EFFECT OF ROW SPACING AND DATES OF SOWING ON GROWTH AND YIELD OF LENTIL (*LENS CULINARIS*) UNDER NORTH EASTERN REGION OF U.P.

H. Singh, S. Elamathi and P. Anandhi

Department of Agronomy,
Allahabad Agricultural Institute-Deemed University, Allahabad-211 007, India.

ABSTRACT

A field experiment was conducted on sandy loam soil of Allahabad during the winter season of 2008-09. There was a significant reduction in seed yield with delay in sowing from 20th October to 10th November by a margin of 10.4%, row spacings of 30 cm (16.83 q/ha), resulted in 3.6% and 1% more seed yield than closer (20 cm) and wider (40 cm) row spacings respectively. Significantly higher yield was obtained in lentil sown on 20th October at 30 cm row spacing (17.14 q/ha).

Key words: Lentil growth, Yield, Row spacing, Sowing dates.

Lentil is an important food legumes grown during winter season throughout Indian continent under varied agro-ecological conditions, soil types and cropping system, in areas where winters are extremely cold. It is better preferred over chickpea and pea owing to its tolerance to frost. Due to lack of desired plant population, its average yield in the country is quite low as compared to its yield potential (18.20 q/ha). Yield of lentil can be increased by sowing at optimum time, at proper row spacing and by manipulating the seed rate particularly for its delayed sowing. Since information on these aspects is lacking in North Eastern region of U.P therefore the present investigation was carried out to find out the optimum row spacing and date of sowing.

A field experiment was conducted during the winter season of 2008-09 at the Central Research Farm, Department of Agronomy, Allahabad Agricultural Institute-Deemed University, Allahabad. The soil of the experimental field was sandy loam, neutral in pH (7.5) and medium in fertility for available nitrogen (13.50 kg/ha), phosphorus (9.00 kg/ha) and rich for available potassium (10.13 kg/ha).

Twelve treatments, comprising three row spacing (20, 30 and 40 cm) four sowing dates (20th October, 27th October, 3rd November, 10th November) were tested in factorial randomized block design with three replications.

Lentil Pusa-1 was sown after pre-sowing irrigation. Dates of sowing was done, but the plant population was maintained as per spacing. The entire dose of 20 kg N and 40 kg P₂O₅/ha was drilled at time of sowing. Two hand hoeing were given at 4 and 7 weeks after sowing in the rabi season to control weeds. The crop was harvested as per treatment maturity.

Row spacings: There was no significant difference in days to flowering due to row spacing. Different row spacings also significantly influenced number of pods/plant seed yield of lentil (Table 1). Row spacings of 30 cm resulted in significantly more number of pods and seed yield as compared to row spacing of 20 and 40 cm. The increase in seed yield in case of 30 cm row spacing was 3.6% and 1% over 20 cm and 40 cm row spacing respectively. Thus, optimum row spacing have optimally utilized the growth resources, particularly solar radiation as compared to narrow row spacing where plants might have suffered due to mutual shading in case of adjoining rows and more plants within case of wider spacing, it is corroborate with the finding of Singh and Varma (1999).
Sowing dates: Sowing time significantly influenced the days taken to flowering, maturity, plant height, pods/plant, 1000 seeds weight and consequently seed yield of lentil (Table 1). There was significant reduction in seed yield with each delay in sowing. Lentil sown on 20th October over 27th October and 3rd November and 10th November were 5.63, 7.76 and 12.0 respectively. However, the increase in seed yield in early sowing dates may be due to longer duration, more number of days taken for 50% flowering and longer duration of crop in early sowing might have led to the development of better sink by better utilization of growth resources. It is corroborated with the findings of Singh et al. (2003).

Interaction effects: The interaction effect between sowing dates and row spacings were significant. The crop sown on 20 October at row spacings, 30 cm gave significantly more yield than 3rd November and 10th November irrespective of the row spacing.

Economics: Delay in sowing from 20 October to 10 November reduced the gross and net income as well as benefit : cost ratio (Table 1), similarly, late sowing on 10 November drastically reduced the net income and benefit : cost ratio compared to sowings in October. Row spacings of 30 cm recorded higher gross income, net income and benefit : cost ratio compared to spacings (20 cm, 40 cm). The higher income and Benefit : cost ratio in 20th October with 30 cm spacing was due to higher seed yield.

REFERENCES