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Short Communications

Effect of Nipping and Levels of Phosphorus on Yield and Economics of Gram in Clayey Soils of South Gujarat

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A field experiment was conducted at the College Farm, Gujarat Agricultural University Campus, Navsari during *rabi* seasons of 1980-81 and 1981-82 to study the effect of nipping and levels of phosphorus on yield and economics of gram var., Dahod yellow. The experiment was laidout in randomised block design with factorial approach with four replications. The treatments included 12 combinations between four levels of phosphorus (0, 25, 50 and 75 kg P_2O_5/ha) and three stages of nipping (no nipping, nipping at 20 days and at 20 and 40 days after sowing). The soil of the experimental field was clayey in texture (61 per cent clay) with pH 7.9 and organic carbon 0.70 per cent. The available P_2O_5 and K_2O was 20 and 378 kg/ha, respectively. The crop was sown on 20th of November and harvested on 8th of March, during both the years. The sowing of the crop was done at 30 x 15 cm spacing with a seed rate of 60 kg/ha. A basal dose of 25 kg N/ha was given. Three irrigations each of 6 cm depth were given at branching, flowering and pod formation stages.

The results obtained as influenced by various treatments and values of Incremental Cost Benefit Ratio (ICBR) for various levels of phosphorus (Table 1) revealed that the differences in grain yield due to various levels of phosphorus were turned out to be significant during both the years and combined over years. Grain yield obtained with 50 kg and 75 kg P_2O_5|ha were at par, however, these treatment were significantly superior to 25 kg P_2O_5 |ha and control. Latter two treatments also differed significantly from each other. These results are in agreement with the results reported by Sharma and Yadav (1976) and Panwar *et al.* (1977). The magnitude of increase in grain yield with 50 kg P_2O_5|ha over control and 25 kg P_2O_5|ha comes to the tune of 75.7 and 37.1 per cent, respectively.

Effect of nipping and the interaction effect due to levels of phosphorus and nipping were non-significant as also reported by Singh (1973).

The net profit|rupee invested was the highest (1:3.79) with 50 kg P_2O_5|ha followed by 25 kg P_2O_5|ha (1:2.09). Further increase in the dose of P_2O_5 @ 75 kg|ha resulted in tremendous reduction in net ICBR value. It is concluded that for getting economical higher grain yield of gram under irrigated condition, application of 50 kg P_2O_5|ha is sufficient. However, under short supply situation of phosphatic fertilizer, a dose of 25 kg P_2O_5|ha would be worthwhile.

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TABLE 1

Grain yield of gram and net ICBR values as influenced by various treatments.

Treatments	*Grain yield (g/ha)*		*Pooled*	*Net ICBR*
	1980-81	1981-82		
P_2O_5 (kg/ha)				
0	8.06	6.41	7.23	—
25	10.43	8.21	9.32	1:2.09
50	13.84	11.26	12.55	1:3.79
75	14.31	11.66	12.98	1:0.37
S. Em. ±	0.50	0.48	0.34	
C. D. 5%	1.45	1.43	0.98	
Nipping				
No nipping	11.14	9.17	10.15	
Nipping at 20 DAS	11.65	9.66	10.65	
Nipping at 20 and 40 DAS	12.19	9.33	10.76	
S. Em. ±	0.38	0.21	0.25	
C. D. 5%	NS	NS	NS	

Interactions were non-significant.

DAS = Days after sowing

Price of P_2O_5 Rs. 6.75/kg

Price of grain Rs. 250/q

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