

Research Note

Integrated phosphate management in mung –wheat sequential cropping

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(Accepted :May, 2007)

Green gram or mung bean(*Vigna radiata* L.) is a leguminous pulse crop , grown principally for its protein rich edible seeds. It is one of the most important pulse crops in Indian agriculture. It occupies a prominent place and is gaining increasing popularity by virtue of its high nutritional value, short growth period, high tonnage capacity and adaptability to off-season.

Green gram offers good potential in the cropping sequences. Being a energy rich , short duration crop left over moisture and nutrients in the soil after its harvesting can be utilized for succeeding crops like wheat, chickpea etc. Wheat is an important food crop next to paddy. In the country wheat occupies an area of 25.6 million hectare with a production of 71.45 million tones,. What being cereal and fertilizer intensive crop, can be utilized the left over moisture and nutrients effectively. With this object, the present investigation entitled “Integrated phosphate management in Mung-Wheat Sequential Cropping” was conducted at Pulses Research Unit, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, M.S. during 2002-2003.

The soil of the experimental site was medium deep,

black in colour and clayey loam. It was medium in available N (285Kg ha⁻¹), low in available P₂O₅ (16.74Kg per hectare), rich in available K₂O (378Kg per hectare) having 0.46 per cent organic carbon with a pH of 8.4 and EC of 0.315dSm⁻¹. The experiment was arranged in RBD with 10 treatments replicated thrice. Treatments consisted of three levels of phosphate (0,20and 40Kg per hectare), two sources (DAP and rock phosphate) with and without phosphate solubilizing bacteria (PSB). Green gram (AKM 8802) was drilled sown on 29th June 2002 at 30 cm distance. Seeds were treated with PSB (25g Kg⁻¹ seed) before sowing as per the treatments. The crop was raised with recommended package of practices, except fertilizers, which were provided as per the treatments. Except control, all the treatments received N at 25 Kg per hectare and was adjusted in the treatments where phosphate was supplied through DAP. Green gram was harvested by plucking the pods. Succeeding wheat (AKW 1071) was drilled on 13th November 2002 to streamline the residual effect of phosphate applied to green gram. Wheat was raised with recommended package of practices and harvested on 6th March 2003.

Table 1: Yield attributes and yield of green gram and wheat yield as influenced by various treatments.

Tr. No.	Treatment details	Green gram				Wheat		
		No. of pods plant ⁻¹	No. of grains pods ⁻¹	Wt. of grains plant ⁻¹	Grain yield (Kgha-1)	No. of grains ear head	Test Weight (g)	Grain yield (Kgha-1)
T ₁	Absolute control	9.60	8.47	2.82	538	39.40	41.1	3939
T ₂	P20 Rock phosphate	10.00	8.66	3.10	579	43.40	41.6	4350
T ₃	P20 DAP	10.93	8.82	3.30	603	43.06	41.5	4269
T ₄	P40 R/ P	12.06	9.10	3.63	684	46.93	42.2	4814
T ₅	P40 DAP	12.80	9.55	3.72	706	46.13	42.1	4754
T ₆	PSB alone	9.73	8.51	2.86	572	41.06	41.4	4044
T ₇	P20R/P+ PSB	10.40	8.86	3.25	613	42.20	41.5	4175
T ₈	P20DAP+ PSB	11.00	8.90	3.41	634	42.00	41.5	4044
T ₉	P40R/P+ PSB	12.85	9.42	3.68	744	44.20	41.8	4441
T ₁₀	P40DAP+ PSB	13.06	10.13	3.91	763	44.50	41.7	4592
CD (P=0.05)		1.05	N.S.	0.37	71	0.56	N.S.	501

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