

## STUDIES ON THE ISOLATION OF SUPERIOR CLONES

### IN GUINEA GRASS - PAN/CUM MAXIMUM

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Guinea grass though a native of tropical Africa has now attained the status of an indigenous forage crop in Kerala. Not much research work on the varietal characteristics and the yield potential of different clones of this grass has been conducted in our State so far. The primary characteristics of forage grasses are the green matter and dry matter yield.

The most important part of the forage plant that is associated with the forage quality is the leaf. The proportion of the leaf to the stem is therefore a real measure of forage quality. Leaves contain most of proteins, vitamins and minerals and the total quantity of each of these produced is measured largely by the percentage of leaf to stem (Wheeler, 1950).

The results of studies conducted with different types of Guinea grass with reference to the green matter yield, dry matter yield and leaf-stem ratio are presented in this paper.

### Materials and Methods

Twenty-nine types of Guinea grass were procured from the germ plasm bank maintained in the Agricultural College and Research Institute, Coimbatore. One type 'Makuenii' was obtained from the National Agricultural Research Station, Kitale, Kenya. These 30 types were multiplied in the nursery. Uniform sized slips were planted during June 1973 in twos in rows at 90 cm apart, the spacing between two hills in the row being 60 cm. A uniform dose of NPK at 200:50:50 kg/ha was given in addition to 5000 kg/ha of cattle manure. Phosphorus and potash were applied basal at the time of planting. Nitrogen was applied in two split doses, viz. 100 kg at planting and the remaining after the 3rd cut. Altogether 6 cuts were taken at an interval of 45 days. The composite samples were taken from every harvest and the average dry matter yield was worked out as per the procedure given by Yoshida *et al.*, (1971). The leaf blade was separated from the harvested sample and the dry weight of lamina and stem was estimated and average leaf-stem ratio for 6 harvests was calculated.

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Table 1

Green matter yield, Dry matter yield and Leaf-stem ratio

SI. No.	Guinea grass Types	Green matter yield in kg/48 clumps	Dry matter yield in kg/48 clumps	Leaf-stem ratio
1	FR-599	55.50	11.75	0.5825
2	MS-4613	26.25	6.24	0.7045
3	MS-4750	32.75	8.05	0.7055
4	MS-4731	35.75	7.81	0.5155
5	MS-4689	41.75	9.38	0.6345
6	FR-552	47.50	10.79	0.2505
7	FR-429	46.50	9.50	0.6930
8	AC-3855	30.00	7.22	0.4848
9	AC-3836	30.50	8.19	0.4445
10	FR-443	45.75	9.83	0.8980
11	AC-3834	22.75	4.43	0.5915
12	FR-550	46.25	10.09	0.5970
13	Local FR-42	42.75	8.51	0.8410
14	PM-4729	23.75	4.49	0.5750
15	MAKUENII	47.75	10.27	0.8495
16	FR-553	28.50	6.11	1.7855
17	PM-4728	26.50	5.88	0.3935
18	FR-42S	42.75	8.45	0.8425
19	MS-4691	33.00	5.37	0.8180
20	FR-426	40.00	7.79	0.7935
21	MS-4688	38.75	9.49	0.4805
22	MS-4690	35.50	7.54	0.5070
23	MS-4732	35.50	7.02	0.5110
24	MS-4687	37.00	7.69	0.4680
25	MS-4733	32.00	7.04	0.4875
26	MS-4673	38.00	8.43	0.6805
27	FR-600	68.50	13.32	0.4745
28	MS-4681	38.25	8.39	0.7710
29	MS-4600	44.00	10.89	0.2460
30	MS-4685	31.75	6.94	0.6075
	F-Test	Significant at 0.01 level	Significant at 0.05 level	Significant at 0.01 level
	C. D. (-05)	11.62	3.63	0.1084

## STUDIES ON GUINEA GRASS

The experiment was conducted in the farm attached to the College of Agriculture, Vellayani under rainfed conditions. The soil of the experimental area was red loam with the following analysis; total nitrogen 0.05%,  $P_2O_5$  0.02% and  $K_2O$  0.05% with a pH of 4.30. The trial was laid out in a randomised block design with 2 replications.

### Results and Discussion

The green matter yield, dry matter yield and leaf-stem ratio of the different Guinea grass types studied are given in Table 1.

Significant difference in green matter yield was observed between the different Guinea grass types tried. It may be seen from the Table that the highest green matter yield of 68.50 kg of green fodder was produced by the type FR 600, the second best being the type FR 599 with a yield of 55.50 kg. The type FR 559 was found to be on par with 'Makuenii' which produced 47.75kg

In dry matter yield also there was significant difference in the various types of Guinea grass. The maximum dry matter yield of 13.32 kg was recorded by the type FR 600 which had produced the maximum green matter. This was on par with the type FR 599 which recorded 11.75kg dry matter.

Significant difference was observed in leaf-stem ratio of these types. The highest leaf-stem ratio of 1.7855 was recorded by the type FR 553 which was not found to be a good productive type. The type AC 3836, Makuenii and FR 42 were next best in this character. The strain Makuenii recorded the leaf-stem ratio of 0.8495. It was also observed that there was no correlation between leaf-stem ratio and yield.

### Summary and Conclusion

An experiment to study the fodder production capacity and varietal characteristics of 30 types of Guinea grass was conducted in the Agricultural College, Vellayani during the period of June 1973 to January 1974. Maximum green matter and dry matter yields were obtained by the type FR 600, followed by FR 599. Highest leaf-stem ratio was recorded by the type FR 553.

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## സംഗ്രഹം

വെള്ളായണി കാർഷിക കോളേജിൽ 'ഗിനി' അഥവാ കതിരപ്പല്ലിന്റെ വംശത്തിൽപ്പെട്ട മുപ്പതുതരം പൂൽചെടികളുടെ കാലിത്തീറ്റ ഉല്പാദിപ്പിക്കുന്നതിനുള്ള കഴിവിനെപ്പറ്റിയും മറ്റു പ്രയോജനപ്രദമായ ഗുണഗണങ്ങളെപ്പറ്റിയും വിശദമായ ഗവേഷണപഠനങ്ങൾ 1973 ജൂൺ മുതൽ 1974 ജനുവരി വരെയുള്ള കാലയളവിൽ നടത്തുകയുണ്ടായി. ഏറ്റവും കൂടുതൽ കാലിത്തീറ്റതരുന്നതു് എഫ്. ആർ. 600 എന്ന ഇനവും, അതു കഴിഞ്ഞാൽ എഫ്. ആർ. 599 എന്ന ഇനവുമാണു്. ഇലയും തണ്ടും തമ്മിലുള്ള ratio of woody part ഏറ്റവും കൂടുതലായിരുന്നതു് എഫ്. ആർ. 553 എന്ന ഇനത്തിനാണു്

## REFERENCE

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