

## SHORT COMMUNICATION

**Performance of Early Ripening Varieties of Ber****JS Bal and JS Randhawa***Department of Horticulture, Punjab Agricultural University, Ludhiana-141 004 (Punjab)***Key words:** Ber, Early ripening, Performance, Varieties

During the past few years, ber growing has become very popular in Punjab, Haryana, Uttar Pradesh and dry lands of Rajasthan due to its wider adaptability and higher economic return. A comprehensive collection of ber cultivars from various sources have been made at Punjab Agricultural University, Ludhiana. These varieties were raised by budding *in situ* on *katha* ber seedlings. Out of four recommended varieties in Punjab, two are mid season and two are late ripening varieties. No early ripening variety is available for cultivation in the state. Therefore, strong need was felt to introduce early ripening variety for economic marketing.

The investigation on the performance of early ripening ber varieties was carried out at Punjab Agricultural University for five years from 1991-92 to 1995-96. This trial included ten early varieties for evaluation viz., Gorva, Narikeli, Nazuk, Rohtaki Gola, Safeda, Sandhura Narnaul, Selected Safeda, Seo, Surti and Wallaiti. These early varieties were compared with existing four recommended varieties (Kaithli, Sanaur-2, ZG-2 and Umran) as a check. The observations on ripening time, fruit size, fruit weight, fruit yield, palatability rating, powdery mildew incidence, total soluble solids value and acidity were recorded. Palatability rating was tested by a panel of five judges on the basis of general appearance and taste and flavour (10 marks). The ber varieties were rated as excellent (9-10 marks), very good (8-9 marks) and good (7-8 marks). Total soluble solids were determined with the help of Bausch and Lamb hand refractometer at 20°C with necessary correction factor. The acidity was estimated in terms of citric acid titrating with N/10 NaOH solution.

The ripening time of different early varieties spreads over a period of one month from second fortnight of February up to first fortnight of March. Among these varieties Nazuk, Rohtaki Gola, Safeda and Selected Safeda ripened earliest i.e. during the second fortnight of February. However, most of the early varieties ripened during first fortnight of March. This is a time when season for most of the fruits is practically over. The

ber fruit of early varieties sell readily at remunerative prices. The ripening time of mid-season varieties (Kaithli and Sanaur-2) is from mid-March to first week of April, whereas, the late varieties like ZG-2 and Umran ripen from end of March to mid-April.

The fruit size in terms of length and breadth varies greatly among the early varieties. The maximum fruit size was recorded in Wallaiti (4.3 x 2.7 cm) followed by Sandhura Narnaul (4.3 x 2.5 cm) and Narikeli (4.1 x 2.8 cm). The average fruit weight in different early varieties varied from 8.0 - 17.3g. The fruit weight was highest in Wallaiti (17.3 g) and Narikeli (16.0 g). However, the commercial variety Umran produced the heaviest fruits weighing 27.2g. Chadha *et al.* (1972), Bal and Jawanda (1981) and Bal and Uppal (1992) have reported large sized and heavier fruit of Umran. Different early varieties yielded 6.1 to 116 kg fruit per tree. The average yield was recorded the highest in Narikeli (116 kg) and Wallaiti (114 kg). Gupta (1977) reported little variation in fruit yield in Nazuk and Narikeli varieties due to different agroclimatic conditions prevailed and cultural practices adopted in Patiala areas. However, Bal (2001) while working on ber varieties reported similar observations with regard to fruit yield per tree basis.

Most of the ber varieties on full maturity possess golden yellow, light golden yellow, light yellow and greenish yellow colour. Of these, golden yellow colour seems to be the most appealing to the consumer. Wallaiti had very attractive golden yellow colour at maturity. Narikeli, Nazuk, Sandhura Narnaul and Surti develop light golden yellow colour at maturity. Almost similar fruit colour in ber varieties were earlier reported by many workers (Gupta, 1977; Bal and Jawanda, 1981; Aulakh, 1994 and Bal, 2002). The highest palatability rating (8.9) was recorded in Wallaiti among the early varieties and rated 'Very Good'. The commercial variety Umran with palatability rating 8.2 also rated as 'Very Good'. Sanaur-2 is the only variety having highest rating (9.6) and therefore rated as 'Excellent'.

Table 1. Cumulative physico-chemical characteristics of fruit of ber varieties

Name of the variety	Ripening time	Size		Weight (g)	Yield (kg/tree)	Colour	Palatability rating (10)	TSS (%)	Acidity (%)	Powdery mildew incidence
		Length (cm)	Breadth (cm)							
Rohaki Gola	2nd fortnight February	3.6	2.5	13.2	62	Greenish yellow	7.8	13.1	0.35	11.0
Safeda	2nd fortnight February	2.6	2.2	8.0	83	Light yellow	7.8	14.8	0.41	13.0
Selected Safeda	2nd fortnight February	3.5	2.9	12.0	100	Light yellow	7.6	14.8	0.33	13.4
Nazuk	Mid Feb-Early March	3.5	2.1	8.2	82	Light golden yellow	8.4	16.2	0.25	10.0
Sandhura Narnaul	Mid Feb-End March	4.3	2.5	14.6	90	Light golden yellow	7.9	14.4	0.28	14.0
Wallaiti	1st fortnight March	4.3	2.7	17.3	114	Golden yellow	8.9	14.4	0.28	8.0
Gorva	1st fortnight March	3.3	2.7	13.3	90	Yellow green	7.5	14.2	0.38	
Narikeli	1st fortnight March	4.1	2.8	16.0	116	Light golden yellow	7.5	13.1	0.29	14.5
Seo	1st fortnight March	3.4	2.9	15.8	75	Light yellow	8.2	14.0	0.27	11.0
Surti	1st fortnight March	3.6	3.2	15.6	61	Light golden yellow	7.7	13.8	0.48	6.0
Sanaur-2	15 March-1st week April	4.4	3.1	22.8	138	Light yellow	9.6	18.4	0.43	2.8
Kaithli	End of March-1st week April	4.6	2.9	19.4	113	Light yellow	8.8	15.8	0.28	11.0
ZG-2	20 March-Mid April	3.1	2.6	14.2	43	Greenish yellow	8.1	13.4	0.27	3.0
Umtran	End of March - Mid April	4.5	3.3	27.2	148	Deep golden yellow	8.2	14.8	0.21	8.0
C.D. at 5%		0.16	0.13	1.3	11.1		0.47	0.78	0.07	3.2

The total soluble solids (TSS) in early varieties ranged from 13.1 per cent to 16.2 per cent ranging the highest in Nazuk (16.2%) followed by Safeda and Selected Safeda (14.8%) and Wallaiti and Sandhura Narnaul (14.4%). The minimum TSS value (13.1%) was noted in Narikeli and Rohtaki Gola. Acidity was estimated lowest (0.25 - 0.28%) in Nazuk, Seo, Wallaiti and Sandhura Narnaul and highest (0.48%) in Surti. However, Gupta (1977) reported higher acidity in Nazuk variety as compared to those discussed in the present studies.

All the early ber varieties were susceptible to powdery mildew disease to varying degree. The least incidence of disease was observed in Surti (6%) and Wallaiti (8%). The varieties like Narikeli and Sandhura Narnaul are more prone to powdery mildew and disease incidence was recorded 14.0-14.5 per cent. This disease can be effectively controlled with timely sprays of Karathane.

On the basis of above finding, Wallaiti was recommended as early variety for general cultivation in the state. Wallaiti is having attractive fruits with excellent rating qualities and stands better acceptability. The fruits are available when other four recommended varieties are not ripened yet. Thus, growers can get good returns by planting this variety.

## References

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