

Seed Production Management for Bromegrass and Tall Fescue

Kansas produces up to 12 million pounds of high quality tall fescue and 6 million pounds of bromegrass seed per year. These are alternative crops for most producers because the stands are also used for grazing and hay. This dual use maximizes the total crop, even though seed yields are low. Highest seed yields are produced from cultivated rows, but a solid stand is important for forage and erosion control.

Two management practices are especially important in producing high seed yields:

—Clipping and removing the forage soon after the seed stalks are mature.

—Applying nitrogen during late fall or early winter.

Stubble Management

Stubble should be clipped to a height of 3 to 4 inches as soon as possible after seed harvest to allow light to stimulate tiller initiation at ground level. Because bromegrass has fewer basal leaves, clip it no less than 4 inches high. During the fall and early winter, tillers develop the number of heads available for the following year's seed crop. Light and temperature relations resulting from timely clipping encourage a high percent of early, vigorous, productive heads. The most effective tillers will be initiated by September 1. Failure to clip the stubble may reduce the next seed crop by as much as 30 percent. Hay salvaged after seed harvest is high in fiber, but basal leaves make it of some value. Burning stubble has been suggested, but seasonably hot, dry soil conditions endanger survival of the stand and make fire control difficult.

If a forage field is intended for seed next year, clipping should be done by the time the seed stalks are normally mature. If hay was cut early for qual-

ity, regrowth should be removed by early July. Complete removal of the residue from the field allows maximum tiller development.

Fall growth should be grazed only moderately until the growing season is over. Excess trampling is undesirable.

Nitrogen Fertilization

Proper nitrogen fertilization is primarily responsible for how well the seed heads "fill." Tiller bud formation does not require much nitrogen. If used only for seed, fescue should be top-dressed with 70 to 100 pounds of nitrogen during December or January. With good moisture, bromegrass will use similar rates.

Timing of nitrogen applications affects seed yields. Nitrogen applied in August or September may be metabolized by fall growth and/or lost. Nitrogen applied in late winter (often as early as February 1 in southern Kansas) may cause excessive vegetative growth. If lodging occurs, seed growth will be limited, resulting in lower yield and quality and a difficult harvest. Only if no nitrogen was applied earlier should late winter application be used, and then with a limited rate of application. In contrast, for forage production alone, the late-March, early-April application period can be effective.

Determining the economical amount of nitrogen for a seed crop is often complicated if nitrogen was applied in late summer to encourage forage growth for winter grazing. Some additional nitrogen should be applied in December or January for seed produc-

tion. The amount will depend upon how much was applied earlier. Increase the application in cases of vigorous vegetative growth, intense grazing, little clover, rainfall filling the subsoil before freezing, etc. A rule of thumb is that after applying 50 to 60 pounds in the fall, use 40 to 60 pounds in the winter; if 80 to 100 pounds was applied in the fall, an additional 30 to 40 pounds may be sufficient. The larger total amount is needed to offset forage removal and other nitrogen losses. Bromegrass, especially older stands, requires the heavier rates.

Mineral Nutrition

Phosphorus and potassium should be applied according to soil test recommendations. On pure grass stands, the pH level should be maintained above 6.0. Nitrogen fertilization increases the need for lime. On grass-legume mixtures, strive for 6.5 pH. This higher pH will benefit the legume and lengthen its life.

Grazing

Because most seed fields are grazed during the fall or winter, cattle management becomes an important factor in seed production. Grazing should be moderate during August, September and October. During this time energy is stored and tillers are initiated for next year's seed heads. Graze bromegrass no closer than 6 inches. Fescue has more basal leaves, but also should not be grazed closer than 6 inches. After November 1, grazing may be increased to remove all usable forage by January 15. Fescue is often stockpiled for use after November 1. Cattle should be removed from seed fields before any of the potential seed heads can be grazed off elongating tillers. This may be as early as March 15 in southern Kansas and April 1 in the north.



Maintenance

Seed yield will usually decline after a stand is 3 or 4 years old. However, a properly fertilized and managed grass stand can produce 400 to 500 pounds of seed per acre indefinitely. Solid stands are sometimes "skim" plowed to a depth of 3 or 4 inches after fertilization to thin and increase the vigor of the stand and encourage better seed production. This option could incorporate lime and phosphate deeper into the soil. Renovation and interseeding legumes may be effective in supplying part of the needed nitrogen and in maintaining a more vigorous grass stand.

Weeds

Quackgrass and annual brome lower seed quality and should be removed before harvest. They cannot be adequately removed by cleaning, but the Noxious Weed Districts can be helpful in controlling noxious weed infestations and thus support the effort to produce high-quality, weed-free seed.

Harvesting

Seed may be harvested by direct combining or windrowing and then combining. To save the maximum amount of seed, windrowing is a must.

The seed shatters easily when ripe. Delays caused by rains, unavailability of a combine, or high winds can easily reduce yields by 50 percent or more. Even under favorable conditions, extreme care and skill are necessary to prevent serious losses.

If the seed can be harvested in 1 to 2 days, direct combining is feasible. Combining should begin when 85 to 95 percent of the seed is mature. Many late heads will still be immature at this

time. A few seeds will shatter when the ripe stalk is tapped just below the head. Harvesting with more than 20 percent immature seed usually results in reduced yields.

To avoid delays and reduce risks of shatter on large acreages, the seed may be dried in a windrow and collected with a combine attachment. For best results, use a swather with a canvas gathering platform to give the gentlest movement possible. Swathing should begin when the straw in the head is yellowing. At this stage only an occasional seed will shatter from the earliest maturing heads. The swather should cut high enough to leave the windrow on top of the stubble. Air will circulate through it and decrease drying time. Windrows should be combined as soon as they are thoroughly dry.

The combine may first be set according to the manufacturer's manual. Aggressive cylinder action is not necessary. Chaff should be examined for seed from time to time as harvest proceeds. The glumes readily break free, but because they are similar in color and only slightly longer than the seed, it appears that seed is being blown out. If the distinction is difficult, separate the glumes and seed from an unthreshed head by hand. On an underlighted glass, the seed will stand out as a dark silhouette among the translucent glumes.

Seed Handling

Preventing heating in the new seed is nearly always a problem. Cleaning the seed immediately can remove green, wet material, but the seed still needs special attention. Excessive seed moisture causes heating in storage,

which results in reduced seed vigor and germination. If the seed amount is small, it may be spread out to dry in bins, lofts, etc. If the seed begins to heat, it must be promptly stirred or turned to cool. To avoid loss of germination and vigor, seed temperatures must not exceed 110°F. In drying bins, the circulating air at the flue entrance should not exceed 90°F so that no hot spots exceed the 110°F limit.

Larger amounts of seed may be dried in well drained curing yards. The seed is placed in windows and turned with a tractor blade. Frequent turning prevents heating and facilitates drying. The seed can withstand surprisingly large amounts of rain without damage.

Marketing

Consult seed dealers or buyers prior to harvest. They may suggest procedures about timing and handling that will help save seed and improve quality. Their counsel may be valuable in pricing, which is traditionally extremely volatile.

With fescue, there may be a demand for endophyte fungus-free seed, which may be from tested native stands. Long-term storage (more than 1 year) may destroy the fungus without serious seed deterioration.

Longer-term market planning may raise interest in new endophyte-free fescue varieties, certified seed, or continued effort with "wild" or common seed from present stands. The market for "wild" seed for turf appears to be firm in the next few years. Future trends may emphasize fine-leaved strains of tall fescue for turf. These strains will probably be managed for seed only.

Jack Brotemarkle

Extension Crop Production Specialist

Gary Kilgore

Extension Crops and Soils Specialist
Southeast Area



COOPERATIVE EXTENSION SERVICE, MANHATTAN, KANSAS

MF-924

June 1989

Issued in furtherance of Cooperative Extension Work, acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, and United States Department of Agriculture Cooperating, Walter R. Woods, Director. All educational programs and materials available without discrimination on the basis of race, color, national origin, sex, age, or handicap. 6-89—3M; 10-89—3M
File Code: Crops and Soils-2