Short Communication

Effect of dates of transplanting on the growth and oil yield of Mentha arvensis L.

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A field study was conducted to determine the effect of dates of transplanting on the growth and oil yield of mentha arvensis L. Factorial Randomized Block Design (FRBD) with three replications. The Kushal, Himalaya, Saksham and Kosi cultivars were used as plant material. Menthol mint was transplanted at three dates (15th March, 30th March and 15th April). The study revealed that the crop transplanted on 15th March gave highest plant height (62.20 cm), fresh herb yield (226.50 q/ha), oil content (0.70%) and oil yield (137.00 kg/ha). The quality of oil as assessed by menthol content in oil was higher in 15th March transplanting compared to other transplanting dates.

Key words: Mentha cultivars, Transplanting, Agronomy aspect, Growth and yield parameters.

INTRODUCTION

Mints comprise a group of species of the genus Mentha belonging to the family Lamiaceae. Mints are commonly used as the source of fragrance and flavour especially for culinary preparations. Although many species of mints are being cultivated worldwide, only four species are predominantly cultivated in India. These include menthol mint (Mentha arvensis L. var. piperascens), Pepper mint (M. piperita), Bergamot mint (M. citrata) and Spearmint (M. spicata). Menthol mint (also referred as Japanness mint) is the most popular species commercially cultivated in India. It is extensively cultivated in India, China, Brazil, Japan, USA, France, Australia, Thailand and Argentina. In India, Menthol mint is cultivated in tarai and central regions of Uttar Pradesh, Punjab and Haryana, where it has proved a boon to growers and fitted well in some of the existing cropping systems. The area under this crop in the country is estimated to be about 1.5 lakh hectare with annual production of 14000 tones of oil. India is world’s largest producer and exporter of mint oil. Mentha arvensis L. is a native of Brazil and China. It is a perennial ascending herb growing about 60-80cm in height and under favorable conditions may attain a height up to 100cm. It is propagated mainly by stolons. Leaves are lanceolate-elong, sharply toothed; petiole is small about 5mm in length. Flowers are borne in axillary and terminal verticillaster, abundant in number, purplish in colour. The over ground herb (Foliage) on distillation yields an essential oil, containing high (75-80%) menthol content. Mint oil and menthol are primarily exported whereas other meets the home requirement of the industry. Among the various factors which effect time of transplanting are important keeping the above in view studies were undertaken to know the effect of date of transplanting on the growth and yield of Mentha arvensis.

MATERIAL AND METHODS

The experiment was carried out on Menthol mint at Central Institute of Medicinal and Aromatic Plants, Lucknow. Situated at 120 meter above mean sea level in the sub-tropical plains of north India. The soil of the experimental site is sandy loam. The annual mean maximum and minimum temperature are 41.8°C and 6.6°C, respectively. The experiment was laid out in Factorial Randomize Block Design (FRBD) with three replications. Fresh, healthy, insect and disease free suckers were transplanted in furrow at a depth of 4-5cm as per the treatments. The crop was harvested from mid-May to last of June (First cutting), and mid-August to mid-September (Second cutting) depending on the planting dates. The data on Plant growth, fresh herb yield, oil content and oil yield were recorded at the each date of transplanting.

RESULTS AND DISCUSSION

Result of the experiments showed that dates of
transplanting had significant effect on Plant height (table 1). The 15th March was the best transplanting time for Mentha arvensis L. as compared to 30th March and 15th April, thereby giving higher values for Plant height (43.13 cm), fresh herb yield (226.50 q/ha), oil content (0.6%) and oil yield (137.00 kg/ha) (Table 1, 2 and fig 1). The crop transplanted 15th April registered lowest Plant height (25.88 cm), fresh herb yield (181.00 q/ha), oil content (0.7%) and oil yield (117.30 kg/ha) (table 1, 2 and fig 1). However, the crop transplanted during 15th March got all

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<th>Table 1. Plant height (cm) of menthol mint under different transplanting dates at various stages of crop growth</th>
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<td>Treatments</td>
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<td>D1</td>
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<td>D3</td>
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<td>Mean</td>
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CD at 5% - 2.28 significant
DAT: Days after Transplanting
Treatment: Dates of Transplanting
D1: 15th March
D2: 30th March
D3: 15th April

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<th>Table 2. Fresh herb yield, Oil content and Oil yield of different transplanting dates of menthol mint</th>
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<td>CD at 5%</td>
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Treatment: Dates of Transplanting
D1: 15th March
D2: 30th March
D3: 15th April

Figure 1. Fresh herb yield and Oil yield of different transplanting dates of menthol mint
the favorable conditions for the plant which might have contributed towards higher growth and yield parameters.

REFERENCES


Katoch, PC, Bhardwaj, SD, Kaushal, AN (1979). Effect of time planting and row spacing on herb yield and oil content in spearmint (Mentha spicata L.) Indian Perfumer 23(2) : 91-94.


