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Effect of Spacing on seed yield and oil-content of *Jatropha curcas* L. under Balrampur district condition

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SUMMARY

Jatropha curcas L. is an important bio-diesel yielding crop. In the present study, different spacing treatments were applied to see the effects on the yield and oil contents of seeds. The spacing treatment of 175cm x150 cm gave maximum seed yield per acre with maximum oil content while spacing treatment of 90cm x 90 cm. gave minimum seed yield and oil contents.

Key words : *Jatropha curcas* L., Spacing treatment, Seed yield, Oil content

Jatropha curcas L. is one of the prospective biodiesel yielding crop (Datta and Pandey, 1993) which belongs to family Euphorbiaceae. It is a multipurpose tree of significant ecomomic importance. All parts of Jatropha can be used in traditional medicine (Dilara and Nath, 2000). Leaves and tender stems are used as a folk dye by tribal people (Srivastava *et al.*, 2008). In the present study, different spacing treatments were applied to see the effects on the seed yield and oil content of seeds.

MATERIALS AND METHODS

The field experiment was conducted during 2003-04 and 2004-05 at research fields of M.L.K.(P.G.) College Balrampur and various localities of Balrampur Districts. Different spacing treatments were laid out in randomized block designs with three replications.

Nursery stocks were prepared in polybags of 22.5 cm x12.5 cm. Size. A mixture of sandy loam soil and bio compost were mixed in 1:1 ratio and filled into polybags. Seeds sowing were done in the last week of April. One to two bold and healthy seeds were sown in each polybags at the depth of 2.0- 3.0 cm and watered with rosecane to keep the soil moist.

The nursery plants were thoroughly watered to loosen the soil. Transplantation in fields were done during the rainy seasons of July- August in different block design *i.e.* 90cm x90 cm, 110cm x110 cm, 150 cm x150 cm and 175 cm x150 cm, respectively situated at different localities of Balrampur districts namely-Devtaha, Naharbalaganj, Bijlipur and Belha. The N.P.K. fertilizers were applied in different ratio after the establishment of seedling in field. All other cultural operations such as irrigation, training and pruning, hoeing and weedling were done time to time, whenever required.

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RESULTS AND DISCUSSION

The Flowering and fruiting occurred after 3rd Year of plantation under Balrampur district conditions. The data obtained in one year are given in Table 1 which indicates that plant height was significantly influenced by spacing treatment (Fig. 1). The maximum plant height (276 cm) was recorded with closest spacing (90cm x90 cm). Unlike plant height, branches per plant were significantly improved with increase in spacing as compared to closest spacing. The wider planting at 175cm x150 cm was found to be the most suitable for production of bold seed (648 g/ 1000 seeds), seed yield per acre (400 kg/acre), fruit length (3.66 cm) and fruit per raceme (12) in comparison to other treatments. The per cent oil content was also recorded and was found maximum (38.60%) in the spacing treatment of 175x150 cm. The results were significant

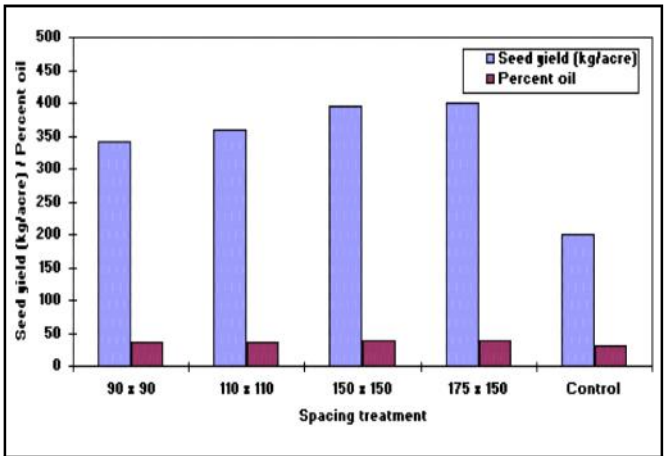

Fig. 1 : Effect of spacing on seed yield and oil content of *Jatropha curcas* L.