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SCREENING OF CARROT LINES FOR QUALITY ROOTS AND HIGHER YIELD FOR COMMERCIAL CULTIVATION

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ARTICLE INFO ABSTRACT

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The experiment was conducted at Research and Development (R&D) farm of Ispahani Agro LTD., Rangpur in order to screen suitable carrot lines for commercial cultivation in Bangladesh. Two hybrid lines (02001 and 02002) and four open pollinated lines (01001, 01002, 01003 and 01004) were used in this screening program. The experiment was carried out following randomized complete block design with three replications. Results showed that root length and diameter of line 01004 were 14.66 and 3.580 cm, respectively. The standard weight of 5 roots was 519.3 g. Moreover, the line 01004 showed maximum quality roots and yield as compared to any other lines. This line is therefore can be recommended for commercial cultivation in Bangladesh.

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INTRUDUCTION

Carrot (*Daucus carota* var. *sativus*) is a member of the Apiaceae family (Peirce, 1987). It is probably originated in Asia around northwest India. Cultivation of roots for consumption has been started from 600 A.D. in Afghanistan (Kelley et al., 2012). Now a days, carrot production spreads worldwide due to its nutritive value (Yawalker, 1985). The cylindrical yellow colored carrots get priority in Bangladesh due to its attractiveness among the four basic types. All the commercially grown carrot varieties in Bangladesh are generally of the importer type. Numerous commercial varieties exist and imported by different seed companies. Although yield is an important criterion to the farmer for selecting variety for production, it should not be the only selection criteria (Kelley et al., 2012). Therefore, the study has undertaken in order to evaluate yield and yield contributing characters of some selected carrot lines in Bangladesh condition as well as study the suitability of these lines for commercial cultivation in Bangladesh.

MATERIALS AND METHODS

The experiment was carried out at Research and Development (R&D) farm of Ispahani Agro LTD., Rangpur during 04 November, 2013 to 20 February, 2014. Two hybrid lines (02001 and 02002) and four open pollinated lines (01001, 01002, 01003 and 01004) were used as experimental material. The unit plot size was 1m x 5.6m. The selected land was well drained, medium high and the soil was loamy textured. The experiment was laid out in randomized complete block design with three replications. The experimental plot was prepared by good till and fertilized with recommended doses of manures and fertilizers. The intercultural operations were done as similar to farmers practice.

Data were recorded on quality contributing characteristics from five randomly selected plants, yield and yield contributing characters from total harvest scenario and were analyzed statistically by MSTATc Version 1.2. The difference between the treatments was adjudging by least significance difference test.

RESULTS AND DISCUSSION

Root weight (Northolt et al., 2004), root length and root diameter is considered as the root quality contributing characters. Root length was found highest (14.66 cm) in 01004 which show significantly higher than any other varieties. On the other hand, root diameter was highest in line 02001 (3.593 cm) which is statistically similar with lines 01001 (3.60 cm) and 01004 (3.58 cm) (Table 1). Line 01004 again showed maximum weight of 5 standard roots with significant difference from any other lines. From the quality contributing characters, line 01004 contains good root quality than any other OP and hybrid variety.

Table 1. Quality and yield contributing characters of different carrot lines

Acc. code	Root length (cm)	Root diameter (cm)	Weight of 5 standard root(g)	No. of roots/ plot	Yield/Ac. (tons)
02001	12.17	3.593	479.7	149	7.893
02002	13.30	3.360	468.3	150	8.000
01001	12.20	3.600	481.0	149	7.613
01002	12.30	3.180	443.0	137	6.823
01003	12.00	3.200	409.7	159	7.753
01004	14.66	3.580	519.3	155	7.777
LSD _(0.05)	0.2179	0.1488	44.70	29	1.890
Level of significance	*	*	NS	NS	*

* indicates significant at 5% level of significance, ^{NS} indicates non-significant at 5% level of significance
Number of roots/bed in each line had no difference statistically and also in yield/Ac (Table 1).

CONCLUSION

Line 01004 produced maximum quality roots and the yield is similar to the hybrid lines statistically. Therefore, the line 01004 should be best suited for commercial cultivation in terms of quality yield and will minimize the cost of production.

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