SUMMARY AND CONCLUSION
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Six field experiments on *Oenothera gratissima* were conducted in the research farm of Regional Research Laboratory, Jorhat, Assam during the calendar years beginning from 1980 to 1983. These experiments were designed to standardise the agrotechnological requirements for this plant in this region with a view to find out the optimum time of sowing (January to October), plant density (18,000 to 1,10,000 plants/ha), NPK fertilizer mixture (combinations of N$_{50}$, N$_{100}$, N$_{150}$ and N$_{200}$ kg/ha; P and K each at 50 and 100 kg/ha), micronutrients (Zn, B, Mo and Cu at 0 to 250 ppm), soil pH (4.48 to 7.2) and harvest management (4 to 8 cuttings in a year).

These experiments were laid out in randomised block design with appropriate number of replications. The experimental fields were limed to maintain a soil pH of 6.5, farm yard manure was applied @ 15 t/ha and NPK fertilizers @ 150, 50, 50 kg/ha respectively were added to the soil. Total nitrogen was divided into four equal parts and one fourth was applied together with the whole of P and K as basal dressing. The other three parts of N were applied after each herb harvest. The same procedure was followed in the second year of the crop.

Seeds were first sown in the nursery and seedlings were transplanted after 45 - 50 days to the main field at a spacing of 60 cm x 45 cm. Irrigation was given during the dry season as and when required. Crop was harvested by four herb
cuttings in each year for a period of two years. Five labelled plants were selected in each plot to record the data on growth and yield characters. The data were statistically analysed by Fisher's method of analysis of variance. Essential oil was estimated by oleavenger glass apparatus and eugenol per cent in the oil was determined by Gas Liquid Chromatogram for all the treatments under each cutting.

Conclusion:

1. The optimum sowing time of Ocimum gratissimum is March-April.
2. The optimum plant density is 49,000 plants per hectare. This density can be achieved by transplanting the seedlings at a spacing of 45 cm between rows and 45 cm between plants in the row.
3. Highest yields of herb, oil and eugenol are recovered from an application of 200 kg N/ha and 100 kg/ha each of P and K. But economically optimum requirements may be 200 kg N and 50 kg each of P and K per hectare.
4. Out of four micronutrients (Zn, B, Mo and Cu) tried in this experiment only the B and Mo as foliar spray at a concentration of 50 to 100 ppm a month before each cutting results in an increase in the oil content and eugenol per cent.
5. The optimum soil pH for this plant is 6.5.
6. Four herb cuttings per year at an interval of 90 days, record the highest yields of herb, oil and eugenol.
7. The herb cuttings coinciding with the warm humid season (from June to November) invariably produce higher yields of herb and oil with more eugenol content than those obtained during the cool dry season (November to May).