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EVALUATION OF DIFFERENT CULTIVARS OF LITCHI *(LITCHI CHINESIS SONN.)* UNDER NORTHERN REGION OF HARYANA STATE OF INDIA

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ABSTRACT

The present investigation was conducted to find out a suitable litchi variety for the region. Seven cultivars were undertaken for the study *viz.*, Culcuttia, Early Large Red, Rose Scented, Muzaffarpur, Maclein, Dehradun and Seedless. Among these, Early Large Red has proved as the most suitable variety having regular fruit bearing, higher fruit yield, good taste and attractive colour with less problem of fruit cracking.

The litchi (*Litchi Chinensis* Sonn.) is one of the important soft fruits, suitable for growing under northern region of Haryana. This fruit is becoming more and more popular due to its distinct flavour, good taste, juicy pulp giving cooling effect during hot summer. Earlier its cultivation was restricted to northern districts of Bihar, Bengal and some places of Uttrakhand, Punjab and J & K. Now its cultivation is becoming popular in the other adjoining areas because of its remunerative prices in the market. In Haryana, northern district *viz.* Yamuna Nagar, Ambala and Panchkula are suitable for the cultivation of litchi crop. However, very little information is available regarding the suitability of the cultivars, which can be grown, successfully under the prevailing ago-climatic conditions of the region. Therefore, the present investigation were undertaken to study the performance of different litchi cultivars under this region of Haryana.

The experiment was conducted at the Regional Research Station (Horticulture), (CCS, HAU) Buria during the years from 2004 to 2006. Buria (Yamuna Nagar) represents a typical semi-humid climate with cold winter and humid warm monsoon season. Seven commercial cultivars namely Seedless, Culcuttia, Early Large Red, Rose Scented, Muzaffarpur, Maclein and Dehradun planted during 1992 at 30' X 30' distance were selected for the studies. The trial was laid in randomized block design selecting uniform and healthy plants with 7 replications. Recommended cultural operations were applied to all the plants since establishment of orchard. Random samples of 50 fruit from each plant were picked at optimum level of maturity keeping in view their size, colour and taste. These fruit were analysed for various characteristics. The size of the fruit was measured with vernier caliper and expressed in centimeters. The total soluble solids (TSS) of the fruit were estimated with hand refractometer and expressed in per cent. Titratable acidity was determined by titrating against 0.1N NaOH using phenolphthalein as an indicator (A.O.A.C. 1984). Growth was recorded by measuring trunk girth at 20 cm above the ground level and total height of the plant. The total fruits harvested from each tree were weighed and fruit yield expressed in kilograms.

The data in Table 1 indicated that plant growth characters and fruit yield significantly varied with cultivars during the experimentation. The highest trunk girth (85.00 cm) was recorded in Early Large Red, which was at par with Dehradun and Culcuttia during the year 2006. The least trunk girth (59.5 cm) was obsered in Rose Scented. Tree height was also recorded maximum (5.4 m) in Early Large Red followed by Seedless (5.0 m) and minimum (3.5 m) in Rose Scented during the year 2006. Early Large Red proved as early variety (12 June) and Rose Scented, Muzaffarpur, Dehradun and Seedless as mid season (16-19 June) whereas Culcuttia and Maclein as late season varieties (25-28 June). The highest yield was obtained in Early Large

Table 1. Vegetative growth and fruit yield of different cultivars of litchi.

Cultivars	Trunk girth (cm)			Tree height (m)			Date of Harvest (June)			Fruit Yield (Kg./tree)		
	2004	2005	2006	2004	2005	2006	2004	2005	2006	2004	2005	2006
Culcuttia	68.9	73.2	79.5	3.2	4.0	4.5	21	24	28	33.5	30.8	40.5
Early Large Red	72.8	80.0	85.0	3.8	4.4	5.4	12	13	12	39.2	40.5	42.7
Rose Scented	45.8	52.2	59.5	2.5	2.9	3.5	16	13	17	22.2	25.5	30.0
Muzaffarpur	55.4	61.8	65.5	3.8	4.2	4.7	14	15	16	19.0	20.0	22.0
Maclein	55.8	62.5	69.5	3.6	4.0	4.6	22	20	25	22.0	25.0	28.0
Dehradun	68.5	74.5	80.0	3.8	4.2	4.9	15	13	16	33.5	36.0	39.5
Seedless	54.5	59.0	65.6	4.2	4.6	5.0	15	14	14	20.2	25.2	27.5
CD at 5%	7.8	7.4	7.9	0.28	0.26	0.25	-	-	-	8.5	10.2	6.5

Table 2. Fruit characteristics of different cultiars of litchi.

Cultivars	Fruit length (cm)	Fruit diameter (cm)	Fruit weight (g)	Peel (%)	Stone (%)	Aril (%)	TSS (%)	Acidity (%)	Taste (%)
Culcuttia	3.29	3.10	18.5	17.00	19.15	63.85	16.8	0.44	good
Early Large Red	3.02	2.75	14.8	16.05	18.20	65.75	17.0	0.46	very good
Rose Scented	3.01	2.72	14.2	18.49	19.62	61.89	17.5	0.51	very good
Muzaffarpur	3.40	2.99	15.0	13.20	23.00	63.80	18.5	0.44	fair
Maclein	3.49	2.60	12.0	13.75	22.00	64.25	17.3	0.99	fair
Dehradun	3.15	2.92	15.5	16.20	20.50	63.30	17.0	0.43	good
Seedless	3.19	3.02	16.2	12.08	9.15	78.77	17.9	0.47	good
CD at 5%	0.40	0.22	0.9	1.59	1.78	2.59	0.9	0.08	-

Red (42.7 kg/tree), Culcuttia (40.5 kg) and Dehradun (39.5 kg) followed by Rose Scented (30.0 kg).

It is evident from Table 2 that different varieties significantly differed in various characters of the fruits. The fruit length was recorded maximum in Maclein (3.49 cm), Muzaffarpur (3.40 cm) and Culcuttia (3.29 cm) and minimum in Rose Scented (3.01 cm). The maximum fruit diameter was observed in Calcuttia (3.10 cm), Seedless (3.02 cm), Muzaffarpur (2.99 cm) and Dehradun (2.92 cm) and minimum in Maclein (2.60 cm). Fruit weight was recorded maximum in Calcuttia (18.5 g) followed by Seedless (16.2 g) and minimum in Maclein (12.0 g). This trend of result was in agreement with the findings of Sharma and Ray (1987). Seedless produced maximum aril content (78.7%) followed by Early Large Red (65.75%) Culcuttia (63.85%), Maclein (64.25%) and Muzaffarpur (63.80%) whereas minimum in Rose Scented (61.89%). The Maclein variety registered the maximum level of acidity (0.99%) followed by Rose Scented (0.51%). Similar results were recorded by Ray *et al.* (1985). Acidity was recorded minimum in Dehradun (0.43%). The maximum TSS was observed in Muzaffarpur (18.5%) followed by Seedless (17.9%), Rose Scented (17.5%). Similar Results were obtained by Ghosh *et al.* (1987). Early Large Red and Rose Scented proved as very good in taste.

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