, non-dormant grass might stimulate growth, causing winter injury.

DESCRIPTIONS OF KEY VARIETIES

TALL FESCUE

Bariane

Bariane is another soft-leaf tall fescue with extremely high palatability and digestibility. Bariane is very late maturing, making it highly suitable for planting with alfalfa, it matures at the same time alfalfa is ready to cut in summer. Planting Bariane with alfalfa results in higher tonnage and the hay produced is ideal for dairies due to its easily digestible fiber and high energy. Bariane is a component of STF-43.

NEW

BarElite

BarElite is the latest release from the Barenbrug breeding program which is already well known for its soft-leaf tall fescues. BarElite was selected in the US after multiple screening trials. It has a unique combination of high forage yield but still impressive digestibility values. BarElite is highly suited for producers who seek to produce and utilize high RFQ value forage. BarElite is a component of STF-43.

ITALIAN RYEGRASS

Bardelta

Bardelta is a diploid Italian ryegrass variety which was selected after trials in the US. It proves to be a very high dry-matter producing variety. Bardelta has high crown rust resistance and excellent forage quality. Trials in Pennsylvania confirm this variety has excellent winter-hardiness as well as persistence under grazing. Bardelta is a component of Green Spirit.

COMING SOON

Barprisma

New diploid Green Spirit variety from Barenbrug. Barprisma strengthens the Barenbrug tradition of breeding varieties that do not head out in the summer after sowing in spring. Barprisma was selected for improved rust resistance, lower lodging and more drought tolerance. For producers which prefer Green Spirit as a winter forage it also has shown better winter-hardiness.

Barmultra II

This is a very leafy tetraploid variety with good winter-hardiness, outstanding initial growth plus excellent regrowth after cutting. Barmultra is extremely rust resistant and offers high DM yields.

Barextra

Barextra is a new and exciting Italian ryegrass variety. Barextra has shown impressive performance in university trials throughout the Midwest. It is a high yielding, winter-hardy tetraploid variety with superior rust resistance. It is more persistent than other Italian ryegrasses making it suitable for both mechanical harvesting and grazing. Barextra is a component of Green Spirit.

PERENNIAL RYEGRASS

Mara

Mara is the standard for winter-hardy perennial ryegrass. Mara is a very high yielding and extremely grazing tolerant, persistent variety. It performs well from the transition zone with its hot, dry summers to upper Midwest with its extremely harsh winters. Mara is a component of BG-24T and BG-34.

Bargala

Bargala is a high yielding tetraploid variety with excellent first cut and annual dry-matter yields. It has excellent crown rust resistance and palatability. Bargala is earlier maturing than Remington. Bargala is a component of Tetra-Plus and BG-24T.

Remington

Remington is a new intermediate maturing tetraploid variety specifically developed by Barenbrug for producers in the US. Remington was developed by doubling the chromosomes of a very winter-hardy ecotype from the mountains of Romania. Remington was tested (under the breeder's code LpTROM99) in numerous private and official trials in the US. It shows exceptional winter-hardiness in Wisconsin, tolerance to heat and stand persistence in Kentucky and high dry matter production in New York trials. Remington is the key component of Tetra-Plus and BG-24T.

Barsprinter

This new variety was commercialized after superb performance in screening trials throughout the US. Barsprinter has very good winter-hardiness along with excellent rust tolerance. It is noteworthy for stand density and is earlier heading than Mara. Barsprinter is a component of BG-24T and BG-34.

Barnhem

Barnhem is a very late maturing variety that has outstanding forage quality. In a large milk production trial, Barnhem scored high in sugars (water soluble carbohydrates) and also high in milk production. Barnhem has excellent grazing tolerance and winter-hardiness. Barnhem is the key component of BG-34.

MEADOW FESCUE

Pradel

Pradel is a late maturing, winter-hardy, high yielding variety. Pradel has endophytes that are animal friendly causing no problems with animal performance or palatability. Pradel is a component of Dairymaster, HDR and Milkway.

COMING SOON

Cosmonaut

This new HDR meadow fescue variety has been chosen for its better disease resistance. It has shown excellent performance in trials in NE USA. It also excels in forage production in Midwest.

COMING SOON

Barvital

Barvital is a new HDR meadow fescue variety with high yields and good winter-hardiness. Barvital also shows good performance in trials in northern transition zone with good stand density.

ORCHARDGRASS

COMING SOON

Barlegro

Barlegro is a new exciting orchard-grass for US. It is very late heading (couple of days later than even Intensiv). In preliminary trials it has shown very good winter-hardiness and forage yield. Barlegro is extremely leafy and highly suited for interplanting with alfalfa.

TIMOTHY

Tenho

Tenho adds palatability, spring growth, health and winter-hardiness to the stand. Tenho has been selected for its high performance and strong range of characteristics. With good persistence and mid-to-late maturity, Tenho is excellent for silage and hay making and also for grazing. Tenho is equally well-suited for pasture mixes and straight timothy stands for conservation. Tenho has rapid spring growth and regrowth after cutting or grazing. Tenho also offers good disease resistance making it a great choice for timothy growers.

ALFALFA

Baralfa 32 IQ

Baralfa 32 IQ (increased quality) is a variety with extremely high feed quality. It has very fine stems that make it easy to digest. In a study conducted in Wisconsin, Baralfa 32 IQ proved to be the variety with the highest potential milk production per acre. Baralfa 32 IQ is a dormancy 3 variety with extremely good disease and insect resistance.

Baralfa 42 IQ

Baralfa 42 IQ (increased quality) is a variety with extremely high feed quality. It has been selected to withstand the heavy traffic related with today's harvest practices. Its multiple rooted crown lies deeper in the soil to ensure protection. Baralfa 42 IQ is one of the first varieties that combines a fall dormancy of 4 with a winter-hardiness of 2. It has extremely good disease and insect resistance. Baralfa 42 IQ scores HR (high resistance) to all but one disease.

Baralfa 53 HR

Baralfa 53 HR (high resistance) is unique in many ways: It combines a fall dormancy of 5 with a winter-hardiness of 3. This maximizes the growing season even in areas with cold winters. Also, Baralfa 53 HR scores the maximum of 30 out of 30 in the Wisconsin disease rating scoring 'HR' (high resistance) to all major diseases. Baralfa 53 HR is a variety that has delivered superior yields and regrowth capability in both Pennsylvania and Nebraska trials, making it a widely adapted variety.

NEW

Baralfa X42

Baralfa X42 is the next generation of hybrid alfalfas using the msSunstra® Hybrid Alfalfa Technology. It features the branch rooted trait to allow it to persist and be productive in poorly drained soils. Baralfa X42 is also characterized by its aggressive, high forage yielding, high quality features. It expresses fast regrowth of dense, distinct fine stemmed forage. This fine stem characteristic makes a dense attractive alfalfa bale. As the stands of Baralfa X42 get older, the forage yield and persistence advantages become more pronounced.

WHITE CLOVER

COMING SOON

Neches

Neches has been developed by Texas A&M for surviving the harsh conditions of southern US. It is an early flowering white clover with profuse flowering. This provides high reseeding potential for regrowth in warm season grass pastures. Neches is intermediate white clover but selected for larger leaves. Neches has high dry-matter yield compared to other varieties also 'developed in South.'

FORAGE BRASSICAS/CHICORY

NEW

Commander

Commander is a new winter active forage chicory, providing excellent year round growth. It has excellent disease resistance and a low crown giving good grazing tolerance, and erect leaves making grazing easier. Commander is high yielding and very palatable.

Forage Feast

This variety was bred in France after screening in the US. It has greater resistance to bolting than other varieties. Forage Feast is highly palatable to livestock and wild game. Less bolting also means more leaves and higher energy.

EQUINEMASTER PROGRAM

The Professional Equine Forage Program is a natural extension of Barenbrug's leading principles and practices – all guided by thorough, quality research, product development and marketing of premium products.

Equinemaster is an elite line of forage products including pasture, exercise paddock, and hay seed mixtures. All products are designed to meet the agronomic and nutritional requirements of your system and program.

Equinemaster is also an educational program which offers the latest information on equine nutrition and forages. Equinemaster provides information on the basics of equine nutrition with an emphasis on the role of forages. Equinemaster also provides tools to assist you in the selection of grass species and varieties, pasture and paddock establishment and management and hay production for equine systems.

For more information on Equinemaster or to find a dealer near you, visit us at: www.equinemaster.info

LITERATURE

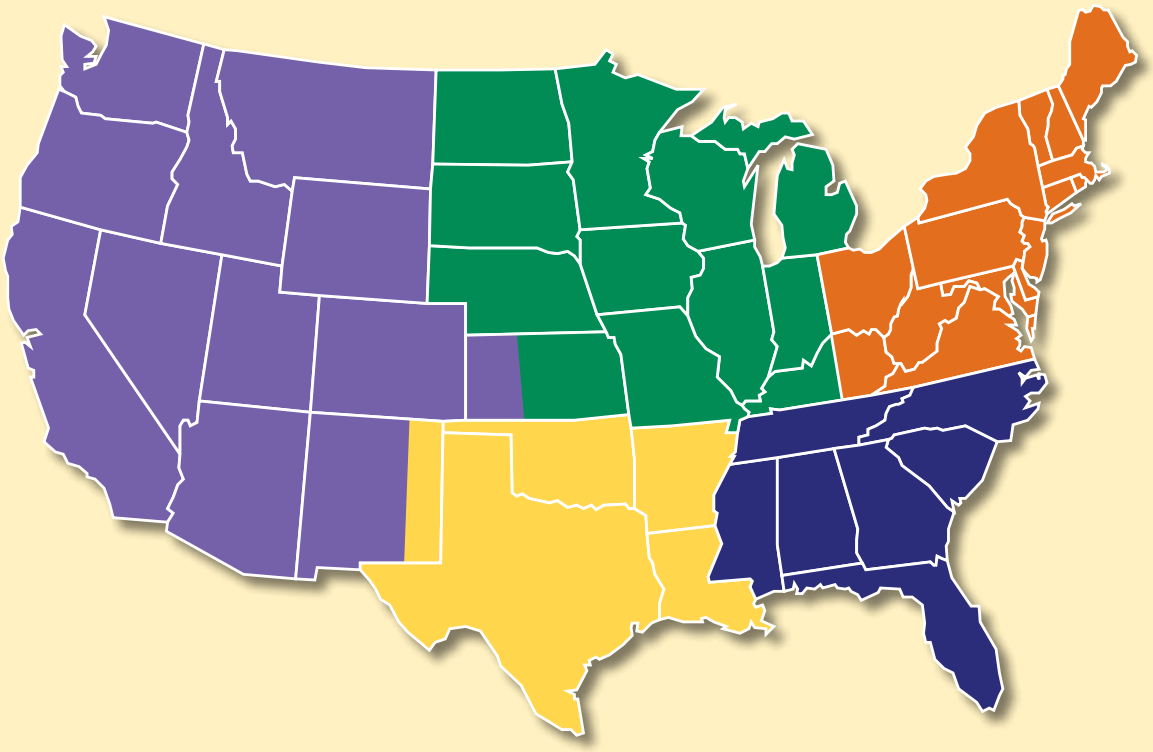
Barenbrug has informative brochures on most varieties described in this catalog. These brochures are available free of charge.

Common Name	Scientific Name	Establishment	Preferred Soil*	Minimum Precipitation	Drought Tolerance	Winter-Hardiness	Persistence	Yield	Digestibility	Palatability	Seeding rate	Seed/Lb.
Alaska brome grass	*Bromus sitchensis*	Fast	L, M, H	16"	Moderate	High	Moderate	Moderate	High	High	35 lbs/acre	70,000
Alfalfa	*Medicago sativa*	Medium	L, M	17"	High	Moderate*	Moderate*	High	Moderate	Moderate	15-20 lbs/acre	210,000
Annual ryegrass	*Lolium westerwoldicum*	Fast	L, M, H	14"	Moderate	Low	Low	High	High	High	30 lbs/acre	210,000
Chicory	*Cichorium intybus*	Medium	L, M	16"	High	Moderate	Moderate	Moderate	High	Moderate	1-2 lbs/acre**	426,000
Festulolium	*Festulolium loliaceum*	Fast	M, H	14"	Moderate	Moderate	Moderate	Moderate	High	High	25 lbs/acre	250,000
Italian ryegrass	*Lolium multiflorum*	Fast	L, M, H	14"	Moderate	Moderate	Moderate	High	High	High	35 lbs/acre	190,000
Kentucky bluegrass	*Poa pratensis*	Slow	M, H	18"	Low	High	High	Low	Moderate	Moderate	5 lbs/acre	2,177,000
Meadow fescue	*Festuca pratensis*	Fast	L, M, H	20"	Moderate	High	Moderate	Moderate	High	High	25 lbs/acre	277,000
Orchardgrass	*Dactylis glomerata*	Slow	L, M	16"	Moderate	High*	High	High	Moderate	Moderate	10-12 lbs/acre	654,000
Perennial ryegrass	*Lolium perenne*	Fast	M, H	20"	Low	Moderate*	Moderate	Moderate	High	High	25 lbs/acre	277,000
Prairie bromegrass	*Bromus wildenowi*	Fast	L, M	14"	Moderate	Low	Low	High	High	High	35 lbs/acre	70,000
Rape	*Brassica napus*	Fast	L, M, H	12"	Moderate	Low	Low	Moderate	High	High*	3-5 lbs/acre	157,000
Red clover	*Trifolium pratense*	Medium	M, H	19"	Moderate	High	Moderate*	High	Moderate	Moderate	15 - 20 lbs/acre	272,000
Tall fescue	*Festuca arundinacea*	Medium	M, H	16"	High	High	High	High	Moderate	Moderate	25 lbs/acre	277,000
Timothy	*Phleum pratense*	Slow	M, H	22"	Low	High	Moderate	Moderate	High	High	10 - 15 lbs/acre	1,300,000
Turnip	*Brassica rapa*	Fast	L, M, H	12"	Moderate	Low	Low	Moderate	High	High*	3-5 lbs/acre	200,000
White clover	*Trifolium repens*	Medium	M, H	19"	Moderate	Moderate*	Moderate*	Low	High	High	2-3 lbs/acre**	800,000

**(L)ight, (M)edium, (H)eavy*

**Variety dependent*

***Mixed with grass*



BARENBRUG USA
33477 HWY 99E
PO Box 239
Tangent, OR 97389

www.barusa.com

Phone: 800.547.4101 / 541.926.5801
Fax: 541.926.9435
Email: info@barusa.com

Agronomic Support:

Phone: 800.972.1812
Phone: 541.619.3241

Western Territory
Phone: 541.806.7333

Midwest Territory
Phone: 319.883.1717

Mid-South Territory
Phone: 903-278-2678

Northeast Territory
Phone: 304.966.0032

Southeast Territory
Phone: 256.527.4041




BARENBRUG®

Great in Grass®

www.barusa.com