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Short Communications

Effect of Phosphatic Biofertilizers on Conjuction with Manure and Fertilizer on Pearlmillet

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A field experiment was conducted at Agronomy Farm, Gujarat Agricultural University, Junagadh during *kharif* season of 1991. The soil was clayey in texture, medium in nitrogen (0.064%), phosphorus (30.8 kg/ha) and potassium (156 kg/ha) and slightly alkaline in reaction (pH 7.9) with normal E.C. (0.27 ds/m). The treatments consisting two levels of FYM (0 and 10 t/ha) as main plots and combinations of three levels of biofertilizer (control, *Pseudomonas striata,* inoculant and *Paecilomyces fussisporus* inoculant) and four levels of phosphorus (0, 20, 40 and 60 kg P_2O_5/ha) as subplots were tried in a split plot design with four replications. Half dose of N and full dose of P in form of urea and SSP, respectively were applied at the time of sowing and remaining half dose of N was top-dressed at tillering stage. The crop was sown on July 4, 1991 and harvested on October 19, 1991. Pearlmillet variety GHB-181 was sown at row spacing of 45 cm using seed rate of 3.750 kg/ha.

Higher grain and stover yields of pearlmillet were recorded with application of FYM @ 10 t/ha which were 17.5 and 31.6% higher over control respectively. The results are in agreement with those reported by Kala *et al.,* (1988). Significantly higher protein content and uptake of N, P_2O_5 and K_2O by pearlmillet were observed under application of FYM @ 10 t/ha. Addition of FYM in soil having medium status of nutrients might have increased availability of macro and micro nutrients by improving root rhizosphere which ultimately enhanced removal of N, P and K as well as crop yield. The findings are in agreement with those of Sharma *et al.,* (1988). Application of FYM recorded lower net realization and B:C ratio as compared to no application of FYM.

Significantly higher grain and stover yields were recorded under inoculation with *P. striata* which were 13.00 and 11.6% higher over uninoculated control, respectively. Similar results were reported by Gaur (1990). Significantly the highest protein content was recorded under seed inoculation with *P. striata.* The uptake of N and P_2O_5 was significantly influenced by seed inoculation with *P. striata.* However, uptake of K_2O remained unaffected

TABLE 1

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

Treatments	*Grain yield (q/ha)*	*Stover yield (q/ha)*	*Protein content (%)*	*N uptake (kg/ha)*	*P_2O_5 uptake (kg/ha)*	*K_2O uptake (kg/ha)*	*Net return (Rs/ha)*	*Net B:C ratio*
FYM (t/ha)								
0	16.49	38.71	11.93	59.66	6.60	42.03	3515	1.33
10	19.38	46.48	12.06	73.36	8.12	56.23	3404	0.89
C.D. at 5%	0.96	5.41	0.07	9.13	0.97	4.19	—	—
Biofertilizer								
Control	17.14	41.00	11.95	62.45	6.77	47.33	3766	1.42
Pseudomonas striata	19.37	45.74	12.05	71.87	8.36	51.81	4563	1.71
Paecilomyces fussisporus	17.30	41.04	11.98	65.21	6.97	48.23	3791	1.42
C. D. at 5%	1.26	2.29	0.06	3.58	0.54	NS	—	—
Phosphorus (kg P_2O_5/ha)								
0	14.41	35.81	11.90	53.99	5.01	35.67	2758	1.04
20	17.14	40.99	11.94	63.26	6.77	45.25	3577	1.26
40	19.77	46.49	12.03	73.10	8.77	57.70	4365	1.45
60	20.43	47.49	12.10	75.69	8.90	57.88	4414	1.38
C. D. at 5%	1.46	2.64	0.07	4.14	0.63	4.63	—	—

due to inoculants. Maintenance of higher population of efficient P solubilizers in rhizosphere might have produced chelating compounds which remove cations from insoluble phosphate and release soluble P and thereby increased uptake of P as well as N due to balanced nutrition resulting in higher dry matter production. The results are in line with the reports of Mohod *.et al.* (1991). Biofertilizer *P. striata* recorded the maximum net realization of Rs. 4563/ha and B:C ratio of 1.71 which were Rs. 797/ha and 0.29 higher over uninoculation, respectively.

The application of P significantly increased grain and stover yields. The highest grain and stover yields were recorded with 60 kg P_2O_5/ha which remained at par with 40 kg P_2O_5/ha. This finding is in agreement with that reported by Keshwal and Jat (1992). Significantly the highest protein content as well as uptake of N, P_2O_5 and K_2O were recorded with the highest level of P, however remained at par with 40 kg P_2O_5/ha. the results are in accordance with those of Pareek and Shaktawat (1988). P application might have increased root density leading to higher absorption of nutrients by plant and thereby improved quality and yield of the crop. The highest net realization of Rs. 4414/ha was recorded with 60 kg P_2O_5/ha closely followed by 40 kg P_2O_5/ha which recorded Rs. 4365/ha of net realization with the highest B:C ratio of 1.45.

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