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Little Phillip No. 1 Bermudagrass

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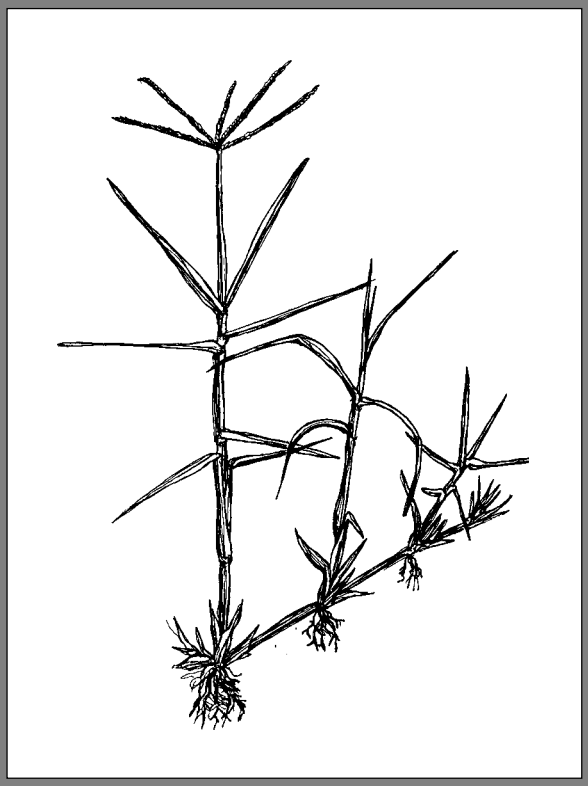

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Summary

A unique, naturally occurring variety of bermudagrass was identified in an Alicia bermudagrass hay field in Sabine Parish in 1991. The productivity, spread and visual hay quality of this bermudagrass variety were noted as exceptional by its discoverers. Comparisons of this variety with the three bermudagrass varieties most widely planted in the area in recent years were conducted in a field plot experiment at the Rosepine Research Station.

Productivity of this "new" bermudagrass (13,120 pounds per acre per year) was superior to that of Jiggs (9,870 pounds per acre), Tifton-85 (9,390 pounds per acre) and Russell (5,760 pounds per acre) in four years of evaluation. Forage quality was similar to that of the other varieties, despite the more rapid growth required to produce the higher yields. This new superior variety of bermudagrass has been named Little Phillip No. 1, with proprietary rights claimed through a plant patent. Planting material is available from Larry Herrington of Florien, La.

Background

Little Phillip No. 1 bermudagrass is a unique variety of bermudagrass originally discovered as a small area of grass differing distinctly from the surrounding field of Alicia bermudagrass. It was initially observed by Clyde Sneed in 1991 covering an area of a few square feet in a hay field in Sabine Parish. During the following five years, this distinct type of bermudagrass spread within the stand of Alicia. In addition to producing more vigorous growth than the Alicia, bales of hay from this area were observed by Clyde Sneed and Larry Herrington to be consistently a greener color than those of the surrounding Alicia of the same hay cutting.

Small plantings of this new bermudagrass were made on the farms of Clyde Sneed and Larry Herrington in Sabine Parish, Louisiana, in September of 1996. The vigorous establishment and subsequent productivity of these two plantings provided initial confirmation of the potential value of this bermudagrass variety. Additional plantings have been made in recent years, and the original area has increased from a few square feet to cover about 2 acres of the original 10-acre Alicia field. Close observation of the grass at harvest has shown that a higher proportion of leaves in the lower canopy retain a green color than with Alicia from the same growth period and hay cutting.

In recognition of the potential of this impressive unique bermudagrass variety, it was named 'Little Phillip No. 1' for Mr. Sneed's grandson, Phillip. Also, as a result of the recognized potential, the grass (referred to in the following as Phillip bermudagrass) was included in a bermudagrass variety evaluation established at the Rosepine Research Station during the 1997 growing season. The other bermudagrass varieties in this evaluation were Russell, Tifton-85 and Jiggs. Forage production was assessed for these four bermudagrass varieties during the 1998, 1999, 2000 and 2001 growing seasons.

Variety Comparisons

This field plot experiment consisted of the four bermudagrass varieties in four replications of 7- by 20-foot plots. The site is within an area originally mapped as Bowie fine sandy loam soil. The topsoil depth is less than that described for Bowie, however, making this site more droughty than a typical Bowie soil. At the start of each growing season, 50 pounds per acre each of nitrogen, P_2O_5 and K_2O were applied. Following each forage harvest, except the last of each year, 50 pounds per acre of nitrogen were applied.

Forage was harvested throughout the 1998, 1999, 2000 and 2001 growing seasons. Harvest dates were May 11, 1998; June 18, 1998; July 21, 1998; August 28, 1998; October 21, 1998; May 19, 1999; June 16, 1999; July 16, 1999; August 30, 1999; November 3, 1999; May 3, 2000; June 5, 2000; July 13, 2000; September 5, 2000; October 26, 2000; May 3, 2001; June 11, 2001; July 18, 2001; September 4, 2001; and October 25, 2001.

Forage dry matter yields were determined, and samples for forage quality evaluation were obtained from each plot at each harvest. Crude protein, *in vitro* digestibility, acid-detergent fiber and neutral-detergent fiber were estimated for samples collected in 1998, 1999, 2000 and 2001 by near-infrared reflectance spectroscopy procedures at the Forage Quality Laboratory of the Southeast Research Station.

Plant growth was periodically limited during this evaluation period by lack of moisture. Forage yields in July 1998 (Table 1) particularly reflect the low amount of rainfall. During years with limited spring rainfall, as well as those with higher spring rainfall, Phillip produced substantially more forage by the May harvest date than did any other variety (Table 1). Phillip was also substantially more productive at the last harvest date in most years. Thus, distribution of

Table 1. Forage dry matter yields of bermudagrass varieties by harvest date during four growing seasons at the Rosepine Research Station.

	Variety			
	Phillip	Jiggs	Tifton-85	Russell
	pounds per acre			
Harvest date				
May 11, 1998	1410	730	480	870
June 18, 1998	1070	1160	1400	1010
July 21, 1998	680	530	770	630
Aug. 28, 1998	3680	2620	2710	1590
Oct. 21, 1998	3000	3290	2610	2570
May 19, 1999	2860	1260	1160	1020
June 16, 1999	2950	2420	2570	1690
July 16, 1999	3530	2760	2810	1650
Aug. 30, 1999	4360	2520	2710	1210
Nov. 3, 1999	3240	2180	2230	770
May 3, 2000	3210	2090	1680	1470
June 5, 2000	3990	2930	2920	1990
July 13, 2000	3720	4040	3450	2100
Sept. 5, 2000	2920	1580	1670	820
Oct. 26, 2000	1970	1260	840	660
May 3, 2001	2290	1270	600	590
June 11, 2001	2680	2020	2140	840
July 18, 2001	3250	3220	3330	1210
Sept. 4, 2001	2930	2320	2630	1170
Oct. 25, 2001	1420	1250	800	460

forage production was more uniform for Phillip. The typical periods of forage deficit in spring and fall were much less distinct with Phillip.

In addition to more uniform distribution of forage, Phillip produced substantially more total forage than did any other variety (Table 2). Average dry matter yields of Phillip exceeded ($P<0.05$) those of Jiggs and Tifton-85 by 1½ to 2 tons per acre annually. (The hay production advantage would be even more because of the higher moisture content of hay than of our oven-dry forage samples.) Phillip produced a little more than twice as much forage as Russell during the four years of this evaluation.

Laboratory analyses used to assess forage quality revealed no differences between Phillip and any other variety, except that the average *in vitro* digestibility of Phillip was higher than that of Russell (Table 2). The similar average crude protein concentration among varieties indicates that all four varieties maintained about the same crude protein level when grown for the same length of time. A similar response was obtained with neutral detergent fiber (which can be used as an indicator of potential animal intake) and acid detergent fiber (which indicates the indigestible plant cell wall fraction).

Table 2. Average forage dry matter production and quality of bermudagrass varieties at the Rosepine Research Station during the 1998, 1999, 2000 and 2001 growing seasons.

	Forage production	Crude protein	*in vitro* Digestibility	NDF†	ADF†
	Pounds per acre per year	%	%	%	%
Variety					
Phillip	13,120 a‡	14.2 a	58.9 ab	55.4 a	26.7 a
Jiggs	9,870 b	14.0 a	58.3 bc	55.5 a	26.5 a
Tifton-85	9,390 b	14.3 a	59.6 a	56.0 a	27.0 a
Russell	5,760 c	13.9 a	57.7 c	56.4 a	27.1 a

†NDF is neutral detergent fiber; ADF is acid detergent fiber.
‡Means followed by the same letter do not differ significantly ($P>0.05$).

These similar measures of forage quality among varieties plus the higher yields of Phillip suggest that more frequent harvest of Phillip might allow similar yields per harvest with higher quality typical of younger bermudagrass growth. An additional harvest of Phillip each year would be expected with the shorter growing periods. This potential for harvest of a higher quality forage by more frequent harvest of Phillip bermudagrass has not been assessed.

In addition to the plot data presented above from the shallow sandy loam soil at Rosepine, observations have indicated rate of spread and resulting stand establishment superior to that of most other bermudagrass varieties assessed on some sandy and loam soils at other locations. Preliminary yield evaluations have also indicated high productivity on these other soil types.

Availability of Planting Material

A plant patent (US PP13,472 P3) for Little Phillip No. 1 bermudagrass was approved by the U.S. Patent Office on Jan. 14, 2003. Planting material is commercially available from Larry Herrington of Florien, La. (phone: 318-586-3846).

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