## Forage Varieties

### Characteristics at a Glance

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*Approximate seeds per pound is provided as an aid to planning, and varies. Sharp Bros. Seed Co. does not imply or warrant that seed will be of the count per pound listed above.

**Note:** Sharp Seed Co. recommends a MINIMUM SEEDING RATE of 20 lb. per acre for most species. Higher seeding rates or larger field sizes may require 25-30 lb. per acre or more. Forage variety performance can be affected by local climate and soils, seeding rate, and harvest management. Ideal soil test pH is 6.5 to 7.0. Precise seeding rates should be determined by soil test results, cultural history, yield expectations, and expected wear. Check with your local agricultural extension service for recommended rates and varieties. The data presented is intended as an overview and does not necessarily represent all varieties in a growing area. **Additional seed rate information is available at sharpseed.com.**

**Chart Scale:** 1 to 10 1 = Least Desirable 10 = Most Desirable
Ranchers & Stockmen judge forage quality based upon a variety of facts & observations:

- Do the animals selectively graze or bunk sort?
- What is rate of gain or milk output? Is animal condition improving or decreasing?
- Does laboratory analysis of protein and TDN percentages indicate adequate levels to meet the needs of the class of livestock for which the forage is intended?

Probably the most important question regarding forage quality: How closely related is forage palatability to energy and animal performance? Studies have demonstrated that this relationship is very close. Volatile fatty acids (VFA) are the primary energy source for the great class of livestock and wildlife known as ruminants. VFAs are produced by fermentation in the rumen, part of the animal’s digestive system. Ruminants are equipped with nerve receptors in the rumen that continually monitor VFA levels. Major as well as minor changes in VFA concentrations influence the animal’s grazing/feeding behavior, selecting high quality forages that increase these levels and rejecting poorer quality forages that lower VFA concentrations.

Because of this built in quality control mechanism, the ruminant is a remarkably efficient judge of forage energy levels and chooses forages that produce the best rate of gain, milk production, body condition and profit for the stockman.
The brown midrib trait (BMR) has been part of our Canex family of hybrid forage sorghums and Grazex family of hybrid sorghum sudangrasses since 2000. All hybrids with the trait are designated with BMR as part of the variety name. BMR is a visual marker for a genetic trait that causes the plant to accumulate less lignin. Lignin is indigestible and reduces the digestibility of other nutrients. Lowering lignin levels dramatically improves digestibility and consumption while reducing forage waste caused by bunk sorting or selective grazing. Stems of BMR forages are significantly more palatable and digestible than the stems of non BMR forages, even when harvested in very mature stages of growth. Animal performance is improved with BMR forages -- faster rate of gain, more milk production and superior animal condition. Hybridization has significantly improved seedling vigor, regrowth after clipping, drought tolerance and yield potential.
HYBRID FORAGE SORGHUMS

Best products for one harvest per season
baled dry hay, haylage (immature plant silage)
or mature plant (hard dough grain) silage.
Occasionally used as a standing hay crop grazed
after frost and drydown. Also used as a cover
crop preceding perennial grass seedings. As a
class, these products exhibit good seedling vigor
and high yield potential due to hybridization.
Minimum germination soil temperature of 62
degrees and rising. Maximum planting depth 2
½ inches. Excellent late season leaf retention
allows large harvest window.

Uses, Strategies and Suggested Planting Rates:

Baled Dry Hay or Haylage:
Production goals should target fine stems for quick dry down in the windrow and
tight, weather resistant bales or easily packed haylage. High plant populations
produce the finest stems, low plant populations have
the best drought tolerance. Producers should find the
best compromise between these competing goals for
their cropping conditions. Narrow rows (grain drills) are preferable to wide rows
(row crop planters).

Standing Hay Grazed After Frost and Fall Drydown:
Production goals should target somewhat coarser
stems than would be desirable for baled hay in order
to produce a crop that is likely to stand past frost.

Cover Crop Preceding Perennial Grass Seedings:
Coarse stems are important to formation of durable
cover since stems generally stay in place through the
following winter and spring as compared to leaves
which frequently blow away.

Mature Plant Silage:
Production goals are similar to grain sorghum production goals --- abundant
grain production and sturdy stalks that stand through late stages of plant maturity.
This is best achieved with a plant population 25% higher than that of grain
sorghum population in the same cropping conditions.
Either wide row (row crop planter) or narrow row
(grain drill) equipment can be effective for these
plantings, although narrow row plantings are commonly seeded up to 30% higher
populations than are wide row plantings.

FORAGE PRODUCT DESCRIPTIONS
HYBRID FORAGE SORGHUMS
Detailed Variety Descriptions

THE CANEX BMR Dwarf Forage Sorghum Family - 540, 550 & 555
Medium late maturity, fertile BMR dwarf forage sorghum varieties ideally suited for silage with excellent standability and high grain production. 75-80 days to 50% bloom, hard dough grain development 105 to 110 days after emergence. 6-8 feet tall at maturity. Extremely palatable. Juicy stems, excellent tillering with abundant closely spaced wide long leaves. A new standard for hay or standing hay grazed after frost, in addition to silage. LDP eligible. Concep safener optional

- **CANEX BMR 540**  Red grain production. Gene 12/18 BMR position.
- **CANEX BMR 550**  White grain production. Gene 6 BMR position.
- **CANEX BMR 555**  Bronze grain production. Gene 6 BMR position.

CANEX BMR 210
Medium maturity fertile BMR forage sorghum, the ideal maturity for dryland production of sorghum hay, silage or standing hay grazed after frost. Bronze grain production. Excellent drought tolerance. Canex BMR 210 will typically reach in 68 to 78 days, hard dough grain development in 98 to 108 days after emergence. Well suited for double crop silage production after wheat on the central and southern Plains. Unsurpassed forage quality. Gene 12/18 BMR position. Extremely palatable, less waste. LDP eligible. Concep safener optional

CANEX BMR 600
Medium late maturity, sterile BMR forage sorghum with excellent drought tolerance coupled with high yield potential under favorable conditions. 80-90 days to 50% bloom, hard dough grain development 115 to 105 days after emergence. Gene 12/18 BMR position. 8-9 feet tall at maturity. Highly palatable hay or silage. Juicy, sweet stems with semi-compact heads, good tillering. Use Canex BMR 600 with Pollinator for grain production and LDP eligibility.

CANEX
Medium early maturity. Canex will typically reach boot to early heading stage in 65 to 72 days, hard dough grain development in 95 to 105 days after emergence. As the standard hybrid in the industry, noted for drought tolerance and high stem sugar. High feed values, as high as some competitive BMR’s but not as high as our Canex BMR’s. Produces red grain on compact heads. Use Canex with Pollinator for grain production and LDP eligibility. Concep safener optional

CANEX II
Medium maturity, approximately 5 days longer than Canex. Canex II will typically reach 50% bloom in 70 to 80 days, hard dough grain development in 98 to 108 days after emergence. Slightly more yield potential than Canex with slightly less stem sugar and forage quality. Produces red grain on compact heads. Use Canex II with Pollinator for grain production and LDP eligibility.

CANEX 50-50
Mixture of 50% Canex or Canex II hybrid and 50% non-hybrid or open pollinated forage sorghum. Canex 50-50 will typically reach boot to early heading stage in 68 to 78 days, hard dough grain development in 98 to 108 days after emergence. The mix provides a more economical alternative to Canex, with seedling vigor and overall yield potential intermediate between hybrids and open pollinated varieties. Produces red grain on compact heads.

**Bale Spear Palatable:**
QUALITY HAY that range fed cattle will efficiently “CLEAN UP” after economical delivery with a BALE SPEAR. Designating a class of hay that does not require the investment of grinders, mixers, feed bunks and hay rings or the cost of added grain, molasses or distiller grains to achieve consumption and reduce waste.

Visit sharpseed.com for more info
**OPEN POLLINATED FORAGE SORGHUMS**

**Uses, Strategies and Suggested Planting Rates:**
These forages are used for the same purposes as the hybrid forage sorghums, but have considerably lower seedling vigor (slower to germinate and emerge, less able to penetrate a soil crust) and lower overall yield potential than the Canex family of forage sorghum hybrids. Minimum germination soil temperature of 62 degrees and rising. Maximum planting depth 2 inches for most varieties in this class, Early Sumac should not be planted deeper than 1 1/2 inches.

**EARLY SUMAC**
Released in 1925. Early maturity, brown, somewhat bitter grain on compact heads. Early Sumac will typically reach boot to early heading stage in 65 to 75 days, hard dough grain development in 95 to 105 days after emergence.

**ROX ORANGE**
Early maturing variety. Red grain on compact heads. Rox Orange will typically reach boot to early heading stage in 68 to 78 days, hard dough grain development in 98 to 108 days after emergence.

**EARLY HEGARI**
Released in 1940. Very early maturity variety with broad leaves and compact height of 3 to 4 feet at maturity. White grain with pink hew on open heads. Early Hegari will typically reach boot to early heading stage in 58 to 68 days, hard dough grain development in 88 to 98 days after emergence.

**KANSAS ORANGE**
Recognized as a variety by 1880. Late maturity variety, often reaching 8-11 feet in height with red, slightly bitter grain. Stalks are somewhat weak and therefore may lodge. Kansas Orange will typically reach boot to early heading stage in 85 days, hard dough grain development in 115 days after emergence.

**SORGHUM SUDANGRASS HYBRIDS**
These hybrids, resulting from a cross of sorghum with sudangrass are best suited for in season grazing or multi-cut haying or haylage (immature plant silage). Excellent regrowth after clipping. Excellent seedling vigor. Somewhat better iron chlorosis tolerance and slightly better cold seedbed tolerance than forage sorghum. Minimum germination soil temperature of 60 degrees and rising. Maximum planting depth 2 1/2 inches. Late season leaf retention is poor compared to forage sorghums, making sorghum sudangrass less suited for post season grazing or mature plant silage.

Sharp Brothers Seed breeding and testing effort has concentrated on BMR hybrids over the past decade. As a result, our BMR hybrids are equal to and frequently better than the non BMR hybrids in regards to seedling vigor, yield potential, and regrowth. Stalk quality (energy levels and palatability) is noticeably better than that of non-BMR sorghum sudangrass hybrids in early stages of maturity. In later stages of maturity, BMR sorghum sudangrass stalk quality is dramatically better than that of the non-BMRRs. Harvested early or harvested late, the Grazex BMR sorghum sudangrass hybrids produce palatable nutritious forage resulting in excellent animal performance and very little waste when hayed or grazed.
SORGHUM SUDANGRASS HYBRIDS

Uses, Strategies & Suggested Planting Rates:

Multi Cut Baled Dry Hay, Haylage
Production goal --- Fine stems for quick dry down in the windrow and tight weather resistant bales or easily packed haylage. High plant populations produce the finest stems; low plant populations have the best drought tolerance. Producers should find the best compromise between these competing goals for their cropping conditions. Narrow rows (grain drills) are preferable to wide rows (row crop planters).

In Season Grazing
Production goal--- Fine stemmed, leafy dense growth contributes to maximum efficiency grazing. Initiate grazing when sorghum sudangrass is 24 inches tall, 4 to 5 weeks after emergence with good growing conditions.

Late Summer Mixed Planting with Winter Annual Small Grains for Fall Grazing
Sorghum sudangrass seed can be added to winter annual small grains (wheat, rye, triticale or barley) seedings to increase fall grazing at an earlier date. This is most productive with plantings in August or early September. Producers have effectively mixed these seeds by adding sorghum sudangrass seed to cereal grain seed as it is augered into the seed tender. Cattle should be turned out to graze when sorghum sudangrass is 24 inches tall, approximately 4 weeks after seeding. Producers report that the partial shade created by the sorghum sudangrass does not noticeably restrict small grain development. If sorghum sudangrass is still present as the first freeze is predicted, cattle should be removed from the field until frozen sorghum sudangrass plants have dried, allowing prussic acid to evaporate, usually 4 to 7 days. New tillers are unlikely to be produced from the small crowns typical of late summer plantings, but if they do occur, prussic acid levels could be high.

Hybrid Sorghum Sudangrass Descriptions

THE GRAZEX BMR
Sorghum Sudangrass Family - 715, 718, 801 & 301
Medium early maturity, BMR sorghum sudangrass hybrids are ideally suited for grazing. They can also be used for multi cut dry hay, haylage or as a companion forage for mixed species or cover crop plantings. Will reach boot to early heading stage 60-70 days after emergence with good standability. These hybrids produce extremely palatable hay, even when harvested much later than the recommended optimum boot/early heading harvest timing. Gene 12/18 BMR position. Excellent tillering. Our Grazex BMR family is based upon hybrids of medium early maturity, the maturity that typically provides the best drought tolerance and regrowth after clipping; characteristics that are essential to Plains producers. Production of interchangeable hybrids with a strong foundation of essential characteristics lowers seed production risk and provides a reliable seed supply. Concep safener optional

GRAZEX BMR 715
Experimental release in 2015, full release for 2016 planting season. Our newest genetics in sorghum sudangrass hybrids. Excellent yield potential in a variety of environments.

GRAZEX BMR 801
Released in 2010. A proven performer over a large geographical area under variable weather conditions.

Sudangrass Cover Crop Preceding Perennial Grass Seedings
Coarse stems are important to create durable cover since stems generally stay in place through the following winter and spring as compared to leaves which frequently blow away.

THE GRAZEX BMR - BALE SPEAR PALATABLE

Grazex BMR - Bale Spear Palatable

GRANEX III
Released in 2011. Medium early maturity. Grazex III will reach the boot to early heading stage 60 to 70 days after emergence.

Better vigor and yield potential than Grazex II, our long time standard sorghum sudangrass. Acceptable forage quality when harvested early or grazed to suppress stem formation. This hybrid, priced more economically than the BMRs, is an excellent choice for cover crop on high lime soils or soils with marginal fertility. Concep safener optional
**HYBRID PEARL MILLET**

Excellent regrowth and drought tolerance. Used for grazing and multi-cut haying. With good growing conditions, pearl millet may be grazed 4 weeks after emergence. No prussic acid, however the potential for nitrate toxicity is greater than that of forage sorghum or sorghum sudangrass. Frequently used as horse hay since they have greater tolerance to nitrates than do ruminants. Boot stage is normally reached approximately 70 days after emergence. Forage quality is generally better than that of standard genetics sorghum sudangrass but inferior to that of the Grazex BMRs, Canex, Canex II, and Canex BMR. Minimum germination soil temperature 65 degrees and rising. Maximum planting depth ¾ inch.

**GERMAN MILLET, STRAIN R (FOXTAIL MILLET)**

German millet is used almost exclusively for single harvest dry hay production. The root system is easily dislodged, making it a poor choice for grazing. Little or no regrowth after clipping. Stems are exceptionally fine. It is favored as a hay product for young cattle that prefer fine textured grass hay. Best harvested for hay in boot to early bloom stage approximately 50 days after emergence. Mature foxtail millet heads can be bristly and unpalatable. Overly mature foxtail millet can have a diuretic/laxative effect on horses. Minimum germination soil temperature 65 degrees and rising. Maximum planting depth 1 inch.

**CRABGRASS**

Crabgrass is used for grazing and occasionally dry hay production. Although it is an annual, it is frequently managed as a perennial by allowing it to produce some seed each season in order to produce a volunteer crop the next year. It is best suited for multi-year forage programs since carryover seed could be undesirable in ground devoted to grain production. Forage quality of crabgrass is good, regrowth after clipping is good. Though it is grown on a variety of soil textures, crabgrass is best adapted to sandy soils. Crabgrass seed does not meter effectively through standard agricultural drills. Though a variety of planting methods are effective, crabgrass is frequently planted by mixing seed with fertilizer and broadcasting the mix in the winter or spring months over wheat that is being grazed. Hoof traffic can improve seed to soil contact. Crabgrass germination is somewhat erratic; starting at minimum soil temperature of 60 degrees; and is suitable for grazing approximately 4 weeks after germination. Producers should be advised that establishment of a dense, highly productive stand of crabgrass after first planting can be unpredictable. Consequently the grazing capacity of first year crabgrass is unreliable. In subsequent years stand establishment is more predictable; primarily because of the large seed bank that develops as crabgrass frequently “volunteers” 50 to 200 pounds of seed per acre. To help insure adequate first year forage production, producers should overseed crabgrass seedings with 10 to 12 pounds of Grazex BMR per acre with a grain drill when soil temperatures reach 60 degrees. This low population planting of sorghum sudangrass will contribute greatly to forage production while allowing sufficient sunlight to penetrate the canopy so that crabgrass can develop. Grazex BMR is highly palatable, similar to crabgrass. Producers report that animals graze both forages uniformly which allows prolific crabgrass seed production. If mechanically incorporated, crabgrass seed should not be placed deeper than ½ inch. Planting rate of 5 to 6 pounds per acre in most environments where adapted.

Quick and Big crabgrass is the newest variety of crabgrass available, having been selected for early germination, less seed dormancy, superior seedling vigor, outstanding grazing/tonnage potential. Red River crabgrass, the first crabgrass variety to be released, was developed for improved forage production and has been proven to out yield naturalized crabgrass.

**TEFF GRASS**

Teff grass is primarily used for multiple cuttings of dry hay. It is usually planted alone, over seeded into thin alfalfa stands or cool season perennial grass to boost summer hay production. It should be harvested prior to head exertion for best regrowth and forage quality. First cutting occurs approximately 42 to 52 days after emergence, subsequent cuttings are at approximate 30 day intervals. Clipping below 4 inches causes slow regrowth. It is somewhat prone to being uprooted when grazed during the first 5 to 6 weeks of growth or later on sandy soils. Grazing, if done, usually follows a cutting of hay. Once established, teff withstands both drought and water logged soils and has salt tolerance similar to that of alfalfa. Teff does not accumulate prussic acid and nitrate accumulation is seldom reported. Forage quality is good; teff is popular as a horse hay. Minimum germination soil temperature is 65 degrees and rising. Maximum planting depth is ¾ inch and requires a firm seed bed similar to what would be required for alfalfa planting. Rainfall or irrigation after planting is necessary for germination. Very small seeded; about 1/6th the size of alfalfa seed, most teff seed is coated to make it more compatible with planting equipment. The suggested seeding rate for drills planting coated seed is 8 to 10 pounds per acre, 10 to 14 pounds per acre when broadcast.

**COWPEAS**

Summer annual legume requires 65 degrees or more to germinate. Tolerates drought, heat and low fertility. Moderate shade tolerance makes it a good companion with sorghum forages. High palatability and high protein. Use inoculant with Bradyrhizobium sp. (Vigna), N-Dure for warm season. Plant 45 to 60 pounds per acre as a single crop planting.
COOL SEASON FORAGES
Peas, Oats and Triticale

COOL SEASON PEAS (Forage, Field, Yellow, Green, Austrian Winter)
A cool season annual or winter annual legume utilized for a variety of applications and with a wide range of planting dates. These peas are frequently used to produce a grain/seed crop on the northern plains but are primarily used as a forage crop on the central and southern plains where grain yields are erratic from year to year. Cool season peas can be planted in either late winter/early spring or late summer/early fall to produce a forage crop. Austrian winter peas are planted in late summer/early fall, over winter and mature in late spring/early summer similar to the growth pattern of winter annual cereals. Winter hardiness of Austrian winter peas is generally reliable south of the Kansas/Oklahoma border, with less reliable winter survival north of that point. All cool season peas make excellent quality forage for haying or grazing. Little or no regrowth after clipping. Cool season peas have a high moisture requirement for successful germination. Seed may be planted as deep as 3 inches if necessary and should be placed somewhat below the soil’s wet/dry moisture line to avoid seed drying before it has completed imbibition and germination. Will fix nitrogen if properly inoculated with pea, vetch, lentil inoculant; N-Dure for cool season: Rhizobium leguminosarum biovar viceae. Plant 30 to 40 pounds per acre as a single crop planting.

SPRING OATS
Cool season annual cereal, generally planted in early spring for hay production or grazing. Oats are occasionally planted in the fall for short term grazing. Both winter oats or spring oats, when planted in autumn, will usually winter kill any where north of central Oklahoma and the southern Texas panhandle, leaving standing dry hay. Oats produces high quality hay favored by horses and young cattle. 65 pounds per acre are frequently used for early plantings, late February through early March on western dryland. As much as 100 pounds per acre may be used for later plantings, the last 1/2 of March through early April, or on eastern dryland and irrigated.

TRITICALE 718
Cool season annual or winter annual cereal originally developed from a cross between wheat and rye. Used for grazing, dry hay production or silage. Triticale produces forage later into the spring/early summer than rye with greater total production potential. Volunteer triticale seed is unlikely to become a weed problem since triticale seed/grain is much less prone to shatter (falling from the head) than is rye. Compared to wheat, triticale forage yield and disease resistance is superior and forage quality is slightly lower. Triticale 718 is an awnletted (very short beard) variety that is well suited to late season grazing, haying or silage without causing mouth injury to animals. 718 is a facultative variety with a maturity that is well adapted for winter annual production in the central and southern plains. Winter hardiness and heat/drought stress tolerance is outstanding with excellent top end yield potential under favorable growing conditions. Yields over 21 tons per acre of silage have been reported. 718 stands well even when reaching heights over 5 1/2 feet.
PRUSSIC ACID

Prussic acid toxicity is a potential problem when grazing or feeding green chop. Since it evaporates during drying or handling it is rarely a concern when feeding dry hay or silage. Prussic acid levels are generally at low levels in standing dry sorghum and can be safely grazed if there is no new growth at the base of the plant.

BEST MANAGEMENT PRACTICES

Provide balanced fertility
Nitrogen, phosphorus, potassium, zinc and sulfur are of primary concern on plains soils.

Avoid harvest during periods of slow growth
Caused by drought, low temperatures or prolonged cloudy weather. Have laboratory analysis for nitrates preformed if in doubt.

Delay harvest after drought breaking rain
At least ten days following drought breaking rain fall

Raise cutter bar to reduce nitrate concentration
Nitrate levels are highest in the lower stem of the plant. Raising cutter bar height will reduce nitrate concentration of hay produce.

NITRATES

Nitrates are primarily a potential problem when feeding dry hay, occasionally a problem when grazing or feeding silage.

BEST MANAGEMENT PRACTICES

Provide balanced fertility
Nitrogen, phosphorus, potassium, zinc and sulfur are of primary concern on plains soils.

Avoid harvest during periods of slow growth
Caused by drought, low temperatures or prolonged cloudy weather. Have laboratory analysis for nitrates preformed if in doubt.

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CONCEP III SAFENED SEED OPTION

Some formulations of herbicides containing the active ingredients alachlor or s-metolachlor are labeled for application to fields planted to Concep III safened sorghum forages. Concep III increases the cost of sorghum seed but is necessary to prevent crop injury on fields where herbicides containing either of these two active ingredients is applied. Concep III safener does not eliminate or reduce the risk of crop injury by any other herbicide active ingredient.

Concep III safened hybrid forage sorghum and hybrid sorghum sudangrass seed is available from Sharp Brothers upon request. Early orders are the best means of securing safened seed since most seed provided by Sharp Brothers and inventoried by our dealers is not safened.
Sharp Brothers Seed Company
1005 South Sycamore
Healy, Kansas 67850
Fax 620-398-2220
sales@sharpseed.com
800-462-8483

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