

Performance of dual purpose pearl millet genotypes as influenced by cutting management and nitrogen levels

B. G. Shekara ^{1*}, M. R. Krishnappa ¹, H. C. Lohithaswa ², N. M. Chikkarugi ¹, N. Manasa ¹

^{1*}AICRP on Forage Crops, Zonal Agricultural Research Station, V.C. Farm, Mandya, India

²College of Agriculture, V. C. Farm, Mandya, India

*Corresponding author e-mail : shekara_gundanaik@rediffmail.com

Keywords: Cutting managements, Green forage yield, Nitrogen levels, Pearl millet

Introduction

Pearl millet (*Pennisetum glaucum* L.) is important minor millets cultivated both for food and fodder. The dual purpose nature of pearl millet has recently identified due to its profused tillering, repeated harvesting and absence of anti nutritional factor. In fodder crops, the production potential can be manipulated by fertilizer management and time of harvest. In this regard, pearl millet no exception, scientific study on cutting and nitrogen management on green fodder yield, quality and grain yield is meagre. Therefore, the present investigation was under taken to study the influence of cutting management and nitrogen levels on green forage and grain yield of dual purpose pearl millet.

Materials and Methods

The experiment was conducted during kharif season of 2013 and 2014 at Zonal agricultural research station, Vishweswaraiiah Canal Farm, Mandya (Karnataka), the experiment consisted of 18 treatments of three pearl millet genotypes viz., V₁- BAIF Bajra-1, V₂ - AVKB 19 & V₃ -GFB-1, two nitrogen levels viz., N₁ – 100 % RDN & N₂ - 150 % RDN and three cutting management viz., C₁- No Cutting (Harvested purely for grain), C₂:Single cut at 40 days after sowing for fodder and left for grain & C₃: Two cuts (1st cut at 40 days after sowing and 2nd cut on 40 days after 1st cut for green fodder and later left for grain). The crop was dressed with common dose of 60 kg P₂O₅ & 40 K₂O. The Experiment was laid out in FRCBD and replicated thrice.

Results and Discussion

In Pooled analysis, the variety BAIF-Bajra-1 recorded significantly higher GFY (208 q/ha), grain yield (8.84 q/ha) and net monetary returns (27197 Rs/ha). This is mainly due to higher plant height, more number of tillers and leaf stem ratio (Table 1 & 2). (Hooda *et al.*, 2004).

Crop harvested two times for green fodder (C₂) recorded higher GFY (288 q/ha) and harvested purely for grain purpose recorded higher green yield (12.7 q/ha). The crop harvested one time for green forage yield and left it for grain purpose recorded higher net monetary returns (28133 Rs/ha) in pooled analysis. The higher net monetary returns is mainly due to higher green forage and grain yield. (Shekara and Lohithaswa, 2009)

Application of 150 N kg/ha recorded significantly higher green forage (215 q/ha), dry matter (51.5 q/ha), crude protein (3.26 q/ha), grain yield (9.08 q/ha), net monetary returns (25329 Rs/ha) (3.23) in pooled analysis. This is mainly due to higher GFY. (Smitha Patel, 2014).

Table 1: Pooled data of Biomass, Crude protein yield & Economics of dual purpose Bajra

Treatment	Green fodder yield (q/ha)	Dry matter yield (q/ha)	Crude protein yield(q/ha)	Grain yield (q/ha)	Net returns (Rs./ha)	B: C ratio
	Mean	Mean	Mean	Mean	Mean	Mean
Varieties (V)						
V ₁ = BAIF Bajra 1	208	44.8	2.64	8.84	27197	3.58
V ₂ = AVKB 19	178	41.9	2.54	6.33	16722	2.6
V ₃ = GFB 1	185	43.3	2.63	7.89	22750	3.19
S. Em±	5.16	1.59	0.09	0.3	-	-
CD at 5%	14.9	-	0.19	0.87	-	-
Cutting management (C)						
C ₁	0	0	0	12.7	14731	2.48
C ₂	283	64.5	3.71	6.93	28133	3.72
C ₃	288	65.5	4.1	3.93	23757	3.16
S. Em±	5.16	1.59	0.09	0.3	-	-
CD at 5%	14.9	4.58	0.2	0.87	-	-
Nitrogen levels (N)						
N ₁ (100 kg N/ha)	166	35.2	1.95	6.29	18469	2.62
N ₂ (150 kg N/ha)	215	51.5	3.26	9.08	25329	3.23
S. Em±	4.69	1.3	0.07	0.24	-	-
CD at 5%	13.5	3.74	0.2	0.71	-	-
Interaction	*	*	*	*		

Conclusion

Results inferred that pearl millet harvested for first cut at 40 days after sowing for green fodder and left for grain purpose found sustainable and economical.

References

- Hooda, R. S., Harbir Singh and Anil Khippal. 2004. Cutting management and Nitrogen effects on green fodder, grain and stover yield and economics of pearl millet cultivation during summer. *Forage Res.* 30 (3): 118-120.
- Shekara, B. G. and H. C. Lohithaswa. 2009. Fodder and seed yield of forage pearl millet genotypes as influenced by different levels of nitrogen. *Forage Res.* 35 (1): 45-47.
- Smitha Patel, P. A. 2014. *Performance of oat genotypes as influenced by cutting interval and nitrogen levels under fodder-food production system in northern transitional zone of Karnataka.* Ph. D Thesis, Univ. Agric. Sci., Dharwad.

Acknowledgement

The authors are grateful to the Indian Council of Agricultural Research (ICAR) - AICRP on Forage Crops and utilisation for financial support to study field research work at Zonal Agricultural Research Station V C Farm, Mandya UAS, GKVK Bangaluru.