



Short Note

Evaluation of Bajra-Napier Hybrid Grass Cultivars under Coastal Ecosystem of Karaikal, Puducherry Union Territory

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Studies on relative performance of seven Bajra Napier hybrid grasses at Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal for one year during 2009-2010 revealed that Bajra Napier hybrid Co-3 was the best suitable hybrid grass for the coastal lowlands of Karaikal as compared to IGFRI-3, IGFRI-7, IGFRI-10, Co-4, KKM-1 and PBN-223 in terms of growth, green fodder yield and economics.

Key words: Fodder, Bajra-Napier hybrids, Coastal ecosystem, economics, yield

Livestock play an important role in the rural economy of India by providing employment and supplementary family income, which contributes about 21% of the total agricultural income. The economically competitive and productive yield potential of crossbred milch animals could be exploited through feeding nutritious green fodder round the year (Velayudham *et al.*, 2011). But, the feed and forage resources of the country are able to meet only 40% of the requirement with vast deficit of 64 and 16% in green and dry fodder, respectively (Ram and Singh, 2000). Bajra Napier hybrid grass is a potential perennial source of green fodder. It is popular owing to high yield, palatability and adaptability to varying soil and climatic conditions (Faruqui *et al.*, 2009). There is lack of systematic studies about the performance of Bajra Napier hybrids in the coastal lowlands. So, the present investigation was contemplated with the objective of studying the performance of different Bajra Napier grass hybrid cultivars in coastal regions of Karaikal, Puducherry UT.

Materials and Methods

A field experiment was conducted with Bajra-Napier hybrid grasses at Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal (10°55' N, 79°52' E and 4 m above mean sea level) during 2009-2010 under irrigated lowland conditions. The soil was sandy loam with pH of 7.30. The organic carbon content was 0.53 per cent with available N, P and K of 190.0, 20.5 and 180.8 kg ha⁻¹, respectively. The experiment was laid out in a randomized block design with three replications. The treatments consisted of seven cultivars of Bajra-Napier hybrid grass *viz.*, three cultivars from Indian Grassland and Fodder Research Institute (IGFRI-

3, IGFRI-7 & IGFRI-10), one cultivar from Punjab Agricultural University (PBN-233) and three cultivars released from Tamil Nadu Agricultural University (Co-3, Co-4 and KKM-1). The root slips of Bajra Napier hybrids were used for planting. At the time of planting, 50% of N (75 kg ha⁻¹) and full doses of P and K @ 50 and 40 kg ha⁻¹, respectively were applied and the remaining 50% N (75 kg ha⁻¹) was top dressed 30th day after planting. Other recommended package of practices were adopted uniformly for all the treatments (Crop Production Guide, 2004). First cut of fodder grass was taken 90 days after planting and subsequent six harvests were done at 45 days interval. The data on growth attributes and green fodder yield from different cuts (seven cuts) were pooled and subjected to statistical analysis as per the standard procedures. The expenditure on inputs and income from sale of green fodder were worked out based on prevailing market prices to arrive at the cost of cultivation and the economics of hybrid grass cultivation.

Results and Discussion

The results revealed that there was no significant difference in plant height among the hybrid grasses. The plant height of different hybrid grasses ranged from 119.7 to 144.4 cm (Table 1). However, the number of green leaves (144.7) and tillers per clump (24.1) were found to be significantly higher in Bajra Napier hybrid grass Co-3 than that of other hybrid grass cultivars. It was due to the high tillering capacity and genetic superiority of Co-3 over other hybrids. There were only numerical differences among the hybrids in respect of green fodder yields, with the highest yield of 29.77 t ha⁻¹ in Co-3 and the lowest yield of 24.0 t ha⁻¹ in PBN-233. However, the difference in green fodder yields between the hybrid cultivars was not statistically significant. In contrast,

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Table 1. Growth, yield and economics of Bajra-Napier hybrids (Pooled analysis)

Grass hybrids	Plant height (cm)	Number of tillers/clump	Number of leaves/plant	Green fodder yield (t ha ⁻¹)	Gross returns (Rs. ha ⁻¹)	Net returns (Rs. ha ⁻¹)	Benefit: cost ratio
IGFRI-3	144.4	16.2	118.8	24.73	61830	16200	1.36
IGFRI-7	145.6	15.1	99.0	27.08	67710	22080	1.48
IGFRI-10	140.3	17.7	93.3	26.68	66710	21080	1.46
PBN-233	128.6	13.5	98.5	24.00	60000	14370	1.31
Co-3	119.7	24.1	144.7	29.77	74420	28790	1.63
Co-4	125.0	15.1	94.3	24.60	61500	15870	1.35
KKM-1	137.0	12.3	80.0	24.30	60750	15120	1.33
SEd	12.11	1.51	9.48	2.17	NA	NA	NA
CD (P= 0.05)	NS	3.29	20.66	NS	NA	NA	NA

NS: Not significant NA: Data not analysed statistically

the economic analysis revealed that the net returns was the highest due to cultivation of Bajra Napier hybrid Co-3 (Rs. 28,790 ha⁻¹) with the benefit cost ratio of 1.63. This was followed by IGRFI-7 and IGFRI-10 with net returns of Rs. 22,080 and 21,080 ha⁻¹, and benefit cost ratio of 1.48 and 1.46, respectively.

Hence, it was concluded that Bajra Napier hybrid grass Co-3 was more suitable as compared to other hybrids such as Co-4, KKM-1, IGFRI-3, IGFRI-7, IGFRI-10 and PBN-223 in terms of green fodder yield and economics in coastal regions of Karaikal.

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