

Study on performance of three fig cultivars in laterite zone of West Bengal

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ABSTRACT

A study was made with three exotic figcultivas viz., Deanna, Excel and Conadria to know their performance in laterite zone of West Bengal. The study was made on 3rd, 4th and 5th year old plants. Preliminary results indicated that Deanna showed lowest plant growth in terms of growth increment in plant height, basal girth and plant spread with maximum branch production which ultimately resulted in highest fruit production. Fruit weight was highest in Deanna (44.0 g) and lowest in Conadria (33 g). Fruit quality in terms of TSS, total sugars and reducing sugars were not in acceptable range but acidity in all the three cultivars was low. From the initial study, it was concluded that Deanna can be recommended for commercial cultivation in laterite zone of West Bengal. But fruit quality should be improved by agronomical manipulation.

Keywords: Exotic Figs, performance, laterite soil.

The edible fig (*Ficus carica* L.), belongs to the family Moraceae, is growing in India mainly some localized areas like western part of Maharashtra (adjoining areas of Pune and Aurangabad), Gujarat, Uttar Pradesh (Lucknow and Saharanpur), Karnataka (Bellary, Cnitradurga and Srirangapatna) and Tamil Nadu (Coimbatore) (Dalal *et al.*, 2017). The fresh fruits are delicious and have a luscious taste. The fig fruits are important for both as food and traditional medicine. In most of the areas in India the fig varieties viz., Poona fig and Dinkar are grown and these varieties are not found to be suitable for preparation of dried fig for various seasons such as low TSS, high acidity, lathery appearance and poor taste of final product (Gawade and Waskar, 2002). Introduced exotic figs like Deanna, Conadria and Excel are reported to be remunerative and suitable for preparation of dried figs (Jalikop and Sampath Kumar, 2000; Gawde and Waskar, 2002). Performance of these 3-exotic fig varieties have been studied under Bangalore condition (Jalikop and Sampath Kumar, 2000) and Rahuri (Maharashtra) condition (Gawade and Waskar, 2002) and reported to be good in both the condition. Considering their well performance in varied agro-climatic condition and having various good horticultural traits, these cultivars were taken for study in the laterite zone of West Bengal where

soil is porous and rainfall is low as compared to other parts of the state.

Three fig cultivars namely Deanna, Excel and Conadria were collected from Indian Institute of Horticultural Research, Bangalore and planted in a field at Jhargram, Paschim Medinipur during 2007 at a spacing of 3m x 3m. In each variety there was six plants and planted in a row. The soil of experimental site was laterite, having pH 5.8. The area receives annual rainfall about 1100 mm to 1600 mm mainly during June to September. Growth parameters like plant height, basal girth, plant spread, number of primary and secondary branches were recorded at the plant age of 4th to 5th year (2011 and 2012). Number of fruits/plant was recorded at the plant age of 3rd (2010), 4th (2011) and 5th year (2012). Fruit weight, fruit length, fruit diameter, TSS, acidity, total sugar and reducing sugars were recorded in all three years and average of the parameter have been presented.

It is clear from the data in Table 1 that plant height was minimum of 240 cm (Conadria) and maximum of 280 cm (Excel) at the age of 5th year. Plant height of these varieties as noted under Bangalore condition was 90 cm in Conadria; 138 cm in Excel and 156 cm in Deanna at the age of 30 month (Jalikop and Sampath Kumar, 2000). Growth in terms of increase in plant height was maximum in

Table 1 : Plant growth of three Fig cultivars under Jhargram Condition

Cultivars	Plant Growth										Number of primary branches/ plant	Number of secondary branches/ plant		
	Height (cm)			Basal girth (cm)			Plant spread towards East-West (cm)			Plant spread towards North-South (cm)				
	2011	2012	% of increase	2011	2012	% of increase	2011	2012	% of increase	2011			2012	% of increase
Deanna	200	250	25.0	21.8	30.8	41.3	220	260	18.2	130	280	115.4	4	48
Excel	200	280	40.0	17.5	27.5	57.1	250	330	24.2	120	270	125.0	2	25
Conadria	160	240	50.0	15.0	23.3	55.3	180	230	27.7	110	240	118.2	2	35

Table 2: Fruit yield and physico-chemical characteristics of fruits of three fig cultivars

Cultivars	Number of fruits/plant			Fruit weight (g)	Fruit length (cm)	Fruit diameter (cm)	TSS (°B)	Acidity (%)	Total sugar (%)	Reducing sugar (%)
	2010	2011	2012							
	Average									
Deanna	28	62	19	39.8	44.0	5.1	9.9	0.14	6.7	5.1
Excel	26	10	13	17.3	38.0	5.0	8.3	0.17	7.0	3.1
Conadria	40	14	09	31.0	33.0	4.8	11.1	0.15	6.4	4.8

Conadria (50%) and lowest in Deanna (25%) in terms of increment in 5th year. Growth in basal girth was maximum in Excel (57.1%) and minimum in Deanna (41.3%). Growth in plant spread was also lowest in Deanna (18.2% towards East-West and 115.4% towards North-South) and can be considered as dwarf growth habit as compared to other two varieties. However branch production in terms of primary (4.0) and secondary branches (48) was highest in Deanna and lowest in Excel (2 and 25).

Fruit production in terms of number of fruits / plant was highest in Deanna in all the year (28 in 3rd year, 62 in 4th year and 19 in 5th year with on average of 39.8) and lowest in Excel (Average 17.3) (Table 2). Higher fruit production in Deanna may be explained from the fact that it had lowest plant growth but had maximum number of fruit bearing branches. It was noted that fruit production in different years was drastically varied irrespective of the cultivars which may be due to younger age of the plant.

The fruit weight and size were highest in Deanna (44 g weight, 5.1 cm x 5.5 cm size) and lowest in Conadria (31.0 g weight, 4.8 x 4.0 cm size) (Table 2). Fruit weight as observed by Jalikop and Sampath Kumar (2000) was 61.5 g in Deanna (highest) 34.0 g in Excel (lowest under Bangalore condition). From this comparison of results, it can be conferred that Deanna is performing well on under West Bengal condition also.

Highest TSS was recorded from Conadria (11.1 °B) and lowest from Excel (8.3 °B). Total sugar content varied between 6.4% and 7.0% and reducing sugar 3.1% and 5.1% in different cultivars. Fruit quality in terms of TSS and sugars in the cultivars was in the cultivars was not good as reported by Gawade and Waskar (2002). Fruit acidity was minimum in Deanna (0.14%) and maximum in Excel (0.17%) and result is agreement with the findings of Gawade and Waskar (2002) who also recorded fruit acidity 0.15% in Deanna and 0.19% in Excel.

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