MARYLAND COOPERATIVE EXTENSION
UNIVERSITY OF MARYLAND
COLLEGE PARK•EASTERN SHORE

Fact Sheet

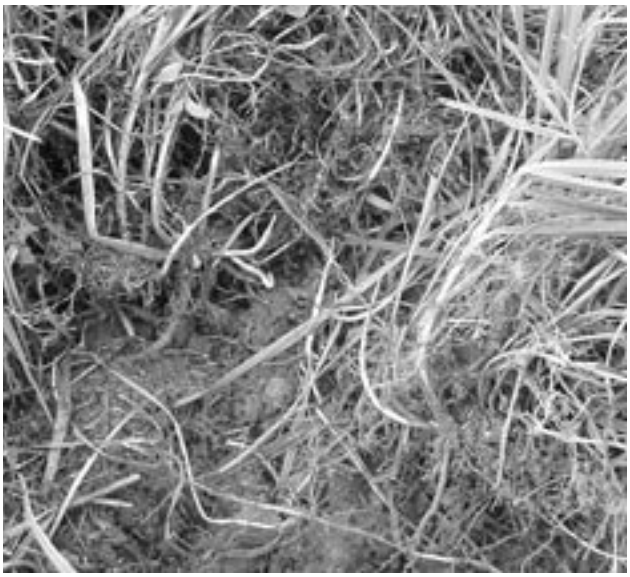
Fact Sheet 813

Smooth Bromegrass

Adapting an Old Grass to Today's Forage Systems

Smooth bromegrass (*Bromus inermis Leyss*) is an introduced forage grass that traces its roots to Europe. The early bromegrasses were introduced to Pennsylvania by German settlers in the 18th century. According to samples identified by the University of Maryland Botany Department, some of these historical grasses are still populating rockbreaks and fencerows in Washington County, MD. Smooth bromegrass is a very winter hardy grass and is commonly utilized as a grass hay crop from the Mid-Atlantic to the Midwest and northward into Canada where the winters limit the persistence of other forage grasses. Smooth bromegrass alone or mixed with other hay-type forage grasses, primarily timothy and orchardgrass, can be found throughout the Appalachian region maintaining long-lived hay stands on shaley mountain soils. It is not unusual to find productive bromegrass fields over 40 years old.

Smooth bromegrass is not to be confused with the bunch-type bromegrasses such as Matua and several of the bromes recently introduced from northern Europe. Smooth bromegrass is a sod-forming grass that spreads by underground rhizomes. Its seedling growth is slow compared to other cool season perennial forage grasses because it spends a considerable amount of energy developing its rhizome root system. It can take a seeding several years to become fully established. Once the rhizome root system is established a carefully managed stand will persist for decades. The ability of a well-managed smooth bromegrass field to form a dense mat of rhizomes is one of the reasons this grass is adapted to certain forage systems in central and western Maryland and similar areas. Smooth bromegrass is best adapted to deep, well-drained soils although a stand will establish and persist on shallow, droughty soils. The deep rhizome root system allows this grass to go dormant in periods of severe drought and recover with the return of moisture and cooler temperatures. Smooth



Smooth bromegrass has a rhizominous root system.

bromegrass will not persist on poorly drained soils if subjected to extended periods of flooding.

The seed of smooth bromegrass is light and fluffy. At 14 pounds per bushel and 135,000 seeds per pound many conventional and no-till drills are not equipped with seedbox mechanisms aggressive enough to prevent the bromegrass seed from bridging during seeding. Blending at least one bushel of oats with the bromegrass seed assures a uniform seed flow during seeding. Or producers may use the native grass seedbox available on some drills.

Hay cutting trials at Virginia Tech and Penn State have produced yield data on several varieties including Alpha, Badger, Peak, Saratoga, and York. Companies selling grass seed often have a noncertified seed simply labeled "common smooth bromegrass." When requesting bromegrass seed, producers must be very clear that they are requesting smooth bromegrass so there is no confusion and the producer does not end up with an annual or bunch-type bromegrass. Buying only certified seed avoids any confusion and assures the best grass stand.

Historically, smooth bromegrass was managed as a hay crop. In the days when hay was cut with a horse-drawn sicklebar mower or even a scythe, hay making was delayed until summer weather provided an adequate window to make dry hay. This could be in mid to late June or harvest could be delayed until after small grain harvest well into July. Unlike the old common orchardgrass and old timothy varieties, the smooth bromegrass does not lignify after seed head emergence, which allows the late-cut hay to maintain its softness and palatability.

Smooth bromegrass is similar to timothy in its growth physiology prior to the first hay cutting of the season. Making a first cutting of bromegrass before the seed head emerges delays regrowth of the second cutting. This delay occurs as the bromegrass initiates regrowth from basal tillers. If cut early, low plant carbohydrate reserves and undeveloped basal tillers will not support rapid regrowth. At one time, alfalfa and smooth bromegrass mixtures were seeded, but early May cutting of alfalfa suppressed the bromegrass and shortened the life of the stand. This requirement to delay harvest to seed head emergence does not allow smooth bromegrass to be adapted to continuous grazing systems.

Following an initial seeding demonstration in Washington County, MD, in 1986, producers began utilizing smooth bromegrass in selected forage systems. Examples of these seedings include droughty hills where timothy or orchardgrass do not persist, smaller farms where reseeding timothy and orchardgrass fields is difficult, and farms where tall fescue was not a choice. Small-scale commercial hay producers like the persistence, pest resistence, and high palatability of smooth bromegrass. Subsequent farm demonstrations in Virginia have also shown that smooth bromegrass can be successfully adapted into the haying and grazing systems of the livestock farms in the Shenandoah Valley. This report may be found at the following website: http://www.ext.vt.edu/vce/anr/cropsoil/broomgrass.pdf.

Establishing New Stands of Smooth Bromegrass

Prior to seeding any forage grass, the farm manager must decide if the field is to be used for hay production, grazing, or both.

If the field is to be used for hay production on a farm where the field may be used rarely for grazing, smooth bromegrass can be seeded alone at a rate of at least 14-16 lbs. of seed per acre. However, since the bromegrass is slow to establish, a seeding mixture of timothy and smooth bromegrass produces a hay stand more quickly. This assessment is based on the observations of seedings made in Washington County over the past 15 years. A seeding rate of 6 lbs. of timothy and 10-12 lbs. of bromegrass per acre allows the rapid establishment of the hay stand. When timothy begins to decline after several years from drought or pest stress, the smooth bromegrass rhizome system is established and will continue to support a productive hay stand. A spring seeding performs well if the smooth bromegrass seed is blended with 2 bushels of oats. The oats assure a uniform distribution of bromegrass seed through the drill, reduce weed infestation, and provide

a cutting of oat hay in June while the timothy-bromegrass hay crop is becoming established. Apply 75 lbs. of N per acre at seeding. The timothy and bromegrass stand will be in full production by the following spring. A late summer seeding of timothy-bromegrass mix requires only a bushel of oats. Apply 50 lbs. of N per acre to build the roots of the new grasses.

If the field is to be used for on-farm hay production and pasture later in the summer, a mixture of orchardgrass and smooth bromegrass performs well. With time a seeding of orchardgrass will tend to become clumpy and on droughty soils the loss of weaker plants will thin the stand. The rhizome growth of the smooth bromegrass will fill the gaps between thinning orchardgrass plants, effectively maintaining a productive grass stand. A seeding rate of 12-14 lbs. of orchardgrass and 10-12 lbs. of bromegrass provides a thick seedling grass stand. A late maturing orchardgrass variety will more closely match the heading date of smooth bromegrass. A spring seeding can use 2 bushels of oats blended with the smooth bromegrass seed to assure the distribution of the bromegrass seed, reduce weed infestation, and provide a cutting of oat hay while the new grass stand is becoming established. By the time the oat hay is harvested in mid-June the orchardgrass and bromegrass stand is established. Managed rotational grazing can begin when the grass stand has regrown to at least 6-8 inches tall later in the summer. Care should be taken not to graze this grass mixture too close to the soil. Leaving a 3-4 inch grazing residue and allowing 6 weeks between rotations will assure the continued growth of the bromegrass and its rhizome system. Producers in Washington County, some of whom initially seeded this mixture up to 15 years ago, will harvest the first growth as a hay crop then carefully graze the regrowth throughout the summer and into the fall.

Renovation of Hay or Pasture Grass Stands

Producers may renovate thinning hay fields or pastures with smooth bromegrass, realizing the newly seeded bromegrass will not fill in a grass stand in just six months but will eventually establish a productive and long-lived stand of grass if managed properly. A field with thin or shaley soil, rocks, or steep slopes is not the best candidate to be renovated using tillage. No-till renovation of a timothy or orchardgrass field with smooth bromegrass will work well.

Seeding smooth bromegrass into either timothy or orchardgrass in the spring will likely result in a seeding failure because the established grass plants smother the slow to establish seedling bromegrass. After removing a late summer hay crop or grazing the field to be renovated as close as possible, a no-till seeding of 12-14 lbs. of smooth bromegrass per acre mixed with a bushel of oats can be made. An application of 1/2 pint Gramoxone per acre will suppress the old grass further and control many annual weeds. In Washington County, MD, the optimum seeding window is September 1-15. Seedings made only four weeks before the soil begins to freeze risk failure. Assuming adequate fall grass growth, the newly renovated field can be rotationally grazed after grass growth stops with the onset of cold weather. Leaving a 4-inch grazing residue assures winter survival of the new grass.

Summary

Smooth bromegrass is a long-lived perennial cool season forage grass best adapted to hay production. However, its aftermath growth can be carefully grazed. A late June cutting of smooth bromegrass hay retains its palatability because the stems contain less lignin than other grasses. It is a winter-hardy grass resistant to pests and tolerant of drought. This grass performs best on deep, well-drained soils but will persist on shallow, droughty soils. It will not persist on flooded soils. Its seed is fluffy. Uniform seeding is assured by mixing oats with the bromegrass seed to prevent the seed from bridging in the seed box or by using a native grass drill.

A mixture of smooth bromegrass with either timothy or orchardgrass, depending on how the forage is to be used, establishes a thick stand of grass more quickly than seeding bromegrass alone. Either spring

or late summer seedings will establish a new seeding of smooth bromegrass. As the timothy or orchardgrass thins over several years, the rhizome root system of smooth bromegrass maintains an adequate grass stand in the field. If a field is to be renovated, a late summer seeding will provide a better establishment of the bromegrass seedlings than a spring seeding, assuming adequate moisture.

In a hay system, smooth bromegrass performs best if the first cutting is made after seed head emergence. In a forage system where grazing is planned, the first harvest must still be cut as hay or the bromegrass will not persist. Aftermath growth can be rotationally grazed throughout the summer and fall leaving a 4-inch residue after each 6-week grazing interval. A continuous grazing system will not allow the bromegrass to persist.

Smooth bromegrass is not the grass to adapt to every forage system or every soil condition. It requires careful management or it will not persist. However, if it is managed properly bromegrass will provide a very long-lived palatable grass stand that can be used for hay and grazing. The fact that an established smooth bromegrass stand will last a lifetime makes it an alternative to be considered for selected forage systems in central and western Maryland and nearby states.

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