

KENWELL

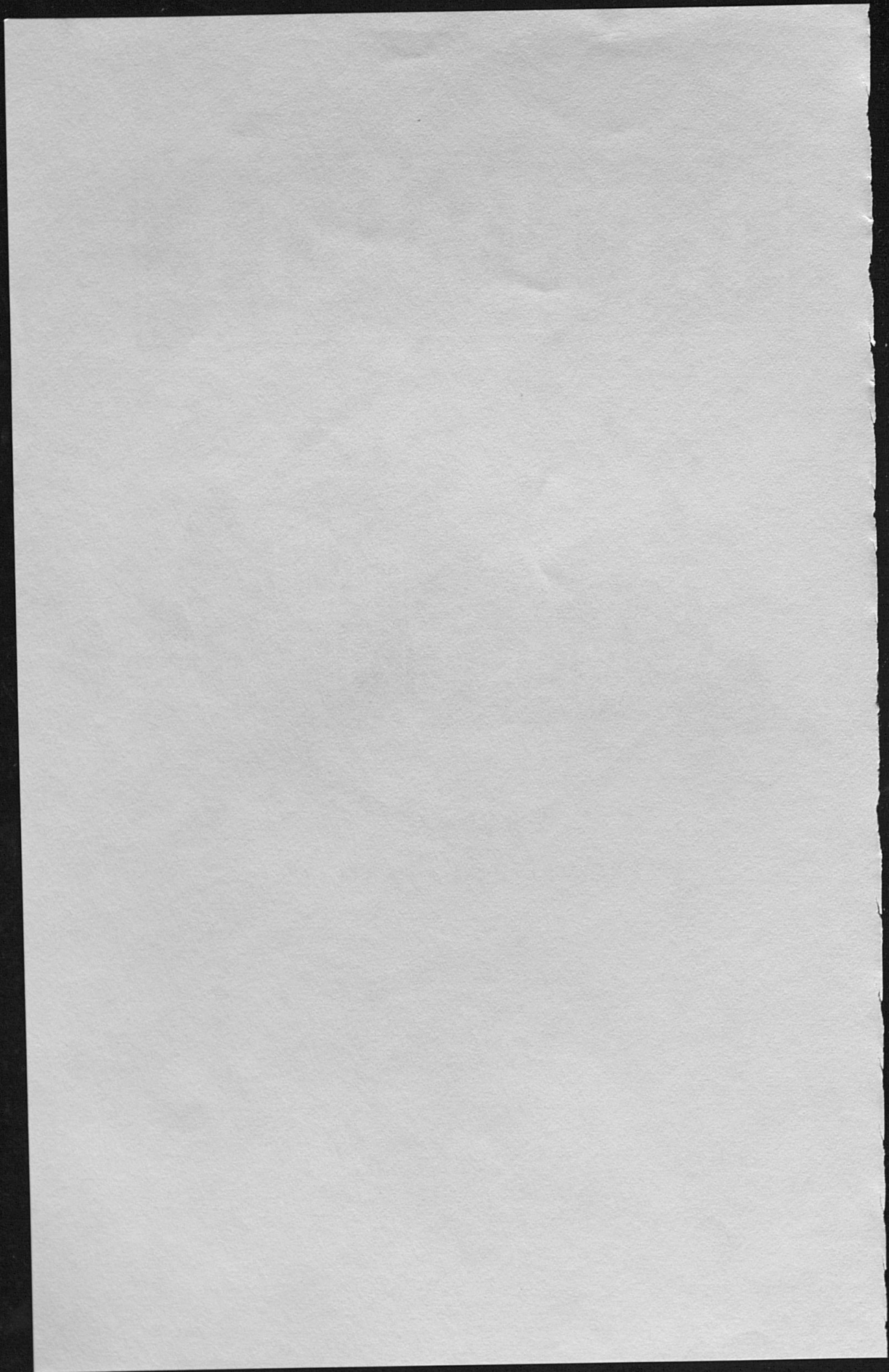


IMPROVED PALATABILITY

Circular 601

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Kenwell Tall Fescue

Characteristics and Management¹

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In recent years palatability of pasture grasses has become recognized as an important quality, especially in grasses in complex pasture mixtures. The more palatable grasses in such mixtures are consumed more readily by grazing livestock, with the result that they are less competitive than the other grasses and gradually tend to go out of the pasture stand. Improvement of palatability in species considered low in this characteristic would make those species, or varieties of those species, more compatible with other species in such complex pasture mixtures. Also, as compared with unimproved varieties of species low in palatability, varieties with improved palatability might be better consumed when seeded alone or in relatively simple pasture mixtures.

Although tall fescue (*Festuca arundinacea*, Schreb.) has many good qualities of a superior pasture grass, one criticism is that it is somewhat unpalatable to livestock, especially during the summer and early fall. Kenwell tall fescue, developed cooperatively by the Kentucky Agricultural Experiment Station and the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, is characterized by improved palatability to livestock, improved disease resistance, and better maintenance of color during drought.

DESCRIPTION

Kenwell is a composite of 43 highly palatable inbred clones, representing three inbred lines, all of which were better grazed by cattle than were plants of Ky. 31 tall fescue.

The variety has been compared for palatability with commercial varieties of tall fescue in numerous plantings since 1958. During this period, tests were repeatedly grazed by cattle having free choice of

¹ Cooperative investigations at Lexington, Ky., of the Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture, and the Department of Agronomy, University of Kentucky Agricultural Experiment Station.

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numerous varieties in the summer and fall. Kenwell was significantly better grazed than commercial varieties during each grazing period (Table 1).

Table 1.— Comparison of Kenwell, and Ky. 31 tall fescue varieties for palatability to cattle when grazed free-choice in 4 separate tests during a period of 6 years. The varieties were established in sod plots.

Variety	Year Test Was Grazed ¹					
	1958	1959	1960	1961	1962	1963
Ky. 31	7.2	7.0	7.5	8.1	8.0	8.0
Kenwell	3.5	2.0	2.5	4.6	4.8	3.5
L.S.D. ² at .01	1.9	1.4	1.7	2.4

¹ Figures are averages of 2 grazing periods, using an index of 1 for best grazed and 9 for ungrazed plots.

² Least significant difference.

Relative palatability of Kenwell and Ky. 31 varieties was determined in one test by sampling a portion of the varieties before and after grazing to obtain dry matter consumption. Results from the test, repeatedly grazed for a 2-year period, showed that cattle consumed 44 percent more dry matter of Kenwell than of Ky. 31 when the animals were given free choice of both varieties.

Although Kenwell is not generally considered to be so robust or so strongly competitive as the Ky. 31 variety, it is considered satisfactory in those characteristics. A comparison of the two varieties for yield is shown in Table 2.

Table 2.—Tons of dry matter per acre harvested at Lexington, Kentucky, from pure stands when in full bloom plus aftermath harvests. Varieties received 33 pounds per acre of nitrogen in March, June, and September each year.

Variety	Year of Harvest		
	1961 ¹	1962 ²	1963 ³
Kenwell	2.4	1.9	1.1
Ky. 31	2.4	2.0	1.1

¹ Average yields from tests seeded in 1957, 1958, 1959, and 1960.

² Average yields from tests seeded in 1958, 1959, and 1960.

³ Average yields from tests seeded in 1960, 1961, and 1962.

Yield differences not statistically significant.

Kenwell has greater tolerance to certain leaf diseases and maintains better color during dry periods and into winter than Ky. 31 and other commercially available varieties. The variety is approximately 5

to 7 days later in date of flowering than Ky. 31. The difference in date of flowering, palatability, and competitive ability offers a better opportunity for maintaining associated legumes.

OBSERVATION ON FARMS

The Kenwell and Ky. 31 varieties were compared for agronomic and animal performance on three farms in western Kentucky during 1963 and 1964.

Little difference in animal performance was observed between the two varieties at any of the test locations. This would indicate that the two varieties are essentially the same nutritionally.

Perhaps the greatest difference between the two varieties was in agronomic performance. The Ky. 31 variety appeared to make more growth and to become stemmy earlier in the spring than the Kenwell variety. The Kenwell variety had less foliar disease and was greener during the summer than Ky. 31. During summer the animals were observed to graze Kenwell and associated legumes equally well while they tended to graze the legume in preference to Ky. 31.

MANAGEMENT AND UTILIZATION

Generally, the culture and use of the Kenwell variety are comparable to that described in the Ky. Agr. Exp. Sta. Cir. 487, "Kentucky 31 Fescue, Culture and Use."

The variety should be seeded on a firm, well-prepared seedbed and the seed covered lightly. Fall and spring seedings are equally effective for obtaining good stands. The variety should be seeded at the rate of 10 to 15 pounds per acre for pasture purposes, 20 to 25 pounds per acre for terrace outlets and waterways, and 160 to 200 pounds per acre for roadside and turf purposes.

Although Kenwell grows on soils of low productivity, best performance is obtained on soils that have been properly treated (based on soils tests) to correct any deficiencies of lime, phosphorus, and potassium. Best stands are obtained when 30 to 40 pounds per acre of elemental nitrogen is applied broadcast just prior to or at the time of seeding.

One or more legumes should be seeded with Kenwell when the variety is to be used for hay or pasture. Legumes normally seeded with tall fescue are common and Ladino white clover; Korean, Kobe, and Sericea lespedeza; alfalfa; red clover, alsike, and sweet clover. Certified seed of adapted varieties of legumes should be seeded.

If the Kenwell variety is seeded in late summer or early fall, it will provide pasture the following year. The grass normally tends to produce seed heads even though it is stocked heavily during the spring. To maintain high quality pasture, clip the grass to keep it in a vegetative stage of growth. The excess growth may be used as hay.

Legumes tend to disappear from tall fescue stands for various reasons. For best animal performance legumes should be maintained in tall fescue pastures. When legumes disappear from the stand they may be re-established through renovation of the grass sod. This is done by the following practice: (1) correct the soil fertility (based on soil test) by fertilizing to maintain medium-to-high levels of phosphorus (P_2O_5) and potassium (K_2O) and a pH of from 6.0 to 7.0; (2) graze or clip the grass closely; (3) disk or cultivate to destroy one-third to one-half of the sod; and (4) inoculate the legume seed and distribute it evenly over the field, then cover the seed lightly. Fields may be renovated in early fall or spring. However, spring seedings generally are more satisfactory for securing good stands of legumes because severe droughts frequently are encountered in the fall. The grass should be grazed moderately during the spring to prevent undue competition to the legume.

SEED PRODUCTION

Generally, the practices followed to produce high yields of seed of the Ky. 31 variety will also produce high seed yields of Kenwell.

Highest yields are obtained from pure stands of tall fescue. The rate of planting should be 5 to 6 pounds per acre when planted in rows or 10 to 12 pounds per acre when seeded broadcast. Medium-to-high soil fertility levels (preferably based on soil tests of P_2O_5 and K_2O and a pH of between 6.0 and 7.0) should be maintained for optimum seed yields. Topdress with approximately 60 pounds of nitrogen during December. Later applications, until March 1, give satisfactory seed yields. Nitrogen applied at this rate after March 15 causes lodging and excessive vegetative growth at the expense of seed yields. Following seed harvest, mow to a height of 3 or 4 inches, remove excess growth, and graze moderately until early March.

Although the seed production capability of Kenwell has not been compared with that of commercial varieties in test plantings, seed yields from field plantings in central Kentucky are comparable to that generally obtained from plantings of Ky 31. A field seeded in 1961 at the rate of 4 pounds per acre in 36-inch rows and fertilized with approximately 60 pounds of nitrogen per acre in December 1963 produced 370 pounds of clean seed per acre in 1964. A solid seeding estab-

lished in 1959 produced 444 pounds per acre of clean seed in 1963 when fertilized at the rate of 66 pounds per acre of nitrogen in December 1962.

CHEMICAL CONTROL OF WEEDS IN THE SEED CROP³

Recommendations for the control of broadleaf weeds in tall fescue stands may be obtained from U.K. Coop. Ext. Misc. 113, "Chemical Control of Weeds in Farm Crops in Kentucky." For the safety of the operator and to prevent damage to cultivated crops and plants, all precautions mentioned in Misc. 113 and, also, by the manufacturers of the herbicides should be observed.

Cheat seedlings and red sorrel, troublesome weeds that commonly occur in tall fescue seed fields, are not controlled with 2, 4-D. Dicamba (Banvel-D 4E) applied at the rate of 2 quarts (2 pounds active) in 20 gallons of water per acre has given excellent control of both these weeds in established plantings of tall fescue.

Apply the herbicide during early April before the fescue has reached the boot stage of maturity. If tall fescue is treated during the boot stage or after flower heads emerge, seed yields and/or lowered quality of seed may result. Dicamba (Banvel-D) has not been approved for use on feed and forage crops; consequently, livestock should not be permitted to graze or feed on the forage, aftermath, straw or threshings of tall fescue sprayed with this herbicide.

To meet certification requirements, seed fields of Kenwell must be isolated from other tall fescue. Normally, this can be done by clean cultivation of land in adjoining fields or by mowing other tall fescue to prevent seed head production. Tall fescue in fence rows and other difficult-to-mow or to-cultivate areas may be controlled by spraying with bromacil (Hyvar-X) or dalapon (Dowpon). Bromacil at the rate recommended sterilizes the soil for a period of approximately one year. Dalapon is a translocated herbicide that does not sterilize the soil when used at recommended rates. Bromacil should be applied at the rate of 12½ pounds per acre (5 ounces per 1,000 square foot) of the 80% wettable powder. The dalapon grass killer should be used at the rate of 27 pounds per acre (11 ounces per 1,000 square foot) of the 85% wettable powder. Use approximately 30 to 50 gallons of water per acre to adequately wet the foliage. Tall fescue should be sprayed with either bromacil or dalapon sometime during April for optimum effectiveness.

³ To simplify information in this publication, trade names of some products are used. No endorsement is intended, nor is criticism implied of similar products not named.

CERTIFICATION

The Kenwell variety will have seed produced on a limited generation basis. Classes of seed are: (1) breeder, (2) foundation, (3) registered, and (4) certified. The foundation and registered classes of seed will be used to produce certified seed. The certified class of seed can be planted for forage purposes only, and cannot be used to grow certified seed.

Information regarding certification requirements for the production of certified seed of Kenwell tall fescue may be obtained from the Kentucky Seed Improvement Association, 929 South Limestone Street, Lexington Kentucky, 40503.