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Evaluation of different fodder crops under changing climate condition to ensure green fodder availability under Malwa Plateau zone

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Abstract

A field trial was conducted during rabi season 2018-19 at research farm of RVSKVV Krishi Vigyan Kendra, Rajgarh, Madhya Pradesh to in Indian agriculture there was animals is an important component in farm income. Indian farmers are depend on animals for their livelihood and other agriculture requirements. There was a scarcity of green fodder in diet of live stock were rearing by farmer due to climate change. Green fodder was an important part of dietary requirement of animals. To ensure the availability of green fodder during lain period. The trial was laid out in Randomized Block Design in three replications with comprising of six treatments T₁-Makkhan grass, T₂-Barseem (JB-1), T₃-Kasni (Local), T₄- Lucerne (Ananad 2), T₅-California (Rye Grass), T₆-Oat (JO-1). The result of experiment was indicated that use of makkhan grass for ensuring the green fodder availability during lain period is significantly higher over other treatments in context of yield and economics.

Keywords: Livestock, fodder crops, Makkhan grass

Introduction

Livestock production remains one of the world's most important sectors concerning economy, food security and the livelihoods of people. On the one hand, there is appetite for animal-based products but on the other, the effect of livestock production on climate change and the negative contribution of livestock to climate change. Hence, forage crop can be an important tool for producers. Though many may be aware that forages and livestock have a direct relationship, few really grasp the role of forages in sustaining the environment. Animal husbandry is contributing about 4.5 percent to National GDP and shares about 15-20 percent to the total income of rural households. Dairy sector is currently the top-ranking and essential commodity in India and estimated to contribute around 18.5% of world total milk production from 512.1 million livestock (Sarvade and Upadhyay, 2019) [6]. Forage crop is the rich source of protein, energy, vitamins and minerals. Makkhan hay is used properly all over world for the feeding purpose to the animals. It helps to increase digestive process and improves absorption of minerals and vitamins. At present, the country is facing problem of shortage of green fodder (about 63%), dry fodder (about 24%) and feeds (about 64%) for live stock production. In India, area and productivity of the permanent pastures has been declining gradually over the years and this trend could well continue in the future. During 2010, supply of green forages and roughages was 395.2 and 451 million tonnes against the demand of 1061 and 589 million tones, respectively (ICAR, 2012) [3]. The Makkhan grass is found suitable for the cultivation in Madhya Pradesh because of maximum production (total green and dry fodder) and quality (protein content) improvement (Gathiye, Kirad *et al.* 2020) [2].

Material & Methods

A filed trial was conducted during rabi season 2018-19 at research farm of RVSKVV Krishi Vigyan Kendra, Rajgarh, Madhya Pradesh to evaluate quality and yield parameters of rabi season forage grass. The trial was laid out in Randomized Block Design in three replication with comprising of six treatments viz. Makkhan Grass- Test Entry, Berseem (JB-1), Kasni (Local), Lucerne (Anand2), California (Rye Grass) Oat (JO-1). The recommended dose of nitrogen, phosphorus and potash i.e. 80 kg N/ha, 60 kg P₂O₅ / ha and 40 kg K₂O /ha was applied through urea, di-ammonium phosphate (DAP) and muriate of potash (MOP), respectively. Full dose of DAP and MOP and 50 kg N were drilled just before sowing and remaining nitrogen were applied in three split doses at 25, 45 and 75 DAS.

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Result and Discussion

Present study was evaluated on the following growth and yield parameters of different forage crops.

1. Plant height: Plant height of different forage crop was recorded at the cutting of forage time it is 45 days after sowing. The maximum plant height was incurred by Oat is 49.20 cm with was significantly higher overall other crops compared during the experiment and followed by Berseem (41.32 cm) and Lucerne (42.29 cm) and Makkhan

grass (43.76 cm). Table No1

2. Yield of forage crops: Yield of different forage crops were recorded on each cutting and total 5 cutting data will pooled to attain the average yield of forage crops. The maximum forage yield was recorded under Makkhan grass 1055.33 q. which was significantly higher all over participant crops of experiment, However, California (967.789) and Barseem (809.78) q/ha will also produce comparable yield during experiment. Table No 1.

Table 1: Plant Height (cm) and Green Forage Yield (q/ha)

Treatment	Varieties	Plant height (cm)	Green Forage Yield (q/ha)
		Average	Average (5 cutting)
T1	Makkhan Grass	43.76	1055.33
T2	Barseem (JB-1)	41.32	809.78
T3	Kasni (Local)	28.42	744.67
T4	Lucerne (Anand2)	40.79	858.89
T5	California (Rye Grass)	42.29	967.78
T6	Oat (JO-1)	49.20	487.78
CD at 5 %		1.936	3.139
SEm±		0.606	0.983
CV		2.564	0.208

3. Dry matter production: Average dry matter production was calculated through sample collection and drying then after drying the sample is oven up to 48 hrs on 25 °C dry matter production was recorded. The maximum dry matter was produced by Makkhan grass (13.61 q/ha) while the maximum while the maximum was produced by California (Rye Grass) (12.74 q/ ha.) Similar results were also reported by Shrivastava *et al.* (2020) [5]. Table No 2

4. Crude Protein: The maximum crude was recorded in Makkhan grass (13.01 q/ha) which was approved followed by California rye grass (12.71q/ha) while the minimum dry matter produces by oat 6.91 q/ha. Table No 2

5. Average leaf /Stem Ratio: Average leaf / stem ration of different crops was recorded and maximum leaf/ stem ratio was found in oat (4.01) while minimum was detained in Kasni (1.42). Table No 2

Table 2: Dry Matter Yield (q/ha), Average Crude Protein (q/ha) and Leaf/Stem Ratio

Treatment	Varieties	Dry Matter Yield (q/ha)	Crude Protein (q/ha)	Leaf/Stem Ratio
		Average	Average	Average
T1	Makkhan Grass	13.61	13.01	3.20
T2	Barseem (JB-1)	19.32	11.10	2.11
T3	Kasni (Local)	17.50	10.85	1.42
T4	Lucerne (Anand2)	18.87	10.39	2.31
T5	California (Rye Grass)	12.74	12.71	2.67
T6	Oat (JO-1)	18.92	6.91	4.01
CD at 5 %		1.157	0.749	0.155
SEm±		0.362	0.235	0.048
CV		3.731	3.751	3.202

Conclusion

A field experiment was laid out for testing forage "MAKKHAN GRASS" during Rabi season 2018 at instructional farm KVK RAJGARH. The main object of the study was to study performance of Makkhan Grass in comparison with Berseem & other green fodder. The experiment was laid out in RBD in three replication with six treatments. Data revealed that the Makkhan Grass given the maximum green forage yield and crude protein yield than all the green fodder Oat and barseem. The study concluded that Makkhan grass is suitable for cultivation in Madhya Pradesh during Rabi season and better than Oat and barseem.

Reference

1. Environment & Agriculture, Environment and Sustainability, Apple Academic Press. Agroforestry and Climate Change; c2019. p. 356

2. Gathiye GS, Kirad KS, Chauhan SS, Rajpoot JS, Verma V. Study the Production Potential of Fodder i.e., Makkhan Grass in Dhar district of Madhya Pradesh,

India. Int. J Curr. Microbiol. App. Sci. 2020;Special Issue-11:1692-1696

3. ICAR (Indian Council of Agricultural Research, New Delhi). Handbook of Agri. 2012, pp. 1353-1417.

4. Meena Harphool, Narolia RS, Singh Pratap, Meena PKP, Kumhar BL. Performance of Makhgrass (Lolium multiflorum) under Various Seed Rate in South East Rajasthan, India. International Journal of Current Microbiology and Applied Sciences. ISSN: 2319-7706 2017;6(5):1945-1950.

5. Shrivastava AK, Sarvade S, Bisen NK, Prajapati Brajkishor, Agarwal SB, Goswami Pooja. Growth and Yield of Rabi Season Forage Crops under Chhattisgarh Plain of Madhya Pradesh, India. International Journal of Current Microbiology and Applied Sciences ISSN: 2319-7706. 2020, 9(2).

6. Sarvade S, Gautam DS, Upadhyay VB, Sahu RK, Shrivastava AK, Kaushal R, *et al.* Agroforestry and soil health: an overview. Jodhpur: Scientific Publishers; 2019 Nov 21.