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Triumph



A New Winter-Productive
Tall Fescue Variety

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TRIUMPH—A New Winter-Productive Tall Fescue Variety

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TALL FESCUE (*Festuca arundinacea* Schreb.) is the most important cultivated pasture grass in the United States, being grown on 30 to 35 million acres. In Alabama, tall fescue is grown on more than 800,000 acres, mainly in the northern two-thirds of the State. Its main advantages are: (1) ease of establishment, (2) tolerance to a wide range of climatic and soil conditions, to soil acidity, and to low fertility, (3) tolerance to pests, (4) a long productive season, and (5) excellent persistence under a wide variety of grazing regimes.

The variety Kentucky 31, which is grown on nearly all the U.S. acreage of tall fescue, has several disadvantages. Since this variety is of northern origin, it has considerable winter dormancy. Consequently, forage production is low in winter when climatic conditions in the Lower South are often favorable for growth. In addition, the highly competitive nature of Kentucky 31 tall fescue makes it difficult to maintain legumes in association with the grass, or to reestablish clover in pastures where stands have declined.

Because of the wide range of tall fescue germplasm available from the Mediterranean area, it was thought that a winter-productive variety could be developed. To that end, screening of tall fescue germplasm for improved winter forage production was started in 1974 by the Alabama Agricultural Experiment Station.

DEVELOPMENT OF TRIUMPH TALL FESCUE

Triumph, originally designated AF-5, was developed by a combination of mass and recurrent selection. Its parentage originates from germplasm obtained through the USDA Plant Introduction Station at Experiment, Georgia. Spaced plants grown from tall fescue

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plant introductions were evaluated for vigor, winter growth, re-growth potential, and disease resistance. An open-pollinated progeny trial, grown and harvested for 3 years, was used to evaluate forage yield distribution. Clonal selections were made from the following plant introductions: 231560 (Morocco), 231561 (Morocco), 231562 (Morocco), 234719 (France), 251823 (Italy), 297903 (Australia), and 331557 (Morocco). Open-pollinated seed were collected from the selected clones and planted in rows. Seed were collected from selected early maturing plants in this nursery in the spring of 1976 and planted for increase as breeders seed.

CHARACTERISTICS OF TRIUMPH TALL FESCUE

Winter Forage Production

Replicated small-plot trials were conducted at six locations in Alabama over 2 to 3 years. Winter forage yields of Triumph averaged 80 percent more than Kentucky 31, and differences were even greater at some locations, table 1. Additional forage during winter is especially valuable since it reduces the need for hay to maintain livestock. The value of this additional winter forage will likely be even more important in the future if high energy prices continue to escalate the cost of hay harvesting, storing, and feeding.

Autumn forage production of Triumph is equal to or greater than that of Kentucky 31. Triumph is less productive in spring, the time when forage is normally abundant on farms. Triumph matures seed about 2 weeks earlier, and it is more dormant in summer than

TABLE 1. WINTER FORAGE PRODUCTION OF TRIUMPH AND KENTUCKY 31 TALL FESCUE AT SIX LOCATIONS IN ALABAMA

Location	Winter growth period	Dry forage yield per acre			
		Winter		Total	
		Triumph	Ky. 31	Triumph	Ky. 31
		<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
Tennessee Valley Substation, Belle Mina	Late Feb.-early Apr.	2,320	1,300	6,690	6,260
Piedmont Substation, Camp Hill	Late Feb.-early Apr.	2,060	1,380	4,130	4,220
Prattville Experiment Field, Prattville	Feb.-mid Mar.	1,460	700	8,280	6,990
Plant Breeding Unit, Tallassee	Jan.-mid Mar.	1,730	810	9,160	8,170
Black Belt Substation, Marion Junction	Late Feb.-early Apr.	1,550	1,020	5,250	5,120
Gulf Coast Substation, Fairhope	Jan.-mid-Mar.	2,710	1,340	5,800	3,580
	Average	1,970	1,090	6,550	5,720

¹Prattville Experiment Field test was 3 years; all others were 2 years.



FIG. 1. Triumph tall fescue (right) heads and matures seed about 2 weeks earlier than Kentucky 31 (left). Gulf Coast Substation, March 31, 1981.

Kentucky 31, figure 1. Season-long forage production of Triumph is equal to or greater than Kentucky 31 tall fescue, table 1.

Response to Cutting

Triumph has persisted and been as productive as Kentucky 31 under various frequencies of cutting, table 2. During the third

TABLE 2. FORAGE YIELD OF TRIUMPH AND KENTUCKY 31 TALL FESCUE UNDER FOUR CLIPPING MANAGEMENT SYSTEMS AT THE BLACK BELT SUBSTATION DURING 3 YEARS

Tall fescue entry and cutting management ¹	Dry forage yield per acre			
	1977-78	1978-79	1979-80	Average
	Lb.	Lb.	Lb.	Lb.
Kentucky 31				
D	6,570	7,460	7,640	7,220
B	5,740	7,750	6,930	6,810
C	8,110	3,790	5,890	5,930
A	6,280	5,000	5,760	5,680
Triumph				
D	4,850	7,870	8,790	7,170
B	4,070	6,370	7,780	6,070
C	6,950	4,000	6,640	5,860
A	4,200	5,140	6,330	5,220

¹Cutting management treatments:

- A. Cut at 1½ inch stubble every 3 to 4 weeks all year.
- B. Cut at 1½ inch stubble every 3 to 4 weeks all year except no cutting from early boot to seed stage. Cut hay after seeded out. Cut every 3 to 4 weeks all summer.
- C. Cut at 1½ inch stubble every 3 to 4 weeks all year except cut at 4-inch stubble from May through August.
- D. Cut at hay stage all year.

Planted: September 15, 1977.

consecutive year of cutting fescue for hay at the Black Belt Substation, Triumph outyielded Kentucky 31 tall fescue.

Cold Tolerance

Triumph has not survived winters as well as Kentucky 31 in Kentucky (unpublished data from Dr. T.H. Taylor, University of Kentucky). When Triumph has been seeded in September in northern Alabama and become well established prior to the onset of cold weather, winter survival has been good; however, late-seeded Triumph has not survived as well as Kentucky 31. In northern Alabama, winter survival of Triumph has been excellent after the establishment year. Establishment and winter survival have not been a problem in central and southern Alabama.

Associated Clovers

Triumph has a more open sod and is more dormant in summer than Kentucky 31, thus furnishing less competition to associated clovers. In trials at three locations, forage composition during the third year showed a higher average content of clover when grown with Triumph than in Kentucky 31-clover mixtures, table 3.

TABLE 3. SEASONAL AVERAGE PERCENTAGE CLOVER IN TRIUMPH AND KENTUCKY 31 TALL FESCUE FORAGE DURING THE THIRD YEAR AFTER PLANTING

Location	Clover composition of forage mixture			
	Redland red clover		Regal ladino clover	
	Triumph	Ky. 31	Triumph	Ky. 31
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Tennessee Valley Substation	45	40	60	36
Prattville Experiment Field	25	18	40	25
Black Belt Substation	38	26	60	43

Forage Quality

In-vitro dry matter digestibility of Triumph was similar to that of Kentucky 31, table 4. Limited crude protein analyses also indicate that the two varieties are similar in this regard.

Animal Performance

The superior winter forage production of Triumph increased steer carrying capacity at the Black Belt Substation, thus producing 13

TABLE 4. *IN-VITRO* DRY MATTER DIGESTIBILITY (IVDMD) OF TRIUMPH AND KENTUCKY 31 TALL FESCUE OVER GROWING SEASON AT BLACK BELT SUBSTATION

Date	IVDMD of dry forage	
	Triumph	Ky. 31
	<i>Pct.</i>	<i>Pct.</i>
April 4	74	74
May 2	65	65
May 22	60	57
June 19	57	56
July 14	58	53
August 24	54	56
October 11	68	69
Average	62	61

percent more beef per acre the first year and 62 percent more the second year, table 5 and figure 2. Steer average daily gains on Triumph and Kentucky 31 tall fescue pasture were similar the first year, but 51 percent higher on Triumph the second year. The fungal endophyte *Acremonium coenophialum*, associated with fescue toxicosis, was absent in Triumph, whereas Kentucky 31 had a 26 percent infection level. Even this low level of fungal infestation in Kentucky 31 reduced average daily gain by the second year.

When each of the two tall fescue varieties were grown in association with AT-P birdsfoot trefoil (an Auburn experimental) at the Tennessee Valley Substation, Triumph furnished more steer gain per acre than Kentucky 31 tall fescue, table 6. Steer average daily gains were high during both years, probably a result of the trefoil legume. The



FIG. 2. Triumph tall fescue had greater carrying capacity and produced more beef per acre than Kentucky 31 in grazing trials at the Black Belt Substation in central Alabama. Photo made March 30, 1981.

TABLE 5. BEEF STEER PERFORMANCE ON TRIUMPH AND KENTUCKY 31 TALL FESCUE PASTURES AT BLACK BELT SUBSTATION DURING 2 YEARS

Variety and year	Calendar days	Steers per acre	Average daily gain	Gain per acre
	No.	No.	Lb.	Lb.
Triumph				
1980-81	148	1.59	2.08	489
1981-82	187	1.46	1.92	525
Average	162	1.53	2.00	507
Kentucky 31				
1980-81	148	1.38	2.11	431
1981-82	187	1.37	1.27	325
Average	162	1.38	1.69	378

TABLE 6. BEEF STEER PERFORMANCE ON PASTURES OF TRIUMPH AND KENTUCKY 31 TALL FESCUE IN ASSOCIATION WITH AT-P BIRDSFOOT TREFOIL AT TENNESSEE VALLEY SUBSTATION DURING 2 YEARS¹

Performance measure	1980		1981	
	Triumph	Ky. 31	Triumph	Ky. 31
Days grazed	84 ²	84 ²	131 ³	131 ³
Gain per acre, lb.	336	307	414	365
Stocking rate, steers per acre	1.49	1.46	1.40	1.25
Average daily gain per steer, lb.	2.54	2.30	2.46	2.43

¹Planted September 1979; no nitrogen fertilizer applied.

²March 26-June 18.

³March 17-July 26.

fungus *Acremonium coenophialum* was absent in Triumph and at a low level in Kentucky 31, which contributed to the high average daily gains. Severe summer droughts sharply reduced the grazing season.

Seed

Certified seed of Triumph tall fescue are being produced and marketed by International Seeds, Halsey, Oregon. Seed should be available to farmers in 1983.

SUMMARY

Triumph tall fescue offers two advantages over the commonly grown Kentucky 31 tall fescue: (1) Substantially higher winter forage production without sacrificing total season production, and (2) more open sod, offering less competition to associated legumes.

Triumph should be well adapted to the Lower South and is a suitable replacement for Kentucky 31 tall fescue where winter survival is not a problem.