

## Effect of calcium and sulphur on the growth and yield of mungbean [*Vigna radiata* (L.) Wilczek]

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### SUMMARY

The effect of calcium and sulphur was studied on plant height (cm), number of leaves, leaf area (sq.cm.), dry weight, number of pods, yield of seed per plant and 1000 seeds weight of mungbean (*Vigna radiata* L.) var. PDU-54 and PU-44. The experiment was conducted at C.C.R. (P.G.) College, Muzaffarnagar, (U.P.) during the years 2002-2003. Simple Randomized Block Design was followed with 4 concentrations of calcium, 4 concentrations of sulphur along with control and 4 replications. The doses of calcium were 25ppm, 50ppm, 100ppm and 200ppm. The concentrations of sulphur were 25ppm, 50ppm, 75ppm and 100ppm. The results were found significant for both the varieties of mungbean.

**Key words :** Calcium, Sulphur, Mungbean (*Vigna radiata*), ZnSO<sub>4</sub>, Mg, Chlorophyll

India is a major pulse growing country in the world and shares approximately 38-40% area under cultivation and 29-30% total production at world level.

Mungbean is generally grown in summer and *Kharif* seasons in U.P. The yield of mungbean in *Kharif* season is very low due to the attack of yellow mosaic virus (Y.M.V.).

Pandey and Singh (2000) studied the growth pattern in relation to yield in mungbean (*Vigna radiata* (L.) Wilczek). To elucidate the nature of growth pattern in relation to yield in mungbean, 10 diverse genotypes were planted in summer and *Kharif* at Meerut (Uttar Pradesh) under two environments, with (20N:40P:40K) and without fertilizers. Data on plant height at flowering and harvest, and harvest index were recorded. It was concluded that early vegetative growth has no direct impact on grain yield, and that plant height at and after flowering should receive attention as selection criteria. The results are contrary to the concept of completion between foliar development and grain, indicating that vigorous growth after anthesis should be encouraged. The correlation between total plant dry matter and grain was significant. Further, the coefficient of determination shows that the contribution of total plant dry matter to gain yield was 50% in *Kharif* season and 20% in summer season. These findings suggest that in order to attain maximum grain yield,

vigorous plant growth is a prerequisite.

Besides, asynchronous flowering, maturity and shedding of flowering buds, there are also some of the important factors resulting in the low productivity of pulses. This situation could be improved if the cultivation of these crops becomes more remunerative in comparison to cereal crops and simultaneously by adopting an innovative breeding strategy. For instance, by working out the genetic architecture pertaining to these traits for breeding ideal genotypes, which may help in increasing the pulse production and productivity significantly. Considerable variation for productivity exists between important pulses growing countries in the region. In order to ensure "household nutritional security". As per recommendation of the International Conference on Nutrition (ICN), concerted efforts are needed at this stage to improve further the quality and productivity of pulse crops in most of the pulse growing countries as Asia (Paroda, 1994).

### MATERIALS AND METHODS

The seeds of mungbean cv. PDM-54 and PU-44 were obtained from I.I.P.R. (Indian Institute of Pulse Research), Kalyanpur, Kanpur. The experiments were conducted in Randomized Block Design with four replications at C.C.R. (P.G.) College, Muzaffarnagar (U.P.) during the years 2002-2003. Four concentrations of calcium and four concentrations of sulphur along with control were taken. The solutions of calcium and sulphur were sprayed fortnightly after one month of sowing the crop. The concentrations of calcium were 25ppm, 50ppm, 100ppm and 200ppm while the concentrations of sulphur were taken as 25ppm, 50ppm, 75ppm and 100ppm.

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