

## FEEDING OF DIFFERENT LEVELS OF GREEN JOWAR ON THE PERFORMANCE OF LOCAL BUFFALOES

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### ABSTRACT

Experiment was conducted on 18 local buffaloes maintained under field conditions of Mul tahsil of Chandrapur District, during the year 2022. Experimental buffaloes were fed with three different dietary levels of green jowar i.e. 10 kg, 15 kg and 20 kg buffalo<sup>-1</sup> day<sup>-1</sup> along with recommended concentrate mixture (locally available) and dry roughage ad libitum (Paddy straw) in addition to natural grazing to determine the dry matter intake (DM) and productive performance. It was noticed that green jowar was reasonably good source of energy and high source of crude fiber in the buffalo feeding. Feed provided under treatment T<sub>3</sub>- 20 kg Green Jowar +Ad libitum Paddy straw was palatable and acceptable to experimental buffaloes by consuming more daily dry matter intake. Treatment T<sub>3</sub>- 20 kg Green Jowar +Ad lib. Paddy straw showed significantly (P<0.05) higher (14.65 kg day<sup>-1</sup>local buffalo<sup>-1</sup>) DM intake day<sup>-1</sup> as compared to the treatments i.e. T<sub>2</sub>-15 kg Green Jowar +Ad lib. Paddy straw and T<sub>1</sub>- 10 kg Green Jowar +Ad lib. Paddy straw.

Corresponding figures for DM intake 100 kg<sup>-1</sup> body weight was 3.32 kg, 3.41 kg and 3.66 kg under treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> respectively. Inclusion of green Jowar in feeding of experimental buffaloes improved the milk yield significantly to the tune of 20 per cent over treatment T<sub>1</sub>. Cost of feed buffalo<sup>-1</sup> day<sup>-1</sup> was more under treatment T<sub>3</sub> attributed to the incorporation of more quantity green Jowar and concentrate mixture in feeding of experimental buffaloes. As far as quality parameters are concern more fat percentage recorded under treatment T<sub>3</sub>. Higher productive performance was recorded under group fed with treatment T<sub>3</sub>- 20 kg Green Jowar +Ad lib. Paddy straw. It is inferred that buffalo owners could be include 20 kg green jowar with recommended rate of concentrate (50% of milk production) in feeding of buffalo which is beneficial to improve the productive performance of local buffalo under field condition.

(Key words: Local buffaloes, DM, productive performance)

### INTRODUCTION

In eastern Vidarbha region, paddy straw is a major agro residue fed to the various categories of livestock. Feeding of sole rice straw not provide nutrients to the animal even for the maintenance due to low nutritive value of paddy straw. As the paddy straw is highly lignified material with more content of anti-nutritional factors like lignin silica oxalates. Despite of various methods adopted for processing of low graded roughages. Accordingly, buffalo owners of Mul tahsil of Chandrapur district advised to cultivate the green forage on residual moisture available in paddy field after harvesting of paddy crop. Sorghum is important fodder crop for feeding ruminants in lean periods in Vidarbha region of Maharashtra. It is nutritious and can be fed as green as well as dry fodder (Ingole *et al.*,2011). The sorghum could be considered as one of the alternative feeding and sorghum silage could be included in feeding of lactating buffaloes (Barille *et al.*,2007).

Several studies have been carried out in order to verify the effect of diets and different feed stuffs on

buffalo production ( Bartocci *et al.*,2002). The low productivity of buffalo is mainly due to lack of knowledge for balance nutrition. Farmers from rural area feed their buffaloes with roughages and concentrate but they do not have consciousness about quality and quantity of nutritious feed ( Atkare *et al.*,2016). Feeding of green fodder to milch animal not only improve the growth performance but also improve the milk production including quality of milk ,but sufficient quantity of green roughages is not available even for small herd of animal under field condition. Considering these facts, present study was focused on the "Effect of optimum levels of Jowar with liberal feeding of paddy straw to assess the productive performance of local buffaloes".

### MATERIALS AND METHODS

Total 18 local buffaloes maintained under field conditions of Mul tahsil of Chandrapur district were randomly allotted to three dietary treatments for 120 days. These dietary treatments were T<sub>1</sub>- 10 kg Green Jowar +Ad lib. Paddy straw, T<sub>2</sub>- 15 kg Green Jowar +Ad lib. Paddy straw

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and T<sub>3</sub>- 20 kg Green Jowar +Ad lib. Paddy straw. The concentrate mixture (locally available) in the market, cultivated multi cut green jowar fodder and paddy straw were used for feeding. The experimental animals were fed as per ICAR (Anonymous, 1985) recommendation feeding standard to meet the requirement of nutrient. The feed samples were analyzed for nutrient contents (CP, EE, CF, NFE and Ash) according to AOAC (Anonymous, 1990). The observations were recorded weekly for dry matter intake, productive performance and quality parameters of milk (Total solids, solids not fat and fat). Chemical analysis of milk parameters viz., fat by Gerber's method as described in BIS: 1224 (Anonymous, 1958). Solids not fat percentage was determined according standard procedure as described in SP:18, Part-XI of BIS (Anonymous, 1981). Total solids determined according to Gravimetric method described in SP: 18 Part-XI of BIS (Anonymous, 1981). Average data were subjected to statistical analysis as per the procedure given by Amble (1975).

## RESULTS AND DISCUSSION

### Chemical composition

It is indicated from the Table 1 that the crude protein content of the concentrate mixture, green jowar and paddy straw were 18.19, 5.4 and 3.1% respectively. Crude protein content of concentrate mixture was more than the green jowar and paddy straw, while crude protein content of green jowar are more as compared to Paddy straw. However, crude fiber content in green jowar and paddy straw were 24.6 and 35.20 per cent while that of concentrate mixture which was 9.34 per cent. Moreover, the ether extract and nitrogen free extract content of concentrate mixture was more than the content of green jowar and paddy straw. The ash per cent of green jowar and paddy straw were 7.7 and 11.10 per cent while in concentrate mixture it was 8.43 per cent.

Thus, it is stated from Table 1 that green jowar is reasonably good source of energy and high source of protein to the animals. These results are in agreement with findings of Raval *et al.* (2019), they evaluated proximate principles of green jowar fodder as CP 5.4, EE 1.8, CF 24.6, NFE 60.50 and Ash 7.7 per cent on DM basis respectively. Fresh green jowar fodder fed eighteen local buffaloes for a period of 120 days to determine its nutritive value. The green jowar fodder contained DM 22.50, CP 5.4, EE 1.8, CF 24.6, NFE 60.00 and Ash 7.7 per cent on DM basis respectively.

### Dry matter intake

On an average experimental buffaloes having 400 kg body weight were selected for the present investigation. Feeding of different dietary treatments had significant ( $P < 0.01$ ) effect on dry matter intake in experimental local buffaloes. Greater dry matter intake was observed in treatment T<sub>3</sub> followed by T<sub>2</sub> and T<sub>1</sub>.

It is observed from the Table 2 that the dry matter intake (DMI) was 13.30, 13.65 and 14.65 kg in treatments T<sub>1</sub>- 10 kg Green Jowar +Ad lib. Paddy straw, T<sub>2</sub>- 15 kg Green Jowar +Ad lib Paddy straw and T<sub>3</sub>-20 kg Green Jowar +Ad lib Paddy straw respectively. Corresponding figures for DM intake of 100 kg<sup>-1</sup> body weight was 3.32 kg, 3.41 and 3.66 kg respectively. Slightly increase in DM under treatment T<sub>2</sub> and T<sub>3</sub> as compared to T<sub>1</sub> might be due to palatability of Green Jowar fed to the experimental buffaloes improved the dry matter intake of experimental buffaloes. On contrary, Hossain *et al.* (2017) reported more dry matter intake in buffaloes as compared to results of present study when lactating buffaloes fed with green fodder based diet.

### Productive performance

It is observed from Table 3 that inclusion of green Jowar in feeding of experimental buffaloes improved the milk yield significantly. Whereas, quality parameters viz., total solids decreased significantly as the increase in fat content of milk whereas, Fat and SNF content were not affected due to inclusion of green Jowar in feeding of experimental buffaloes. It was noticed from the data that more daily milk yield (6.40 kg day<sup>-1</sup>) recorded under treatment T<sub>3</sub>- 20 kg Green Jowar +Ad lib. Paddy straw as compared to treatment T<sub>1</sub>- 10 kg Green Jowar +Ad lib. Paddy straw and treatment T<sub>2</sub>- 15 kg Green Jowar +Ad lib. Paddy straw. As far as quality parameters are concern, more fat percentage (7.25%) recorded under treatment T<sub>3</sub>- 20 kg Green Jowar. The highest SNF content (10.30 %) recorded under T<sub>1</sub>- 10 kg Green Jowar +Ad lib. Paddy straw followed by treatments T<sub>2</sub>- 15 kg Green Jowar +Ad lib. Paddy straw (10.18 %) and T<sub>3</sub>- 20 kg Green Jowar +Ad lib. Paddy straw (10.08%). Corresponding figures of fat content minutely increased from 7.18 to 7.22 per cent. It was further noticed that increase in fat in milk there was decrease in T.S. and S.N.F. content of milk and vice versa. Barille *et al.* (2007) reported more milk yield (7.80 kg) and fat content (7.68) in milk of lactating buffaloes fed with sorghum silage.

### Cost of feeding

The results on cost of feeding of experimental buffaloes are presented in Table 4. It is observed from the data that the cost of feeding day<sup>-1</sup> buffalo<sup>-1</sup> recorded as Rs.117, Rs.131 and Rs. 145 in T<sub>1</sub>- 10 kg Green Jowar +Ad lib. Paddy straw, T<sub>2</sub>- 15 kg Green Jowar +Ad lib. Paddy straw and T<sub>3</sub>- 20 kg Green Jowar +Ad lib. Paddy straw treatments, respectively.

Highest cost of feeding recorded under treatment T<sub>3</sub>- 20 kg Green Jowar +Ad lib. Paddy straw. The highest cost of feeding attributed to the incorporation of more quantity green Jowar and concentrate mixture in feeding of experimental buffaloes. Inclusion of green jowar and concentrate in animal feeding resulted into increased in level of milk production of experimental buffaloes to the tune of 20 per cent.

**Table 1. The composition of experimental feed on % DM basis**

Sr. no.	Name of ingredients	CP	CF	EE	NFE	Ash
1	Concentrate mixture (locally available )	18.19	9.34	7.97	55.45	8.34
2	Green jowar	5.40	24.60	1.80	60.00	7.70
3	Paddy straw	3.1	35.20	1.31	49.40	11.10

**Table 2 .Daily DM intake (kg) and water DM intake (ml) under various treatments**

Treatments	IDMI day <sup>-1</sup> (kg)	DMI100 <sup>-1</sup> kg body weight kg
T <sub>1</sub> . 10 kg Green Jowar +Ad lib. Paddy straw	13.30	3.32
T <sub>2</sub> . 15 kg Green Jowar +Ad lib. Paddy straw	13.65	3.41
T <sub>3</sub> . 20kg Green Jowar +Ad lib. Paddy straw	14.65	3.66
SE(M)±	0.029	0.08
CD at 5 %	0.087	0.24

**Table 3. Effect of feeding on daily milk yield (kg) and quality parameters**

Treatments	Daily milk yield(kg)	Composition		
		T.S.	S.N.F.	Fat
T <sub>1</sub> . 10 kg Green Jowar +Ad lib. Paddy straw	5.31	17.48	10.30	7.18
T <sub>2</sub> . 15 kg Green Jowar +Ad lib. Paddy straw	5.69	17.40	10.18	7.22
T <sub>3</sub> . 20kg Green Jowar +Ad lib. Paddy straw	6.40	17.33	10.08	7.25
SE(M)±	0.014	0.016	0.014	0.010
CD at 5 %	0.051	0.048	—	—

**Table 4. Cost of feeding under different groups**

Feed	Treatments		
	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Green Jowar (kg)	10	15	20
Paddy Straw (kg)	9	8	7
Concentrate (kg)	3	3	3
Cost of feed per day (Rs)	117	131	145
Milk yield day <sup>-1</sup>	5.31	5.59	6.40

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