

Evaluating New Forages

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Introduction

Most of the forage acres planted in southwest Iowa include one or more of about a dozen well adapted, commonly used grasses and legumes. Several new and new-to-Iowa grasses and legumes have been promoted and marketed in Iowa in recent years. Many of these have been species that might be useful for summer forage, but whose adaptations to Iowa growing conditions are unknown. The objective of the small-plot forage research and demonstrations at the Neely-Kinyon Research Farm in 2000 was to evaluate several recently advertised "summer" forages for performance and persistence in SW Iowa.

Materials and Methods

Forages being evaluated:

Annual and Perennial Ryegrass Historically, "forage" annual and perennial ryegrass varieties have not had sufficient winter-hardiness to match the yield and production needs of livestock producers, and if used have been managed as an annual or a short-lived perennial. A series of mild winters and likely a gradual improvement in cold tolerance have led to some winter survival of ryegrass and to favorable comments from producers. Annual ryegrass generally yields more in the seeding year, but perennial ryegrass has the better overall palatability and feeding traits. The treatments at the Neely-Kinyon Research Farm this year will enable us to evaluate annual and perennial ryegrass for establishment, growth, and persistence.

Bermudagrass Bermudagrass is a warm-season, perennial grass grown in the southeastern and south-central U.S. It has generally not persisted (cold sensitive) north of the KY/TN border, and

north of southern IL, southern MO, and Kansas. A variety, 'WorldFeeder' is being heavily marketed in the upper Midwestern states. It has survived the very mild winter of 1998/99. Producers are asking about it, and are planting it. 'Worldfeeder' has to be vegetatively propagated (sprigged) and is quite costly to establish. A variety 'Cheyenne' can be established from seed. Both 'WorldFeeder' and 'Cheyenne' were planted in 2000 to evaluate establishment, growth, and persistence/winter-hardiness.

Mixtures of sudangrass x sorghum hybrids and forage soybeans. Brown mid-rib mutant sudangrass x sorghum hybrid (*BMRXS Hyb*) are drought and warm temperature tolerant, ideal characteristics for a summer forage. The brown mid-rib mutant is a genetic mutant trait in corn and sorghums that causes a reduced fiber content in the tissues, with higher potential digestibility and nutritive quality. The USDA Ag Research Service has released three soybean varieties (*ForageSB*) with greater forage yield by autumn (grain yield is inconsequential). They grow as normal soybeans through mid-summer and then grow strongly in height, flower very late, and may begin to form pods by frost. A demonstration plot of a mixture of *BMRXS* and *forageSB* was grown at the Neely-Kinyon Farm in 2000. The treatments evaluated in 2000 were: *BMRXS Hyb* and *forageSB* alone; *BMRXS hyb.* and *forageSB* in mixtures with varying rates of the sorghum hybrid; *BMRXS hyb* and *forageSB* mixtures planted at several dates in order to determine a more desirable growth period during the summer that might better express the growth of each component in the mixture; and *BMRXS hyb.* and *forageSB* mixtures with and without compost (nitrogen). Plots were harvested in mid-summer, late summer and fall.

Results and Discussion

Annual and perennial ryegrass established well in 2000. The annual ryegrass had more top growth at all times during the growing season when compared with perennial ryegrass. Poor establishment of the seeded bermudagrass was attributed to inadequate soil moisture following seeding. Nearly 2/3 of the sprigged 'WorldFeeder' plants established. These spread to 12 to 24 inches in diameter during mid- and late summer. Ryegrasses and bermudagrass will be evaluated in the spring of 2001 for winter survival.

Figure 1 summarizes the brown mid-rib sorghum X sudangrass hybrid and forage-type soybean production. More yield was available at higher sorghum proportion, and when harvests were delayed. Soybeans alone were weedy. Sixty lb forageSB/10 lb BMRSXS, planted Mid-May was the highest-yielding mixture in 2000. The BMRSXS hyb headed before mid-August and was cut before the greatest growth of the forageSB was expressed. The amount of BMRSXS hyb in the mixture was too great for a good mixture. ForageSB represented 31% and 19% of the yield in that treatment on 8 August and 13 September, respectively.

Figure 1. Yields of brown mid-rib sorghum X sudangrass hybrid, forage-type soybeans, and their mixtures.

