The Performance of Twelve Introduced Strains of Centipedegrass, *Eremochloa ophiuroides* (Munro) Hack., under Puerto Rico Conditions[1]

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ABSTRACT

Twelve centipedegrass strains, *Eremochloa ophiuroides* (Munro) Hack., were introduced from the University of Florida. Their performance was visually evaluated in concrete beds and under field conditions. Four of the strains developed very well under conditions at Río Piedras, P.R., but none of them was considered to be superior to the common centipedegrass strain growing in the Station Farm. As to natural weed suppression, the common centipedegrass was the best of the group.

INTRODUCTION

Centipedegrass, *Eremochloa ophiuroides* (Munro) Hack., has become the most widely used home lawn in Puerto Rico. Its popularity is due to its wide adaptation to different soils and climatic conditions. At the same time, it has low maintenance requirements, tolerance to shade, resistance to insect and disease attack, tolerance to droughty conditions, and a high degree of recovery. Moreover, it is propagated by sprigs or by seeds with a high degree of success.

Centipedegrass is a native of southern China. It was introduced in 1916[3,4,5] into the United States, where it has become adapted very well to the warm climate of the Southern States. Its date of introduction to Puerto Rico is not clearly known, but it was widely spread by the Seed Farms Division of the Station from 1945 to 1960.

This paper summarizes the performance of 12 strains of centipede lawn grass in comparison with the common centipede strain growing in the Station Farm.

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MATERIALS AND METHODS

Vegetative propagating material from each strain was obtained from the University of Florida. This material was multiplied in flats containing a soil-filter press-cake mixture. The strains were transferred later to concrete beds containing the same soil mixture, previously fumigated with methyl bromide at the rate of 1 lb/100 ft^2.

A randomized complete block design was used. The strains were fertilized with a 14-4-8 commercial fertilizer at the rate of 15 lb/1000 ft^2. Insects and diseases were controlled with regular insecticide and fungicide sprays.

The plots were visually evaluated with a scale ranging from 1 to 5. The highest values were given to plots showing the best overall appearance.

A site in the Station Farm was selected for a more complete evaluation of the 12 strains. The field which had been in sugarcane, was plowed several times to destroy the sugarcane stubble. A composite sample of the soil indicated no need for lime application. The field was smoothed so as to have a relatively uniform surface.

Vegetative material from each one of the strains was planted in 10×30 ft plots. Each plot was separated by a 3-ft pathway. The plots were distributed in a randomized block design with four replications.

Sprigs were placed in shallow holes 6 in apart. A bunch of five sprigs was planted per hole. Weeds were controlled with a preemergent application of Atrazine 80W[6] at the rate of 1½ lb/acre. Thereafter, all weeds were removed by hand. The pathways were kept clear by hoe weeding or by an application of Gramaxone at the rate of 90 cm^3 in 5 gal of water. The herbicide was applied early during the day and precautions were taken to cover the lawn plots with a plastic sheet.

A 14-4-8 fertilizer mixture was applied at the beginning of the experiment at the rate of 20 lb/1000 ft^2. The plots were mowed as soon as good coverage was observed. Thereafter, a monthly mowing schedule was established for each plot.

The plots were rated visually several times during the experiment, before and after mowing. Such factors as coverage, thickness, uniformity, color, flowering, and weed suppression were considered in the overall evaluation. The same rating as previously established for the strains growing in the concrete beds was followed.

[6]Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of equipment or materials by the Agricultural Experiment Station of the University of Puerto Rico or an endorsement over other equipment or materials not mentioned.

RESULTS AND DISCUSSION

Visual ratings for the 12 strains of centipedegrass growing in the concrete beds are presented in the following tabulation:

Strain No.	*Visual rating*[7]
1	3.89 ab
2	4.11 ab
3	2.33 de
4	3.33 bcd
5	2.55 cde
6	3.78 ab
7	1.66 e
8	1.78 e
9	4.22 ab
10	3.66 abc
11	3.11 bcde
12	4.67 a

The visual evaluation indicated that several strains grew very well in the concrete beds. On the other hand, some were deficient in their appearance. The following was the numerical rating upon evaluation: 12, 9, 2, 1, 6, 10, 4, 11, 5, 3, 8, and 7. Strain 12 was superior to strains 4, 11, 5, 3, 8, and 7 but did not differ from strains 9, 2, 1, and 6. Strains 9, 2 and 1 were better than strains 5, 3, 8, and 7 but were not better than strains 10, 4, and 11. Strain 10 was better than strains 3, 8, and 7 but was not better than strains 4, 11 and 5. Strains 11, 5, 3, 8, and 7 did not differ significantly among themselves in visual appearance.

The results of the same strains under field conditions are presented in table 1. The strains were evaluated twice in the year and after each mowing. The ability of the strains to control weeds is presented in the following tabulation:

Strain	*Rating*[8]
1	4.00 cd
2	2.88 e
3	4.69 ab
4	2.19 e
5	4.94 a
6	4.38 bcd
7	4.31 bcd
8	4.25 bcd
9	4.56 abc
10	4.56 abc
11	4.06 cd
12	3.94 d
13	5.00 a

[7] All mean ratings with the same letter or set of letters do not differ significantly at the 5% level.

[8] Values with the same letter or set of letters do not differ significantly at the 5% level.

The three visual evaluations of the 12 introduced strains and the common centipedegrass proved that none of them was superior to the common strain growing at the Agricultural Experiment Station. The same conclusion was obtained with regard to their natural ability to control weed growth. Statistical differences were observed among the different strains. Since none of the introduced strains was superior to the common strain, the results were not further evaluated.

Growth rate and natural weed control do not reflect the true value of a lawn grass variety. There are several characteristics that determine their value. Among these are drought resistance, few or no seedheads, ease of propagation, and rapid coverage. All these characteristics will contribute

TABLE 1.—*Mean of visual ratings of 13 strains of centipede lawn grass* (E. ophiuroides) *at three times during 1972–73*

Strain	Rating[1]		
	Sept. 18, 1972	Jan. 12, 1973	May 18, 1973
1	3.12 bc[2]	3.53 bc	3.53 c
2	2.37 cd	3.13 c	2.81 d
3	4.25 ab	4.56 a	4.78 a
4	1.12 d	2.00 d	2.16 d
5	4.25 ab	4.34 ab	4.91 a
6	3.62 abc	4.41 ab	4.50 ab
7	3.12 bc	4.34 ab	4.66 ab
8	2.25 cd	3.97 abc	4.40 ab
9	4.12 ab	4.75 a	4.82 a
10	4.62 a	4.78 a	4.47 ab
11	3.88 ab	4.56 ab	3.97 bc
12	3.00 bc	3.84 abc	3.62 c
13	4.12 ab	4.47 ab	4.94 a

[1] The lawns were visually rated after 6 months from planting, during the winter and after the last mowing.

[2] All values with the same letter or set of letters do not differ significantly at the 5% level.

to the general appearance of the variety. A good visual evaluation is as good as a quantitative procedure.

It can be concluded that the common centipedegrass is as good as any one of the introduced strains.

RESUMEN

Doce líneas de la gramínea Ciempiés *Eremochloa ophiuroides* (Munro) Hack., utilizada para la siembra de céspedes se introdujeron de la Universidad de Florida. Su comportamiento se estudió en cajas sementeras en el campo. Cuatro de ellas mostraron ser muy buenas en su apariencia general dentro de las condiciones de Río Piedras, pero ninguna mostró ser superior a la gramínea Ciempiés que corrientemente crece en los terrenos de la Estación Experimental Agrícola. Esta, además mostró la mayor capacidad para el control natural de las malas hierbas.