International Journal of
Life Science
International Peer Reviewed Open Access Refereed Journal

Int. J. of Life Science, 2019; 7 (2):356-358
ISSN:2320-7817(p) | 2320-964X(o)

Original Article Open Access

Effect of organic fertilizers (biofertilizers) on the yield and nutritive value of fodder crop bajra (*Pennysetum typhoides* brum f.) in Nanded district of Maharashtra, India

Chavan NG[1*] and Dakore HG[2]

[1]Reader & Head, Dept. of Botany, P. N. College, Nanded. (M. S.) India
[2]Research scholar, Shri Datta Arts, Comm. & Sci. College, Hadgaon. (M.S.) India
*Corresponding author email: chavannanu57@gmail.com

Manuscript details:

Received: 18.03.2019
Accepted: 21.05.2019
Published: 25.06.2019

Editor: Dr. Arvind Chavhan

Cite this article as:
Chavan NG and Dakore HG (2019) Effect of organic fertilizers (biofertilizers) on the yield and nutritive value of fodder crop bajra (*Pennysetum typhoides* brum f.) in Nanded district of Maharashtra, India, *Int. J. of. Life Science*, Volume 7(2): 356-358.

Available online on
http://www.ijlsci.in
ISSN: 2320-964X (Online)
ISSN: 2320-7817 (Print)

ABSTRACT

The Bajra is one of the popular fodder crops in Marathawada region (Nanded area). The Bajra variety Local has been selected for this study. The experiments were conducted at Bolsa kd. Tq. Umri. DIST. Nanded during the year 2003 and 2004. The present study was undertaken to see the effect of organic fertilizers (prepared from Urd bean, Moong bean, Soya bean, *Cajanus cajan* (tur) plant wastes and FYM on the yield of Green Fodder, Dry Matter, Protein Content and its Nutritive value.
The application of above organic fertilizers seems to be effective for the production of Local variety of Bajra and its Nutritive Value in this region.

Key words: Green fodder, Dry matter, Organic fertilizers, Protein content, Nutritive value, FYM.

INTRODUCTION

In order to evaluate the performance of four popular fodder crops of Nanded area, in view of their Production Potential and Nutritive Value present investigations was undertaken. The four selected fodder crops / grsses were: 1. Sorghum (Sorghum vulgare pers). 2. Maize (Zea mays L) 3. Bajra (*Pennisetum typhoides* Brum f.) and 4. Sudan grass (*Sorghum sudanense*) used to carry out the research study work.

MATERIALS AND METHODS

In the present study, the different agricultural plant waste materials from different legume crops such as Urd bean, Moong bean, Soya bean, *Cajanus cajn* (tur) as well as FYM collected. Then all of these waste materials are decomposed naturally in the 3'x3'x2' silos. When all of these completely decomposed, they are removed from the silos, dried in the natural sunlight and stored in the gunny bags for further uses as organic fertilizers.

After the preparation of organic fertilizers, the field was prepared with ploughing and cross-ploughings. The whole field was divided in the 18 equal plots due to the presence of 6 treatments and 3 replicates (6'x3'). The seeds are collected and then sown with the help of hand drill method, with spacing of 30 cms. apart from row to row and 15 cms. apart from plant to plant.

Before cultivation of Bajra crop, each organic fertilizer was supplied @1050kg/ha. and then after the interval of 8-10 days, 5 kg of extra manure doses are supplied to fodder crop. When the crop was at preflowering stage, the crop was harvested and then taken the fresh weight of Green Fodder (GF) and then calculated the Dry matter (DM) and Crude Protein (CP) content on the basis of % of DM and N% of DM (Table 1, 2 & 3).

Statistical analysis

The total yield of the Green Fodder (GF), Dry Matter (DM) and the Crude Protein (CP) were calculated as kg /ha by considering Green Fodder yield / quadrate.

The values of Crude Protein was determined as N% X 6.25 (A.O.A.C., 1970), Bailey (1967), O'Ser (1979), Fiske and Subba Row (1925), O'Shae and Maquire (1962). The data was statistically analysed according to Panse and Sukhatme (1978), Mungikar (1997) and Critical Difference (CD) was calculated (Table 1, 2 & 3).

RESULTS AND DISCUSSIONS

In the present investigation, attempts were made to study the effects of organic bio-fertilizers such as Urd bean (U.B.), Moong bean (M.B.), Soya bean (S.B.), Tur /*Cajanus cajan*, FYM as well as Control, on four Fodder Crops like Sorghum, Maize, Bajra & Sudan grass.

The attempts were also made to study the effect of organic bio-fertilizers gradations on the non- legume forage crops such as Sorghum, Maize, Bajra & Sudan grass in order to observe fertilizer Nitrogen efficiency in Crude protein productivity & Dry matter.

Table 1: Fodder Yield -Fodder yields from Bajra (Local) cultivated during rainfall /monsoon under the influence of organic fertilizers (2003).

Time of cultivation /age in days	Organic fertilizer treatments (kg/ha)	Green fodder		Yields (kg/ha)		
		% of DM	N % of DM	Green Fodder	Dry matter	Crude protein
Monsoon (11 July to 02 sept.2003)- 51 days	Control	17.6	1.65	17936	3157	325
	U.B.	18.3	1.78	34238	6266	697
	M.B.	17.4	1.63	22518	3918	399
	S.B.	17.9	1.72	23632	4230	455
	Tur/C. C.	18.5	1.39	26442	4892	425
	FYM	20.2	1.74	35124	7095	772
C.D.(P=0.05)	-	-	-	3800	196	28

Table 2: Fodder Yield - Fodder yield from Bajra (Local) cultivated during rainfall / monsoon under the influence of organic fertilizers (2004).

Time of cultivation /age in days	Organic fertilizer treatments (kg/ha)	Green fodder		Yields (kg/ha)		
		% of DM	N % of DM	Green Fodder	Dry matter	Crude protein
Monsoon (08 July to 31 Aug. 2004)- 51 days	Control	16.9	1.72	17642	2981	320
	U.B.	17.6	1.68	31418	5530	580
	M.B.	18.2	1.48	24422	4445	411
	S.B.	20.4	1.62	26125	5329	539
	Tur/C.C.	21.2	2.12	24532	5201	689
	FYM	19.3	2.00	34644	6686	836
C.D.(P=0.05)	-	-	-	2877	240	32

Table 3:– Nutritive value - The table shows the chemical composition of Bajra (Local).

Sr. No.	Fodder crop.	Organic fertilizer treatments kg/ha)	% of DM	Chemical composition on % of dry matter (DM)									
				CP	CF	C fat	NFE	TC	Ash	AIA	Ca	P	K
1	Bajra	Control	16.9	19.0	23.3	5.7	37.8	61.1	14.2	13.9	0.87	0.46	1.18
2	Bajra	U.B.	17.6	19.2	26.2	5.4	36.6	62.8	12.6	13.7	0.90	0.41	1.12
3	Bajra	M.B.	18.2	18.8	28.4	5.2	34.4	62.8	13.2	13.5	0.84	0.39	1.16
4	Bajra	S.B.	20.4	19.1	27.5	5.6	34.2	61.7	13.6	13.8	0.89	0.51	1.21
5	Bajra	Tur /C. C.	21.2	18.8	25..8	5.5	35.9	61.7	14.0	13.2	0.78	0.54	1.26
6	Bajra	FYM	19.3	19.4	26.7	4.9	35.5	62.2	13.5	13.0	0.86	0.38	1.20

In the present investigation, the farming is completely based on the organic farm, which is prepared from the different plants and its parts by decomposting them in the pits under the soil surface.

In the present study, there is use of different organic bio-fertilizers to show the effect of their application on the yields of Green fodder, Dry matter and Crude protein.

According to the available data, it is found that, the different fodder crops such as Maize, Sorghum, Bajra etc. are second best in order for the milk production in animals, while the other grasses like Sudan grass, Hybrid napier grass, Para grass etc. are palatable in animal nutrition, but poor in their Nutritive Value.

Importance and conclusions: -

- The use of organic fertilizers is called as organic farming, low energy, biological, ecological, bio or sustainable farming.
- It plays a significant role in the cultivation of fodder crops. It increases the productivity of green fodder per unit area and per unit time.
- The green food and fodder production by organic farming is not only free from chemicals but also they are safer, healthier and testier.
- It is useful in protecting the environment and conserving the environment.
- The fodder produced food is useful to increase the productivity of animals.
- It is used to increase the fertility of the soil; to control the chemical pollution occurs through toxic or synthetic fertilizers.
- It is useful to obtain pollution free food grains for man and fodder for animals.
- The organic farming maintains the environmental balance and bio-geochemical cycles in the nature.
- The proper food and animal husbandry practices are of paramount importance for improving livestock production.
- The fodder crops provide economical, good quality feed for livestock in the form of dry hay.
- The fodder crops increases the soil fertility and crops yield as an intercrop.
- The fodder crops cover the soil and protect the soil from weather, decreases soil erosion from water and winds and loss of nutrients from the soil.

REFERENCES

A.O.A.C. (1970)Official and tentative methods of analysis, 11th edn. Association of official analytical chemists, Washington D.C.

Bailey RL (1967) 'Techniques in protein chemistry, 2nd edn. Elsevier publishing co. Amsterdam.

Oser BL (1979) Hawks physiological chemistry, 14th edn. Tata McGraw-Hill publishing Co.Ltd. New Delhi

Fiske CH and Subba Row Y (1925) J. Biol. Chemistry. 66:375

O'Shae J and Maquire MF(1962) *J.Sci. Fd. Agric.*, 13:530.

Panse,VG and Sukhatme P V (1978) Statistically methods for agri. workers, 4th edn, ICAR, New Delhi.

Mungikar AM (1997) An introduction to Biometry, Saraswati printing press, Aurangabad.