

Original Research Article

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## Performance of Multicut Fodder Sorghum genotypes in North Eastern Dry Zone of Karnataka

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### ABSTRACT

#### Keywords

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#### Article Info

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On Farm Testing was conducted at Krishi Vignyan Kendra, Yadagir during *Kharif* of 2019-20 under irrigated conditions to study the performance of multicut fodder sorghum genotypes. The result obtained from the study revealed that among the different genotypes, genotype CoFS-31 recorded numerically higher plant height, tillers per plant, more number of leaves compared to rest of the genotypes. Higher green fodder yield was recorded in CoFS-31 (152.7 t ha<sup>-1</sup>) and seed yield in SSV – 47. Genotype CoFS-31 fetched numerically higher gross return, net return and benefit cost ratio (Rs. 1,07,910, 79,524 ha<sup>-1</sup> and 3.80, respectively) compared to CoFS-29 and SSV – 74.

### Introduction

India is having the largest livestock population of 520 million heads, which is about 15 per cent of the world's livestock population. India supports 55, 16, 20 and 4 per cent of world's buffaloes, cattle, goats and sheep population, respectively. But, the country has only 4.4 per cent of the cultivated area under fodder crops with an annual total forage production of 833 m t (390 m t green and 443 m t dry). Whereas, the annual forage requirement is 1594 m t (1025 m t green and 569 m t dry) to support

the existing livestock population. The present feed and fodder resources of the country can meet only 48 per cent of the requirement, with a vast deficit of 61.1 per cent and 21.9 per cent of green and dry fodder, respectively (Anonymous 2009).

Dry straw of the grain sorghum obtained after harvest of the grain is usually fed to the cattle. Such straw does not provide quality fodder for milch cattle due to very high crude fiber content and very low crude protein content. There was a long felt need for a multicut

fodder sorghum with about five cuts in a year to save on the seed cost and conditions to supply of green forage to dairy. Multicut fodder sorghum is more advantageous in many ways such as high yield in short period, saving in terms of seed and land preparation. Therefore, it is very popular among the foders.

## Materials and Methods

On Farm Testing on Performance of Multicut Fodder Sorghum genotypes was conducted at KVK, Kawadimatti of Yadagir district during 2019-20. The experiment was laid out in Randomized Block design with three treatment replicated five times in five farmer's field. The treatments include multicut fodder sorghum genotypes *viz.*, T1- SSV-74, T2- CoFS-29 and T3- CoFS-31.

The seeds of fodder sorghum genotypes were dibbled 60 cm apart in rows with intra row spacing of 30 cm. Gap filling was carried around 10 days after sowing (DAS) to maintain the optimum plant population. The excess seedlings were thinned around 20 DAS and maintained required plant population. Recommended dose of fertilizer *viz.*, 87.5:50:37.5 kg NPK ha<sup>-1</sup> was applied.

At the time of sowing 25 per cent nitrogen and entire dose of phosphorus and potassium was applied. Remaining dose of nitrogen is equally split based on the number of cuts the fodder is harvested. First harvest was done 55-60 days after planting and subsequent harvest was made at every 45 -50 days interval.

The number of cuts ranged from 5-6 per year. The growth parameters on plant height (cm), number of tillers per culm, leaf length (cm), leaf width (cm) and yield of green fodder at every harvest was recorded and the same was compiled and average was worked out.

## Results and Discussion

In adoption of any new variety, growth and yield are important criteria to show the performance of given interventions. The observations on plant height (cm), Number of tillers per culm, Leaf length (cm) and Leaf width (cm) was recorded at each harvest and average was worked and presented in Table 1.

In order to assess the performance of multicut fodder varieties, growth characteristics and fodder productivity with existing farm situations was recorded and analysed. Among the growth parameters, CoFS-31 recorded numerically higher plant height (192 cm), number of tillers per culm (15), number of leaves per culm (98), leaf length (76 cm) and leaf width (3.4 cm) compared to other fodder varieties. Similar results were observed by Kamala Bai *et al.*, 2017.

Fodder yield is a function of genetic as well as the environmental factors, which plays a vital role in fodder growth and development and ultimately contributed to fodder yield. Variation in green fodder yield was noted in different genotypes. It was numerically highest in 1<sup>st</sup> to 6<sup>th</sup> cutting and total green yield (19.1, 22.4, 27.5, 28.0, 27.9, 27.8 and 152.7 t ha<sup>-1</sup>, respectively) in CoFS-31 genotype which was higher than the CoFS-29. While in the genotype SSV-74 only two cuttings were recorded (35.7 and 28.5 t ha<sup>-1</sup>).

This could be attributed to improved performance of growth parameters like higher leaf length, plant height, leaf width and number of tillers and adequate availability of nutrients and soil moisture throughout the growing season, which in turn, favourably influenced physiological processes and build up of photosynthates (Manish Kushwaha *et al.*, 2018). Similar findings were reported by Manjunath S.B. *et al.*, 2013. Higher seed yield were recorded in the genotype CoFS-31

(231.6 kg ha<sup>-1</sup>) compared to rest of the genotypes.

### Economics

Genotype CoFS-31 fetched numerically higher gross return, net return and benefit cost ratio ( Rs. 1,07,910, 79,524 ha<sup>-1</sup> and 3.80,

respectively) compared to CoFS-29 and SSV – 74 (Table 3). Higher profit obtained with the genotype CoFS-31 was due to inherent ability of genotype which produced higher green fodder and seed yield over CoFS-29 and SSV – 74. Similar results were recorded by Kamala bai *et al.*, 2017.

**Table.1** Plant height, Number of tillers culm<sup>-1</sup>, Number of leaves culm<sup>-1</sup>, Leaf length and leaf width

Genotype	Plant height(cm)	Number of tillers culm <sup>-1</sup>	Number of leaves culm <sup>-1</sup>	Leaf length (cm)	Leaf width (cm)
SSV-74	178	10	79	60	2.8
CoFS-29	185	12	86	67	3.1
CoFS-31	192	15	98	76	3.4

**Table.2** Green fodder yield and seed yield of multicut fodder sorghum genotypes.

Genotypes	Green fodder yield (t ha <sup>-1</sup> )							Seed yield (kg ha <sup>-1</sup> )
	1 <sup>st</sup> cutting	2 <sup>nd</sup> cutting	3 <sup>rd</sup> cutting	4 <sup>th</sup> cutting	5 <sup>th</sup> cutting	6 <sup>th</sup> cutting	Total	
SSV-74	35.7	28.5	-	-	-	-	64.2	812.5
CoFS-29	18.5	21.3	26.2	27.4	24.6	24.5	142.5	192.3
CoFS-31	19.1	22.4	27.5	28.0	27.9	27.8	152.7	231.6

**Table.3** Economics of multicut fodder sorghum genotypes

Genotype	Cost of cultivation (Rs.)	Gross return (Rs.)	Net return (Rs.)	B:C raio
SSV-74	16,355	47,045	30,690	2.88
CoFS-29	25,684	91,170	65,486	3.55
CoFS-31	28,386	1,07,910	79,524	3.80

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