

L-2070  
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# **VERDE**

# **Kleingrass**

**The Texas Agricultural Experiment Station**  
**Neville P. Clarke, Director, College Station, Texas**  
**The Texas A&M University System**  
**in cooperation with**  
**Soil Conservation Service**  
**and**  
**Agricultural Research Service,**  
**U.S. Department of Agriculture**

# VERDE Kleingrass

'Verde' Kleingrass is a new cultivar with large seed and superior seedling vigor which improve stand establishment. The seed of Verde are 20 to 25 percent heavier than Kleingrass 75 seed, and seedling growth is 20 to 60 percent faster than Kleingrass 75 for up to 30 days after emergence. While kleingrass seed are utilized readily by game birds as a feed source, the larger seed of Verde will have greater value than other varieties as a field feed source for quail and other game birds. Forage production and quality of Verde are about the same as for Kleingrass 75. Verde is a little less winter hardy than Kleingrass 75.

## Origin

Verde (77-28, 79-29) was developed by the Soil and Crop Sciences Department and the Animal Science Department, Texas Agricultural Experiment Station, and released jointly with the U.S. Department of Agriculture, ARS, and the Soil Conservation Service. Approximately 4,000 individual kleingrass plants originating from 30 plant introductions from Africa were screened for seed size (weight). Selected plants and their progeny from open pollinated seed were established in the field and evaluated for seed size. The superior plants in this nursery were selected as the parents for Verde and were intercrossed in an isolated crossing block.

## Description

Verde Kleingrass differs from Kleingrass 75 primarily in seed size and weight and proportion of plants with leaf pubescence. Verde seed are slightly longer and wider than Kleingrass 75 seed. Individual seed weights average 0.9 to 1 mg/seed which is 20 to 25 percent heavier than Kleingrass 75 seed. Expressed as seed per pound, Verde will range from 450,000 to 500,000 while Kleingrass 75 ranges from 575,000 to 650,000. Verde has a lower proportion of plants with leaf surface pubescence, either blade or sheath, than does Kleingrass 75.

TABLE 1. EMERGENCE AND SEEDLING VIGOR OF KLEINGRASS CULTIVARS

Cultivar	Controlled environment		Field		Establishment rating <sup>1</sup>
	Emergence (%)	Seedling vigor (mg/100 plants)	Emergence (plants/ft.)	Seedling vigor (mg/100 plants)	
Verde	21 a <sup>2</sup>	104 a	13 a	135 a	7.8
Kleingrass 75	15 b	62 b	10 a	113 a	4.8

<sup>1</sup>1=poor. 10=maximum

<sup>2</sup>Values in column followed by common letter are not significantly different, Duncan's Multiple Range

TABLE 2. FORAGE YIELD AND QUALITY OF KLEINGRASS CULTIVARS, COLLEGE STATION

Cultivar	1978-80		1981	
	Pounds <sup>1</sup> acre/year	IVDMD <sup>1</sup> (%)	Pounds <sup>1</sup> acre <sup>2</sup>	IVDMD <sup>2</sup> (%)
Verde	9,730	58	8,520	60
Kleingrass 75	10,470	55	7,930	59

<sup>1</sup>In vitro dry matter digestibility, average for two cuttings in 1978

<sup>2</sup>Average of harvests at 3 and 6 weeks of age.

TABLE 3. FORAGE YIELD AND QUALITY OF KLEINGRASS CULTIVARS CUT AT TWO HEIGHTS, 1978

Cultivar	4-inch height		8-inch height		Average	
	Pounds dry forage/acre	IVDMD (%)	Pounds dry forage/acre	IVDMD (%)	Pounds dry forage/acre	IVDMD (%)
Verde	8,910 a <sup>1</sup>	60 ± 1.4 <sup>2</sup>	8,385 b	59 ± 1.6	8,648 a	59.5 ± 1.01
Kleingrass 75	7,395 b	58 ± 1.5	8,795 a	57 ± 1.5	8,095 b	57.5 ± 1.01

<sup>1</sup>Values in same column followed by same letter are not significantly different, Duncan's Multiple Range

<sup>2</sup>95% confidence interval

TABLE 4. KLEINGRASS SEED CONSUMPTION AND BIRD PERFORMANCE OF CAGED QUAIL

Feed offered	Amount of feed consumed (g/bird/day)	Kleingrass in consumed feed (%)	Final bird weight (g/bird)
Standard diet	17.3	—	208
Standard diet + kleingrass	18.1	28.6	203

## Performance

The larger seed of Verde promote improved seedling vigor (weight) and superior stand establishment. Experiments in a controlled environment showed that both emergence and seedling vigor of Verde were superior to Kleingrass 75 (Table 1). Results of a field study showed that, compared to Kleingrass 75, the better emergence and seedling vigor of Verde were associated with significantly better stand establishment (Table 1). The more competitive Verde seedlings should improve the chances of successful stand establishment in the field.

Forage quality of Verde is slightly higher (one to three digestibility units) than that of Kleingrass 75, but is not significantly different statistically (Tables 2 and 3). Verde is similar to Kleingrass 75 in forage production (Tables 2 and 3), and seed yields, measured in two studies, showed similar performance by the two cultivars. Thus, we conclude that there is no evidence of any real difference in forage quality and forage and seed yields between the two cultivars.

Kleingrass is a feed source of game birds, as indicated by field observations and a feeding trial (Table 4), but the seed are minimal in size for this purpose. The larger seed of Verde should enhance its value as a field feed for game birds.

Winter damage on kleingrass may occur in North Texas (Dallas-Fort Worth and west) in severe winters on stands that are closely grazed or cut in late fall. Both Kleingrass 75 and Verde in Dallas clipping plots were severely damaged by low temperatures in 1981-82, with somewhat more damage to Verde than Kleingrass 75. Much less damage and less difference between the two varieties occurred at Stephenville.

Sheep and goats grazing Kleingrass 75 have developed swellhead (photosensitization) at times. This problem was not documented for Verde during the testing period, but there is no reason to assume Verde differs from Kleingrass 75 in this respect. The same precautions used for sheep and goat grazing on Kleingrass 75 should be observed for Verde Kleingrass.

## Source of Seed

Foundation seed of Verde is available to qualified seed growers through the Foundation Seed Service at the Texas Agricultural Experiment Station. Only certified seed will be permitted to be sold. It will be available after the 1983 growing season.

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This leaflet was prepared by E. C. Holt, B. E. Conrad, E. C. Bashaw, and W. C. Ellis.