

MARATHAKAM, A HIGH YIELDING GUINEAGRASS CLONE

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Abstract: Initial evaluation trials were conducted with ten mutant clones during 1983-84. Six promising clones selected on the basis of green fodder yield were advanced to CYT during 1984 to 1986 (3 years) along with FR 600 and Mackuenii as checks. Two promising clones MC 14 and MC 16 selected on the basis of green and dry fodder yield were advanced to farm trials along with FR 600 Mackuenii, Haritha and local check at 11 locations in Trivandrum district during 1990 and 1991. The clone MC 16 which had high green fodder yield and better fodder quality was recommended for release as 'Marathakam' suitable for cultivation in the uplands of Trivandrum district.

Key words: Guineagrass, mutant clones, Marathakam

INTRODUCTION

The availability of roughage in Kerala is only 4.2 millions tonnes against the requirement of 6.2 million tonnes needed for feeding 3.4 million adult cattle. The present fodder production is only 1.4 per cent of the total requirement (Pillai and Nair, 1989). Guineagrass is the most important fodder extensively cultivated in Kerala. It is well relished by cattle and comes up well under partially shaded conditions in coconut gardens which is a potential area for cultivation. Because of high population pressure on land there is only limited scope for increasing the area under fodder crops. Lack of high yielding adapted varieties with shade tolerance is the main constraint in the large scale cultivation of this crop in the uplands of Kerala. Therefore, research programme was initiated at the Department of Plant Breeding, College of Agriculture, Vellayani, during 1981 to develop clones of guineagrass with high fodder yield and better fodder quality.

MATERIALS AND METHODS

The material consisted of ten mutant guineagrass clones (MC 13, MC 14, MC 15, MC 16, MC 17, MC 18, MC 19, MC 20, MC 21 and MC 23) obtained from the project on "Induction of mutations in guineagrass". The above 10 clones were evaluated in an IET (initial evaluation trial) along with FR 600 (parent clone) and Mackuenii (popular recommended clone) as checks during 1983-84. Six promising clones viz., MC 13, MC 14,

Table 1. Initial evaluation trial (IET) of mutant clones of guineagrass (1983-84)

Sl No	Clone	*Green fodder yield per cutting (t ha ⁻¹)	Nature of leaves
1	MC-13	9.77	Pubescent
2	MC-14	10.36	do
3	MC-15	10.67	Glabrous
4	MC-16	10.75	do
5	MC-17	9.11	Pubescent
6	MC-18	7.74	Glabrous
7	MC-19	8.44	do
8	MC-20	3.71	do
9	MC-21	4.33	do
10	MC-23	10.07	Pubescent
11	FR 600	7.34	Glabrous
12	Mackuenii	9.72	Pubescent

*Mean of six cuttings

Table 2. Comparative yield trial (CYT) of mutant clones (1984 to 1986)

Sl No	Clone	*Green fodder yield per cutting (t ha ⁻¹)	Dry fodder yield per cutting (t ha ⁻¹)
1	MC-13	25.57	6.03
2	MC-14	28.16	8.06
3	MC-15	24.18	6.80
4	MC-16	29.0	8.06
5	MC-19	27.24	6.76
6	MC-23	23.21	5.80
7	FR 600	22.87	5.97
8	Mackuenii	25.12	6.63
	CD (0.05)	3.687	0.99

*Mean of 12 cuttings

Table 3. Farm trial of mutant clones during 1990 and 1991

Location	No. of cuttings	Green fodder yield per cutting, t ha ⁻¹					
		MC 14	MC 16	FR 600	Mackuenii	Haritha	Local
<i>1990 planting</i>							
IF, Vellayani	11	12.11	12.92	10.94	11.63	11.78	-
Sreekaryam	7	8.57	4.86	1.31	4.14	2.57	4.64
Balamrapuram	8	9.44	5.62	10.87	5.62	11.37	8.06
<i>1991 planting</i>							
Venpakal	6	16.08	13.67	12.83	11.83	13.08	9.50
Koreni	6	6.33	8.08	3.42	2.75	1.75	-
Perumkuzhy	5	7.10	16.40	15.60	5.00	11.00	4.90
Punchalkkari	5	6.32	8.12	6.85	7.42	8.68	3.26
Muttakkad	4	3.87	6.12	3.50	3.75	2.87	2.75
Sicilipuram	4	4.00	2.62	3.25	1.50	2.50	2.12
Manjaramoola	4	13.50	15.50	9.00	12.87	7.50	-
Azhoor	3	4.00	5.67	1.67	3.17	5.17	1.50
Mean yield	-	8.30	9.05	7.20	6.33	7.11	4.59

MC 15, MC 16, MC 19 and MC 23 were selected on the basis of fodder yield and CYT (comparative yield trial) was conducted during 1984 to 1986 using FR 600 and Mackuenii as check varieties. Two superior clones viz., MC 14 and MC 16 which recorded high fodder yield were advanced to farm trials along with FR 600, Mackuenii, Haritha (a newly released clone of KAU) and local varieties as checks. Farm trials were conducted at 10 locations in Trivandrum district and in the Instructional Farm, College of Agriculture, Vellayani during 1990 and 1991. The cultural and management practices were carried out as per the package of practices recommendations of the Kerala Agricultural University (KAU, 1989).

RESULTS AND DISCUSSION

The mean green fodder yield data and nature of leaves of clones at IET are presented in Table 1. In this trial six promising clones viz., MC 13, 14, 15, 16, 19 and 23 which had high green fodder yield were selected. In addition to yield, clones MC 15, MC 16 and MC 19 possess glabrous leaves also. The CYT was conducted using the above six clones and FR

600 and Mackuenii as checks during 1984 to 1986, at the College of Agriculture, Vellayani. The data on green and dry fodder yield of CYT are presented in Table 2. The analysis of variance revealed significant difference between clones and clone MC 16 recorded the highest green fodder yield per cutting (29.3 t ha⁻¹) and was on par with MC 14 (28.16 t ha⁻¹). Both the clones recorded dry fodder yield of 8.06 t ha⁻¹ per cutting. These clones were advanced to farm trials. The farm trials were conducted at 10 locations in Trivandrum district during 1990 and 1991 along with FR 600, Mackuenii, Haritha and local varieties as checks in 10 m² plots at the interspaces of coconut garden. In addition one trial was conducted at the Instructional Farm, College of Agriculture, Vellayani. The farm trial data are presented in Table 3. The result revealed that the mutant clone MC 16 recorded the highest mean green fodder yield per cutting of 9.05 t ha⁻¹ followed by MC 14 (8.3 t ha⁻¹). The new clone MC 16 recorded 25.7 per cent increase in green fodder yield over the parent clone FR 600 and 27.3 per cent increase over Haritha, the newly released clone of the Kerala Agricultural University. Moreover, MC 16

possessed glabrous leaves. Hence it had better fodder quality also. The clone MC 16 which had high fodder yield and better fodder quality

was recommended for release during 1993 as 'Marathakam', suitable for cultivation in the uplands of Trivandrum district.

REFERENCES

- KAU, 1989. *Package of Practices Recommendations - Crops*. Directorate of Extension, Kerala Agricultural University, Trichur
- Pillai, G.R. and Nair, G.B.K. 1989. Strategy for fodder production and improvement in Kerala by 2000 AD. *Nat. Symp. Forage Production and Improvement by 2000 AD*, College of Agriculture, Vellayani, Trivandrum, Sept. 20-23, 1989