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Effect of calcium and sulphur on the growth and yield of urdbean [*Vigna mungo* (L.) Hepper]

ANUJ KUMAR, DEVENDRA KUMAR AND K.P.S. ARYA

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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 per plant, number of pods per plant, seed yield per plant and 1000 seeds weight (Test weight) of urdbean (*Vigna mungo* L.) var. PDU-1 and PU-19. 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 urdbean.

Key words : Calcium, Sulphur, Urdbean, PDU-1, PU-19 $FeSO_4$, $MnSO_4$, $ZnSO_4$, H_2SO_4

In Uttar Pradesh the cultivation of urdbean is done in summer and *kharif* seasons. The major division in which urdbean is grown are Lucknow, Faizabad, Bareilly, Jhansi, Fatehpur, Varanasi, Unnao, Raibareily and Pratapgarh. The cultivation area and production have been discussed by Kushwah and Nagar (2006).

At present urdbean and mungbean are the second largest protein producing legume crops of the world whereas, soybean and groundnut rank first position. Since they contain about 23-25% protein in their grain, they could provide an answer to the problem of protein deficiency as well as protein malnutrition (Rosario *et al*., 1980)

Since seed is the carrier of production technology, adequate quantity of good quality seed should be made available to the farmers for realizing the impact of hybrid technology on agriculture production. The concept of seed quality includes several aspects like germination, vigour, seed health etc. with ultimate purpose of obtaining optimum plant stand for good economic yield.

Alfaia and Murako (1998) reported the residual effect of lime and micronutrients under a rotation of soybean, rice and cowpea. The treatments were 0, 2, 3 and 5 t/ha of lime and 3 and 5t/ha of lime plus micronutrients. Significant increase in yield were obtained with lime and micronutrients.

MATERIALS AND METHODS

The present trials were conducted at C.C.R. (P.G.) College, Muzaffarnagar (U.P) during the year 2002-2003. The seeds of urdbean var. PDU-1 and PU-19 were obtained from I.I.P.R. Kanpur. The seeds were pre-soaked in different concentrations of calcium and sulphur for 12 hours. They were washed thoroughly with tap water and were sown in petridishes for germination test. The seeds (untreated) were sown directly in the plots in Randomized Block Design was followed with four replications. After 30 days of sowing the crop was sprayed with different concentrations of calcium and sulphur solutions.

The concentrations of calcium and sulphur were recorded as 25ppm, 50ppm, 100ppm and 200ppm for calcium, 25ppm, 50ppm, 75ppm and 100ppm for sulphur.

Symbols of treatments:

T_1 – 25ppm Ca	T_5 – 25ppm S
T_2 – 50ppm Ca	T_6 – 50ppm S
T_3 – 100ppm Ca	T_7 – 75ppm S
T_4 – 200ppm Ca	T_8 – 100ppm S
	T_9 – Control (c)

The main characters studied were plant height (cm), number of leaves/plant, leaf area (sq.cm.)/plant, dry weight (g)/plant, number of pods/plant, yield of seed/plant and 1000 seeds weight (Test weight)

The data were collected from 3 plants and then they were averaged for each treatment. The height (cm) was recorded with the help of meter scale and leaf area was calculated with the help of planimeter. The data were statistically analysed at I.A.R.I., New Delhi. The results of the findings were interpreted with C.D. at 5% level of significance.

RESULTS AND DISCUSSION

The results regarding the effect of calcium and

Correspondence to:
K.P.S. ARYA, R.M.P. (P.G.) College, Narsan, HARDWAR (UTTARAKHAND) INDIA
Authors' affiliations:
ANUJ KUMAR AND DEVENDRA KUMAR, C.C.R. (P.G.) College, MUZAFFARNAGAR (U.P.) INDIA