



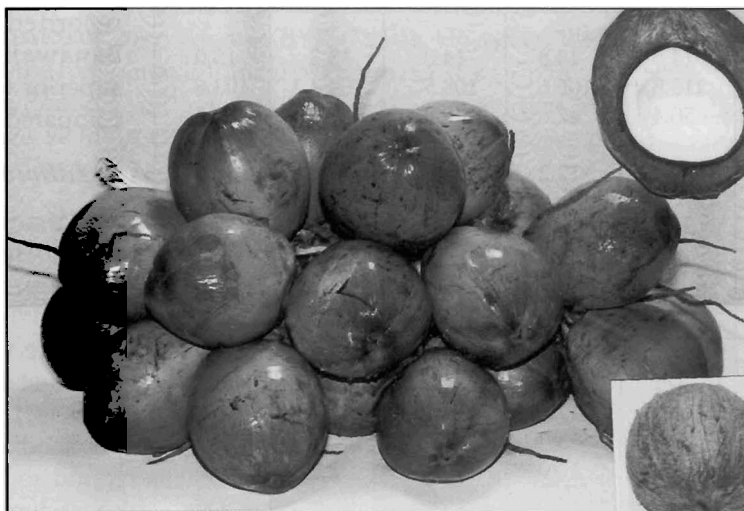
Banawali Types of Coconut (*Cocos nucifera* L.) of the Konkan Region of Maharashtra State

Evaluation studies conducted at Regional Coconut Research Station, Bhatye revealed that among the banawali types of coconut, Banawali Green Round (BGR) recorded the highest yield of nuts, copra and oil per palm per hectare. BGR was released during the year 1987 in the name of 'Pratap' for commercial cultivation in the Konkan region of Maharashtra State. The Banawali, a different group of tall cultivars, is a native of Goa state mainly cultivated in the Benaulim village and popularly known by the village name. Different characteristics of five varieties of Banawali types are explained by Nagwekar, D.D., Sawant V.S., Desai, V.S., Mahadik, M.V., Khan, H.H., Joshi G.D. and Jambhale, N.D.

Introduction

Konkan region is a long narrow strip of 720 kms. running north to south along the West coast of Maharashtra. The region comprises of Thane, Raigad, Ratnagiri and Sindhudurg districts and is characterized by hilly terrain receiving heavy rainfall ranging from 3000 to 4000 mm per annum during four months (June to September). The climate is warm and humid almost throughout the year. Coconut is a major irrigated horticultural crop of Konkan region of Maharashtra. The agro-climatic conditions are very congenial for its cultivation. Maharashtra occupied eleventh place in area and seventh place in coconut production. The total area under coconut cultivation in the Konkan region is about 16789 ha. with production of 244.4 million nuts (2000-2001). Over a period of 15 years from 1986-87 to 2000-2001 the area

increased from 6900 to 16789 ha and production increased from 76.32 million nuts to 244.4 million nuts. The productivity has increased from 52 nuts/palm/year to 70 nuts/palm/year. (Directorate of Agriculture, Govt of



Banawali Green Round (BGR)

Maharashtra). Among the population, a group exhibiting distinct characters was identified as Banawali types. Five such groups of palms were identified and evaluated at RCRS, Bhatye from 1958.

Materials and Methods

The Regional Coconut Research Station, Bhatye, Ratnagiri, Maharashtra was established in July 1955 by the Indian Central Coconut Committee and the same attached to All India Co-ordinated Research Project on palms since 1972. One of the objectives of the project is to evaluate exotic and indigenous cultivars of coconut available in the country.

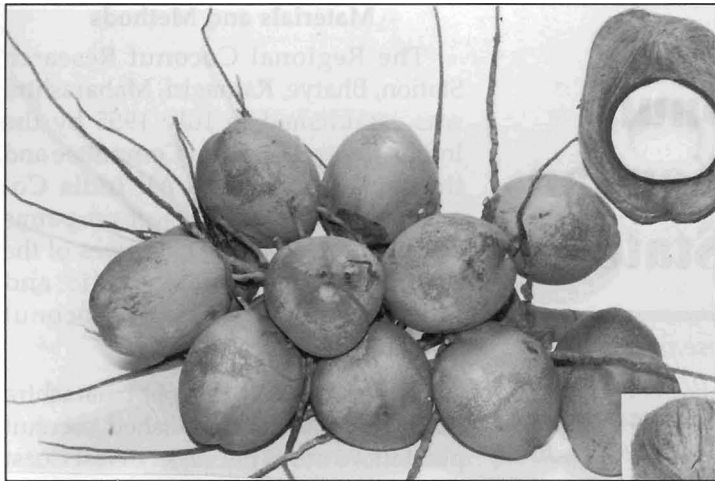
In the Konkan region of Maharashtra State, most of the established coconut plantations are of the variety West Coast Tall (WCT). The Banawali, a different group of tall cultivars is a native of Goa state mainly cultivated in the Benaulim village and popularly known by the village name. It was first brought to the Sindhudurg district of Maharashtra and in the local language it was pronounced as Banawali. The coconuts of this type are smaller in size as compared to the WCT. The Banawali being a member of tall growing cultivars of coconut is highly cross-pollinated and therefore, lots of variations are noticed in colour, size, shape and yield. Considering these factors, five typical local Banawali types were collected from village Aronda, Tal. Vengurle, Sindhudurg dist., in 1958 and included in the coconut germplasm of this station.

The Banawali types were planted in coastal sandy soil in groups under uniform management. The palms received uniform recommended dose of fertilizers and maintained under irrigated condition.

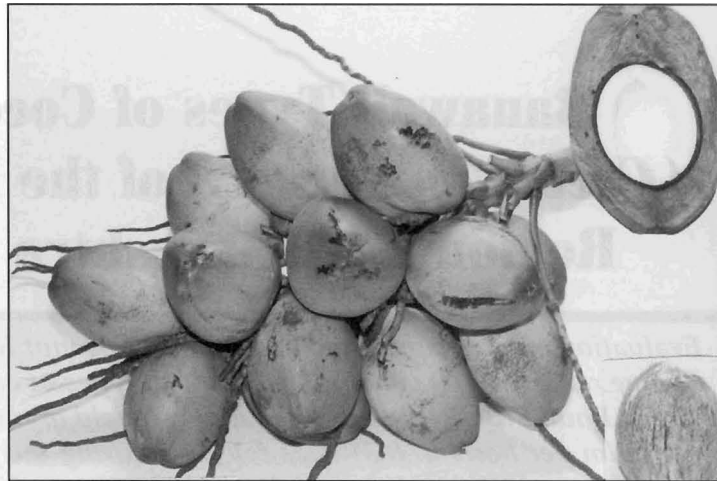
They have been evaluated for their morphological characters and yield attributes.

Results and Discussion

The results of the present investigation are presented in Table 1 and 2.



Banawali Red Round (BRR)



Banawali Green Long (BGL)

i) Morphological characters

The data pertaining to the morphological characters of the Banawali types are presented in Table 1. Among all the five Banawali types

evaluated for morphological characters, the Banawali Green Round (BGR) recorded maximum number of leaves on the crown (33), leaf length (532 cm), total number of leaflets (238) as compared to

the rest of the types. These superior morphological characters of Banawali Green Round might have contributed towards its better performance. Morphologically the second best was Banawali Yellow Round (BYR). Among the five Banawali types BGR (Pratap) recorded the highest number of bunches /palm/year (14.5) followed by BYR (14.0) and BGL (13.8). Inflorescence characters viz, spadix length, length of bunch stalk, spikelets with one and two flowers, total number of female flowers per spadix and setting percentage were recorded in the Banawali types. Banawali Green Round was found superior to all the above characters as compared to the rest of the types.

Table 1. Comparative performance of Banawali types

Characteristics	Cultivars				
	BGR	BGL (Pratap)	BYR	BYL	BRR
A. Morphological characters					
Total no of leaves on crown	33	29.5	30	28	27
Total length of leaf (cm)	532	482	496	478	470
Total no of leaflets	238	231	234	228	220
B. Inflorescence characters					
Total no of bunches per palm	14.5	13.8	14.0	13.2	13.0
Total length of spadix (cm)	115.8	106.6	108.5	104.4	103.6
Length of bunch stalk (cm)	50.4	47.6	48.8	47.2	46.5
Spikelets with one female flower (nos)	22.4	17.2	18.8	17.6	18.6
Spikelets with two female flowers (no)	0.50		0.60	0.40	
Total no of female flowers (no)	33.0	29	30	29	28
Setting percentage	29.65	29.6	28.57	29.24	28.57
C. Fruit Characters					
Weight of whole fruit (g)	771	716	663	671	704
Length of fruit (cm)	14.7	17.1	16.5	16.6	15.5
Breadth of fruit (cm)	13.2	13.0	13.05	13.75	13.15
Thickness of Husk (cm)	1.50	1.70	1.45	2.5	1.65
Percentage of husk to whole fruit	41.12	36.59	36.20	45.16	41.76
Weight of husk (g)	317	262	240	303	294
Weight of nut (g)	468	454	424	369	406
Weight of shell (g)	130	115	91	101	109
Thickness of shell (mm)	3.0	2.80	2.5	2.75	1.80

BGR : Banawali Green Round (Pratap); BGL : Banawali Green Long; BYR : Banawali Yellow Round; BYL : Banawali Yellow Long; BRR : Banawali Red Round;

ii) Inflorescence characters

Among the five Banawali types BGR (Pratap) recorded the highest number of bunches/palm/year (14.5) followed by BYR (14.0) and BGL (13.8). Inflorescence characters viz, spadix length, length of bunch stalk, spikelets with one or two flowers, total number of female flowers per spadix and setting percentage were found to be superior for all the above characters as compared to the rest of the types. BGR recorded maximum number of female flowers per spadix (33) and setting percentage (29.65 per cent). The BYR recorded 30 female flowers per spadix whereas BYL recorded setting percentage of 29.24 Patil *et al.* (1993),

Table 2. Yield (No of nuts, copra and oil) in different Banawali types, (Year of planting-June 1957)

Name of the Banawali type	Av. yield of nuts/plam/ year for last 24 years	Copra			Oil		
		Per nut	Per palm (kg)	Per ha (tonne)	Percent	Per palm (kg)	Per ha (tonne)
BGR	142	152	21.58	3.78	69.33	14.96	2.62
BGL	116	172	19.95	3.49	68.56	13.68	2.39
BYR	120	134	16.08	2.81	70.04	11.26	1.97
BYL	112	131	15.34	2.69	70.00	10.73	1.88
BRR	104	148	15.39	2.69	68.42	10.53	1.84

reported highest number of spikelets with one female flower and total number of female flowers.

iii) Fruit (nut) characters

Nut characters were studied for all the five Banawali types. From the length and breadth characters studied, the fruits of BGR, BYR and BRR were round whereas BGL and BYL have oblong fruits. The weight of dehusked nut was more in BGR (771 g) followed by BGL (716 g). Weight of nut was highest in BGR (468 g) followed by BGL (454 g).

iv) Yield

Observations on the performance of the palms indicated that among the five Banawali types, Banawali Green Round (BGR) produced highest average yield of 142 nuts/palm/year for the last 24

years (1978 to 2002), followed by BYR (120 nuts) and BGL (116 nuts). Patil *et al* (1991), observed that on the magnitude of stability parameters BGR was rated as the best genotype for cultivation, whereas T x D and Banawali Yellow Round were rated as the better adopted types for cultivation under fluctuating environmental conditions (Table 2). However, the weight of the copra per nut was more in BGL (172 g) followed by BGR (152 g) and BRR (148 g). BGR produced more copra per palm (21.58 kg) and per ha (3.78t) followed by BGL (19.95 kg and 3.49 t).

The maximum oil percentage was recorded in BYR (70.04). However, the maximum oil per palm (14.96 kg / palm) and per ha (2.62 t/ha) was recorded in BGR (Pratap) (Table 2), as also observed by Nagwekar *et al* (2002).

On the basis of superior morphological, inflorescence and fruiting characters as well as high yield potential, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli released the cultivar Banawali Green Round during the year 1987 under the name of *Pratap* for commercial cultivation in the Konkan region of Maharashtra State.

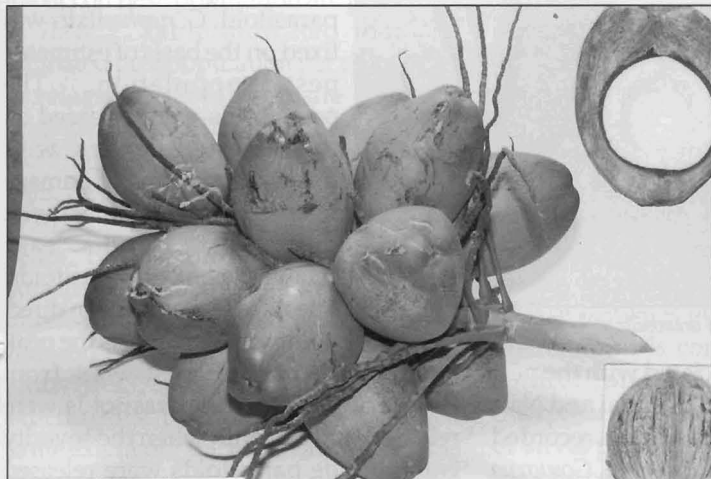
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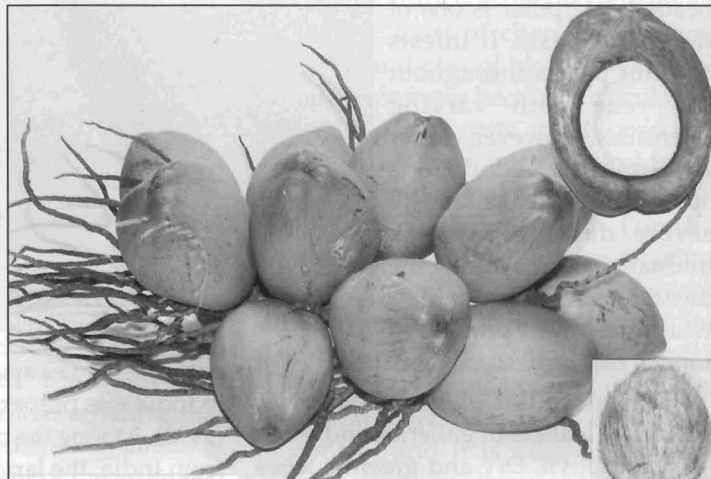
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Banawali Yellow Round (BYR)



Banawali Yellow Long (BYL)