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A NOTE ON THE EFFECT OF MAGNESIUM AND MOLYBDENUM ON SOYBEAN YIELD

Considering the importance of magnesium and molybdenum on the soybean yield and the fact that no systematic studies have been undertaken on these lines in Kerala an experiment was carried out at the College of Agriculture Vellayani in 1975.

The study was conducted as a pot culture experiment using the red loam soil collected from the farm attached to the college of Agriculture, Vellayani. The soil contained 0.698 per cent total nitrogen with a pH of 5.5. The treatments consisted of four levels of magnesium (0, 75, 150 and 300 kg MgO per hectare) and four levels of molybdenum (0, 0.25, 0.5 and 1 kg sodium molybdate per hectare). Two varieties of soybean namely *Improved Pelicon* and *Bragg* were used for the experiment.

The data on the mean yield of grain per plant are given in Table 1. The data revealed the significant effect of graded doses of magnesium and molybdenum on the soybean yields. Varieties also showed significant variations between themselves under the different levels of the two nutrients. In addition the various interactions were also found to be significant.

From the data it is seen that the treatment 75 kg MgO per ha significantly increased the yield in both varieties. But with regards to molybdenum, varietal variation was also noticed. When the treatment, 0.5 kg Mo/ha has produced the highest yield in the *Improved Pelicon* 0.25 kg Mo/ha was significant over the other levels, except the 0.5 kg Mo/ha level, in the case of other variety. Among the various interactions Mg, Mo (75 kg MgO and 0.25 kg sodium molybdate/ha respectively) has produced the maximum yield of 6.66 kg per plant. The variety *Improved Pelicon* has given the highest yield under both magnesium and molybdenum over the other variety *Bragg*,

The favourable influence of molybdenum on soybean has been reported by many workers (Bosswell and Anderson, 1959 and Demooy, 1970). The results of the present experiment also brings out the importance of magnesium and molybdenum on soybean nutrition.

Table 1
Mean grain yield in g/plant

Levels of magnesium as magnesium oxide	Varieties		Mean
	Improved	Pelicon	
0 kg/ha	5.54	3.82	4.68
75 kg/ha	6.76	4.81	5.79
150 kg/ha	6.14	4.53	5.34
300 kg/ha	4.75	3.68	4.22
Mean	5.81	4.21	5.01

Levels of molybdenum as sodium molybdate	Improved	Pelicon	Mean
0 kg/ha	5.20	2.66	3.93
0.25 kg/ha	5.96	4.91	5.44
0.5 kg/ha	6.20	4.88	5.54
1.0 kg/ha	7.80	4.38	5.09
Mean	5.80	4.21	5.01

Levels of molybdenum as sodium molybdate	Levels of magnesium as magnesium oxide				Mean
	0 kg/ha	75 kg/ha	150 kg/ha	300 kg/ha	
0 kg/ha	3.93	4.56	3.84	3.44	3.88
0.25 kg/ha	4.47	6.66	5.68	4.91	5.43
0.50 kg/ha	5.80	6.38	5.25	4.75	5.54
1.00 kg/ha	4.55	5.50	6.58	3.77	5.08
Mean	4.68	5.79	5.34	4.22	5.01

D (0.05) for levels of magnesium : 0.115
 , , , for molybdenum : 0.115
 , , , for varieties : 0.112
 for interaction between Mg and Mo. : 0.296
 , , Mg and varieties : 0.204
 Mo and varieties : **0.204**

സംഗ്രഹം

സോയാബീൻ ചെടികൾക്കു മെഗ്നീഷ്യം മോളിബ്ഡിനം എന്നീ മൂലകങ്ങൾ വിവിധ അളവിൽ നൽകുമ്പോൾ ഉണ്ടാകുന്ന പ്രതികരണം അറിയുന്നതിനായി കാർഷിക കോളേജിൽ 1975-ൽ ഒരു പരീക്ഷണം നടത്തുകയുണ്ടായി. രണ്ടിനം സോയാബീൻ ചെടികളാണ് പരീക്ഷണത്തിന് വിധേയമാക്കിയത്. അവയിൽ പെലിക്കൻ എന്ന ഇനമാണ് കൂടുതൽ നന്നായിക്കണ്ടത്. മെഗ്നീഷ്യവും മോളിബ്ഡിനവും ചേർക്കുന്നതിനനുസരിച്ചു വിളവു വർദ്ധിക്കുന്നതായി അനുഭവപ്പെട്ടു.

REFERENCES

- Bosswell, F. C. and Anderson, O. E. 1969. Effect of time of application of molybdenum on yield and on nitrogen and molybdenum contents. *Agron. J.* **61**, 58-60.
- Demeoy, C. J. 1970. *Agron. J.* **62**, 195-197.

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