



Effect of potash fertilization and foliar spray of vermiwash on growth and yield of green gram (*Vigna radiata* L.)

A.V. KHAIRNAR AND B.S. GUNJAL*
College of Agriculture, DHULE (M.S.) INDIA

Key Words : Potash fertilization, Foliar spray, Vermiwash, Green gram

View Point Article : Khairnar, A.V. and Gunjal, B.S. (2012). Effect of potash fertilization and foliar spray of vermiwash on growth and yield of green gram (*Vigna radiata* L.). *Internat. J. agric. Sci.*, 8(1): 307-308.

Article History : Received : 12.05.2011; Accepted : 09.11.2011

A lot of research has been done on green gram on various aspects, but research information regarding potassium requirement and foliar spray of vermiwash in summer green gram is very meagre. In view of this, current investigation was planned for study of potassium and vermiwash response during summer 2005 at postgraduate farm, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar.

An experiment was laid out in a factorial randomized block design (FRBD) with eight treatment combinations of four potassium levels (0, 25, 37.5 and 50 kg K₂O ha⁻¹) and foliar spray of vermiwash (@ 50 ml lit. ha⁻¹) and water replicated thrice. Potassium levels along with recommended dose of fertilizer (25 : 50 kg P₂O₅ ha⁻¹) was given at the time of sowing. Vermiwash diluted in water was sprayed at 15, 35 and 50 days of crop age and at the same time water spray was given to remaining plots as per treatments.

The experimental soil was clayey in texture with low in available nitrogen, medium on phosphorus and high in available potassium and was slightly alkaline in nature.

The numbers of branches, number of clusters per plant and grain yield were significantly influenced by different potash levels and foliar spray of vermiwash treatments (Table 1).

The mean number of branches per plant was significantly highest in treatment with 50 kg K₂O ha⁻¹ (2.86, 3.02 and 3.41 at 40, 60 and DAS and at harvest, respectively) as compared to 0 and 25 kg K₂O ha⁻¹ at all the crop growth stages and was statistically at par with 37.5 kg K₂O ha⁻¹. Similar results were

obtained by Malik *et al.* (1986) and Rawal and Yadav (1986). Foliar spray of vermiwash was found to be significant for the number of branches over water sprays.

The mean number of clusters per plant were recorded maximum by 50 kg K₂O ha⁻¹ (4.76) was statistically at par with 37.5 kg K₂O ha⁻¹ (4.76) was statically at par with 37.5 kg K₂O ha⁻¹ (4.58). Similar results were observed by Manjhi *et al.* (1978), Singh *et al.* (1995).

The mean grain yield was significantly highest at 50 kg K₂O ha⁻¹ (10.86 q ha⁻¹) as compared to 0 and 25 kg K₂O ha⁻¹ and was statistically at par with 37.5 kg K₂O ha⁻¹ (10.75 q ha⁻¹) with foliar spray of vermiwash. Similar results were obtained by Akhtar *et al.* (1984), Jamdagni and Birari (1994). Grain yield was significantly higher (10.42 q ha⁻¹) with the application of vermiwash as compared to water spray.

The interaction effect of potash levels and foliar spray was found to be non-significant on number of branches, number of cluster per plant and grain yield.

* Author for correspondence.

Table 1 : The number of branches, number of cluster plant⁻¹ and grain yield of green gram as influenced by different treatments

Treatments	Branches plant ⁻¹ at harvest	Clusters plant ⁻¹	Grain yield (q ha ⁻¹)	Straw yield (q ha ⁻¹)	Gross monetary returns (Rs. ha ⁻¹)	Cost of cultivation (Rs. ha ⁻¹)	Net monetary returns (Rs. ha ⁻¹)	B:C ratio
Potash levels :								
P ₁ : 0 kg K ₂ O ha ⁻¹	2.65	3.69	8.66	10.74	17191.20	9531.54	7659.66	1.80
P ₂ : 25 kg K ₂ O ha ⁻¹	3.04	4.23	9.93	12.31	19782.78	9688.86	10093.91	2.04
P ₃ : 37.5 kg K ₂ O ha ⁻¹	3.26	4.58	10.75	13.34	21356.98	9752.84	11604.14	2.19
P ₄ : 50 kg K ₂ O ha ⁻¹	3.41	4.76	10.86	13.83	21622.83	9817.12	11805.72	2.20
C.D. (P=0.05)	0.17	0.22	0.67	0.66	1084.29	5.30	1084.32	0.11
Foliar spray :								
F ₁ : Vermiwash	3.23	4.51	10.42	13.11	20870.68	9706.17	11164.50	2.15
F ₂ : Water	2.96	4.12	9.68	12.00	19106.21	9689.00	9417.21	1.97
C.D. (P=0.05)	0.15	0.16	0.47	0.47	766.71	3.74	766.73	0.08
Interaction :								
C.D. (P=0.05)	NS	NS	NS	NS	NS	NS	NS	NS

NS=Non-significant

REFERENCES

- Akhtar, Mahboob, Mohmmad, Yasin, Nasir, M.S. and Hussain, S. (1984).** Effect of phosphorous and potassium application on yield of mungbean, *J. Agric. Res.*, **22**(4) : 321-325.
- Jamadagni, B.M. and Birari, S.P. (1994).** Yield response of cowpea to varying levels of potassium and phosphorus on lateritic soils of Konkan region. *J. Potassium Res.*, **10**(2) : 192-195.
- Malik, M.A., Iqbal, R.H., Ajob, M. and Sabir, M.R. (1986).** Effect of various combination of macronutrients on growth and yield of blackgram. *J. Agric. Res. Pakistan*, **24**(3) : 185-188.
- Manjhi, S., Choudhary, S.L. and Kavitar, A.G. (1978).** Influence of varieties, planting dates, row spacing and fertilizer nutrients of pigeonpea. *Indian J. Agric. Sci.*, **43** (11) : 998-1001.
- Rawal, O.R. and Yadav, G.L. (1986).** Fertilizer requirement of gram under dryland conditions on cultivators field in Chittargarh. *Legume Res.*, **9** (2) : 103-105.
- Singh, A.K., Raju, V.N. and Singh, J.P. (1995).** Effect of potassium, zinc and ferrous on yield, protein harvest and nutrient uptake in french bean. *J. Potassium Res.*, **11**(1) : 75-80.

*_*_*_*_*_*_*_*_*_*