

Evaluation of bold aonla genotypes in Konkan with unique two harvests in a year

P.J. Kshirsagar, M.S. Gavankar, V.G. Chavan, K.H. Pujari, S.B. Deshpande, B.V. Shingre and B.P. Patil

Regional Fruit Research Station, Vengurle, Dist. Sindhudurg, 416 516 (M.S.), India

Abstract

The present investigation was conducted to evaluate performance of bold aonla types under Konkan agro-climatic conditions, where fruiting is obtained twice in a year as a unique feature of these bold genotypes. Based on the three years yield observations at two different locations in Konkan, it could be concluded that Kanchan variety of aonla may be preferred for cultivation in Konkan region. However, for effective cross pollination and higher yield, mixed planting of Kanchan with Krishna and NA-7 could be the best strategy for aonla cultivation in the region. Monsoon season harvest proved to be superior under Konkan conditions.

Key word: Aonla, *Embllica officinalis* Gaertn., Konkan, yield, fruiting, variety

Introduction

Aonla (*Embllica officinalis* Gaertn.) is a native of eastern Asia, particularly Central and Southern India. It is a medium size tree occupying a height of 10-15 m and evergreen in tropical region, whereas it behaves as deciduous tree in north India due to complete drop of determinate shoots and initiates to grow new shoots during February-March. Aonla is cross pollinated by wind, honey bee, wasp and gravity (Reddi and Janki Bai, 1979). Dried aonla fruits have been used since ancient times, being rich vitamin C. Aonla processed products viz., aonla supari, aonla mawa, aonla syrup etc. are digestive health restoring items liked by all. Honey bees commonly visit in late evening and morning. Since there is no self-incompatibility in aonla, the cause of poor fruit set seems to be the high percentage of staminate flowers.

Improved aonla cultivars viz., Banarasi, Francics, Chakaiya, Narendra Aonla-4 (NA-4), NA-5, NA-6, NA-7, NA-9, Krishna, Kanchan are grown in India. These promising types were identified in Pratapgarh, Agra and Varanasi district of Uttar Pradesh and released for cultivation. The aonla types in western Ghats and Konkan have small sized fruits and are poor yielding. Hence, the present investigation was conducted to evaluate performance of bold aonla types selected in northern plains and introduced under Konkan Agro-climatic conditions.

Materials and methods

Field experiments were conducted from 2000 to 2002 at two different locations viz., Regional Fruit Research Station, Vengurle and Agricultural Research Station, Mulde with four different aonla varieties viz., NA-7, Krishna, Chakaiya and Kanchan. The experiment was conducted in a randomised block design replicated five times. Planting of aonla grafts of the test varieties was done at 6 x 6 m in the year 1994. The yield data were collected from 2000 onwards. Annual fertilizer application @ 250 g N, 500 g P and 250 g K per tree was done by ring method along with 10 kg F.Y.M. Need based pest control measures were undertaken. The yield

obtained for three years (2000 onwards) at two different locations were analysed statistically by the method described by Panse and Sukhatme (1985) and Gomez and Gomez (1984). The data were pooled over the years and locations to draw conclusion.

Results and discussion

The pooled results obtained for 2000 to 2002 (Table 1) at Regional Fruit Research Station, Vengurle revealed that the variety Kanchan (40.82 kg/tree) was significantly superior to all the other varieties under testing followed by Krishna (29.62 kg/tree) and NA-7 (26.55 kg/tree). Variety Chakaiya gave the lowest yield (11.26 kg/tree).

The same set of varieties was studied at Agricultural Research Station, Mulde (Table 2). The three years pooled result indicated

Table 1. Yield of different aonla cultivars (kg/ha) at Regional Fruit Research Station, Vengurle

Cultivars	Yield (kg/tree)			Pooled (kg/tree)
	2000	2001	2002	
NA-7	17.00	41.35	21.70	26.95
Krishna	11.85	37.40	39.60	29.62
Chakaiya	11.38	11.10	11.30	11.26
Kanchan	17.20	65.05	40.20	40.82
Mean	14.56	38.73	28.20	27.16
S.E. \pm	1.36	3.87	3.18	4.37
C.D. ($p=0.05$) N.S.		8.05	6.61	9.08

Table 2. Yield of different aonla cultivars (kg/ha) at Agricultural Research Station, Mulde

Cultivars	Yield (kg/tree)			Pooled (kg/tree)
	2000	2001	2002	
NA-7	11.44	7.44	13.79	10.89
Krishna	7.00	3.75	21.07	10.61
Chakaiya	3.03	4.15	30.36	9.18
Kanchan	4.84	8.47	25.00	12.77
Mean	6.58	5.95	20.06	10.86
S.E. \pm	0.92	0.86	1.92	1.87
C.D. ($p=0.05$)	1.92	N.S.	N.S.	N.S.

Table 3. Three year pooled data of aonla for two different location (Regional Fruit Research Station, Vengurle and Agricultural Research Station, Mulde)

Cultivars	Vengurle	Mulde	Average
NA-7	26.95	10.89	18.92
Krishna	29.62	10.61	20.11
Chakaiya	11.26	9.18	10.22
Kanchan	40.82	12.77	26.79
Mean	27.16	10.86	19.01
	SE±	CD($p=0.05$)	
Location	5.31	11.05	
Variety	3.76	7.81	

that the performance trend of all the varieties tested was identical to that at Vengurle. The variety Kanchan produced significantly more yield (12.77 kg/tree) followed by NA-7 (10.89 kg/tree) and Krishna (10.61 kg/tree). The mean yield of aonla fruits per tree over different varieties was less than half at Mulde as compared to Vengurle. This could be attributed to the relatively less fertile sloppy soil at Mulde where the experiment was planted.

The three years pooled data combined for two location *i.e.* Regional Fruit Research Station, Vengurle and Agricultural

Research Station Mulde presented in Table 3, indicated that the mean yield of aonla fruits per tree was 19.01 kg. The data from two location combined together revealed that the variety, Kanchan gave significantly higher fruit yield (26.79 kg/tree) over NA-7 and Chakaiya whereas, it was on par with Krishna (20.11 kg/tree).

From the three years yield observations at two different locations in Konkan it could be concluded that Kanchan variety of aonla be preferred for cultivation in Konkan region. However, for effective cross pollination and higher yield, mixed planting of Kanchan with Krishna and NA-7 could be the best strategy for aonla cultivation in the Konkan region. Fruiting twice in a year was the unique feature of these bold genotypes tested in Konkan even though monsoon season harvest proved superior.

References

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