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Effect of N and P on Yield, Quality, Uptake of Nutrients and Economics of Fodder Sorghum Varieties

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A field experiment was conducted at the Agronomy Farm, Gujarat Agricultural University, Junagadh during *rabi* season of 1992-93. The soil was clayey in texture and slightly alkaline in reaction (pH 7.8) with normal E.C. (0.33 dS/m) having low available nitrogen (226 kg/ha), medium available phosphorus (28.7 kg/ha) and medium available potassium (210 kg/ha). Two sorghum varieties viz., GFS-4 and Gundari as main plots and four levels of nitrogen viz., 0, 20, 40 and 60 kg N/ha and three levels of phosphorus viz., 0, 20 and 40 kg P_2O_5/ha as sub-plots were tried in split plot design with three replications. The crop was sown on November 5, 1992 with inter row spacing of 30 cm using 60 kg/ha seed rate.

Green and dry fodder yields were significantly higher in GFS-4 than variety Gundari. Protein yield and uptake of N and were significantly higher with variety GFS-4, however, contents of protein, N and P remained unaltered among both the varieties. Crude fibre content was lower in GFS-4 than variety Gundari. The variety GFS-4 also secured higher net profit of Rs. 1252/ha over variety Gundari. The findings are in confirmity with those reported by Vekaria (1989).

Green and dry fodder yields were significantly increased with each increment in level of N from 0 to 60 kg N/ha. The findings lends support of Vekaria (1989). Protein content, protein yield, content and uptake of N and P uptake were significantly increased with incremental level of N, however, P content remained unaffected. Crude fibre content was significantly decreased with each successive increase in N dose. Similar results were also obtained by Patel (1991). Maximum net return of Rs. 5233/ha was secured under 60 kg N/ha. These results are in complete agreement with the results obtained at Forage Research Station, Dhari (Gujarat).

Application of 40 kg P_2O_5/ha produced significantly higher green and dry fodder yields over control, but it was at par with 20 kg P_2O_5/ha. Protein yield, N uptake, P content and P uptake were significantly increased with P application upto 40 kg P_2O_5/ha, but 40 and 20 kg P_2O_5/ha levels were at par in respect of

TABLE 1

Effect of different treatments on yield quality, uptake of nutrients and economics.

Treatments	Fodder yield (q/ha)		Protein content (%)	Protein yield (kg/ha)	Crude fibre (%)	N content (%)	N uptake (kg/ha)	P_2O_5 content (%)	P_2O_5 uptake (kg/ha)	Net return (Rs/ha)
	Green	Dry								
Variety										
GFS-4	218	76	6.4	489	31.1	1.020	78.3	0.162	12.3	3951
Gundari	182	63	6.3	397	32.7	1.001	63.5	0.158	10.0	2699
C. D. at 5%	28	8	NS	71	1.3	NS	11.4	NS	2.2	—
Nitrogen (kg/ha)										
0	130	45	5.8	262	33.1	0.930	41.9	0.158	7.2	1192
20	182	63	6.2	388	32.2	0.991	62.1	0.160	10.2	2739
40	226	78	6.5	511	31.5	1.040	81.7	0.161	14.6	4154
60	261	90	6.6	611	30.8	1.081	97.8	0.161	14.6	5233
C. D. at 5%	14	4	0.2	31	0.6	0.030	4.9	NS	0.8	—
Phosphorus (kg P_2O_5/ha)										
0	166	57	6.3	367	32.0	1.006	58.8	0.144	8.3	2551
20	216	74	6.3	478	31.9	1.010	76.4	0.167	12.5	3952
40	219	75	6.3	484	31.8	1.014	77.5	0.169	12.8	3584
C. D. at 5%	12	3	NS	27	NS	NS	4.2	0.005	0.7	—

N uptake. Protein content, N content and fibre content remained unaffected due to P levels. The results are in harmony with those of Patel (1991). Application of 20 kg P_2O_5/ha realised highest net return of Rs. 3852/ha closely followed by 40 kg P_2O_5/ha (Rs 3584/ha).

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