

# Influence of genotypes and planting layouts on quality of sorghum fodder

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## ABSTRACT

The different quality parameters are used to judge the nutritive value of the fodder such as crude protein content, crude fibre, ether extract, total ash, nitrogen free extract etc. These quality parameters are studied under two cuts ,among them I cut (at 60 DAS) have shown higher percentage of crude protein and ether extract while lower percentage of crude fibre, total ash and nitrogen free extract than the II cut.

**Key words :** Genotypes, Planting layouts, Sorghum

## INTRODUCTION

Sorghum is one of the major warm season crops which is widely used for forage production. The quality aspect in case of fodder is one of the most important criteria to judge the nutritive value of fodder. Present study was undertaken to find out associations and relative contribution of planting layouts in quality sorghum fodder.

## MATERIALS AND METHODS

The present investigations comprised of effect of planting layouts on various quality parameters of sorghum fodder. The experiment was laid out in a Factorial Block Design with four replications at Agronomy farm, College of Agriculture, Pune during summer 2004–05 and 2005–06. The four fodder sorghum genotypes *viz.*, Ruchira, Phule Amruta, SSG 59-3 and Maldandi 35-1 are taken as main plot treatments while three planting layouts *viz.*, flat beds, ridges and furrows and broad bed furrows as sub plot treatments. The protein percentage, crude fibre percentage, ether extract, total ash content and nitrogen free extract was determined for each cut.

## RESULTS AND DISCUSSION

The sorghum fodder was analysed for different quality parameters at both the cuts (Table 1). The variety SSG 59-3 has produced significantly highest crude protein content in both the cuts. Similar results were recorded by Baig *et al.* (1979) and Nikam (2004). The crude protein content was significantly higher when varieties were sown on broad bed furrows than other layouts. Interaction effect was found significant only at I cut, where the best treatment combination was sowing of variety SSG 59-3 on broad bed furrows.

The crude fibre content was recorded significantly higher in variety Ruchira under both the cuts, while, it was differed significantly due to planting layouts at II cut

only (Nikam,2004). The highest crude fibre was recorded in the varieties which were sown on flat beds. The interaction effect was found significant only at II cut . The significantly higher crude fibre was recorded in variety Ruchira sown on flat beds while less crude fibre was recorded in variety Phule Amruta sown on broad bed furrows.

The highest ether extract percentage was recorded in variety Phule Amruta at both the cuts (Nikam,2004), while, it differed significantly due to planting layouts at I cut only. The significantly higher ether extract was recorded when varieties were sown on broad bed furrows. The interaction effect was found significant under I cut only and the best treatment combination was growing of variety Phule Amruta on broad bed furrows.

The highest total ash content was recorded in variety M-35-2 at both the cuts, while, it was recorded the highest when varieties were grown on broad bed furrows at both the cuts. Interaction effect was found significant at I cut only.

The nitrogen free extract in variety Phule Amruta was significantly higher over rest of the varieties at I cut, while, it was at par with variety SSG 59-3 at II cut. The nitrogen free extract was higher in I cut than II cut in all varieties due to longer duration of II cut. Similar results were recorded by Srivastava and Kushwaha (1971). The significantly higher nitrogen free extract was recorded under broad bed furrows at both the cuts while interaction effect was found to be non significant at both the cuts.

## Conclusion:

The crude fibre content was recorded significantly higher in variety Ruchira under both the cuts, while, it was differed significantly due to planting layouts at II cut only. The highest crude fibre was recorded in the varieties which were sown on flat beds. The highest ether extract percentage was recorded in variety Phule Amruta at both the cuts, while, it differed significantly due to planting

**Table1: Different quality parameters as influenced by genotypes and planting layouts ( Pooled over 2004-05 and 2005-06)**

Treatments	Crude protein		Crude fibre		Ether extract		Total ash		Nitrogen free extract	
	I cut	II cut	I cut	II cut	I cut	II cut	I cut	II cut	I cut	II cut
<b>Varieties</b>										
Ruchira	7.30	6.06	32.41	32.83	1.72	1.65	9.47	9.92	48.93	49.65
Phule Amruta	6.68	5.66	28.30	28.78	2.04	2.00	9.48	9.49	53.41	54.07
SSG 59-3	7.37	6.12	29.60	29.87	1.76	1.72	8.20	8.66	52.97	53.62
Maldandi 35-1	7.19	6.00	30.80	30.82	1.87	1.80	9.66	10.00	50.43	51.64
S.E.±	0.04	0.04	0.28	0.003	0.008	0.017	0.024	0.06	0.30	0.07
C.D. (P=0.05)	0.12	0.12	0.80	0.009	0.024	0.051	0.069	0.18	0.87	0.20
<b>Planting layouts</b>										
Flatbed	7.04	5.8/5	29.90	30.53	1.80	1.77	9.08	9.38	50.73	51.67
Ridges and furrows	7.11	5.90	30.29	30.55	1.85	1.80	9.21	9.51	51.53	52.20
Broad bed furrows	7.26	6.13	30.65	30.83	1.89	1.89	9.31	9.66	52.04	52.64
S.E.±	0.04	0.03	0.24	0.003	0.007	0.015	0.021	0.05	0.26	0.06
C.D. (P=0.05)	0.11	0.10	NS	0.008	0.021	NS	0.061	0.15	0.75	0.17
<b>Interaction</b>										
S.E.±	0.07	0.07	0.48	0.005	0.014	0.03	0.06	0.10	0.52	0.12
C.D. (P=0.05)	0.21	NS	NS	0.015	0.042	NS	0.18	NS	NS	NS
General mean	7.14	5.96	30.28	30.58	1.85	1.79	9.20	9.52	51.43	52.17

N.S.-Non significant

layouts at I cut only. The significantly higher ether extract was recorded when varieties were sown on broad bed furrows. The highest total ash content was recorded in variety M-35-1 at both the cuts, while, it was recorded the highest when varieties were grown on broad bed furrows at both the cuts. Interaction effect was found significant at I cut only. The nitrogen free extract in variety Phule Amruta was significantly higher over rest of the varieties at I cut, while, it was at par with variety SSG 59-3 at II cut. The nitrogen free extract was higher in I cut than II cut in all varieties due to longer duration of II cut.

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