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Correlation Among Fruit Characters in Coconut (*Cocos nucifera* L.) Cv. 'Dwarf Green'*

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ABSTRACT

Corrlation coefficients were worked out between yield, oil percentage and other fruit characters in a set of 30 palms of coconut variety 'Dwarf Green'. The weight of copra was found to be significantly and positively correlated with size of the fruit, volume of the fruit, weight of huskednut, weight of shell and weight of kernal. The number of fruits per palm was significantly and positively correlated with oil percentage in copra.

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INTRODUCTION

Coconut (*Cocos nucifera* L.) is a highly cross pollinated crop, which results in a greater variation in its yield and component characters. In the recent years, hybridization has been commercially used for exploring the genetic potentiality of coconut throughout Tall x Dwarf and Dwarf x Tall hybrids. An information on the fruit characters and the association among themselves is of paramount importance for the improvement of complex character like yield of which direct selection is not much effective.

The present studies were, therefore, undertaken to estimate the nature and extent of correlations among fruit characters and yield in coconut variety 'Dwarf Green'.

MATERIALS AND METHODS

The material for the present study comprised of 30 palms of 'Dwarf Green' cultivar of coconut randomly selected out of 192 palms at the Plantation Crops Research Station, Mahuva. The selected palms were of uniform age (10 years) and height with a planting distance of 7.5 m. x 7.5 m. The dates of opening of the inflorescences produced in the successive leaf axil of the palm during the course of one year (July '84 to June '85) were recorded. The bundles were harvested after 12 months. Detailed observation were recorded on twelve characters viz. size of the fruit (length and breadth), volume of the fruit, fruit weight husk weight, weight of huskednut, volume of water in ripe fruit, weight of shell, weight of kernel, weight of copra, oil content of copra and number of nuts per palm. The volume of the nut was measured in terms of water displaced by the nut. The oil content of copra was analysed by NMR (Nuclear Magnetic Rasonance) Spectro-Photometer. The correlation coefficients were workedout among different pair of characters as per method suggested by Panse and Sukhatme (1961).

RESULTS AND DISCUSSION

The estimated correlation coefficien among 12 characters and yield are given i Table-1. None of the agronomic character under study exhibited significant correlatio

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TABLE 1

Correlation coefficients among fruit characters in coconut variety 'Dwarf Green'.

Sr. No.	Character	Breadth of fruits	Weight of fruits	Volume of fruits	Weight of husk	Weight of husked nut	Volume of water in fruit	Weight of shell	Weight of kernel	weight of copra	Oil percentage	Yield (No. of fruits)
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Length of fruit	0.153	0.478**	0.750**	0.389 *	0.415*	0.481**	0.432 *	0.559**	0.461**	-0.088	-0.462**
2.	Breadth of fruit		0.502**	0.848**	0.317	0.680**	0.599**	0.776**	0.736**	0.677**	-0.291	-0.320
3.	Weight of fruit			0.503**	0.954**	0.663**	0.752**	0.317	0.496**	0.069	0.314	-0.232
4.	Volume of fruit				0.326	0.669**	0.520**	0.795**	0.769**	0.746**	-0.287	-0.273
5.	Weight of husk					.431*	0.600**	0.101	0.260	-0.126	-0.414*	-0.242
6.	Weight of huskednut						0.815**	0.687**	0.777**	0.428*	-0.057	-0.055
7.	Volume of water in fruit							0.455**	0.523**	0.169	0.062	-0.098
8.	Weight of shell								0.733**	0.815**	-0.244	-0.064
9.	Weight of kernel									0.743**	0-0.226	-0.160
10.	Weight of copra										-0.466**	-0.176
11.	Oil percentage											0.630**

* & ** Significant at P=0.05 & P=0.01 respectively.

with number of fruits per palm. However, weight of copra was found to be significantly and positively corrlated with length of fruit, breadth of fruit, volume of fruit, weight of huskednut, weight of husk, weight of shell and weight of kernel. The length of fruit showed significant positive association with weight of fruit, volume of fruit, weight of husk, weight of huskednut, volume of water in fruit, weight of shell, weight of kernel and weight of copra. It showed a negative significant correlation with number of fruits. Similarly, breadth of fruit exhibited significant positive correlation with weight of fruit, volume of fruit, weight of huskednut, volume of water in fruit, weight of shell and weight of kernel. The weight of fruit reflected a significant positive association with volume of fruit, weight of husk, weight of huskednut, volume of water in fruit and weight of kernel. The volume of fruit was significantly and positively correlated with weight of huskednut. volume of water in fruit, weight of shell and weight of kernel. The weight of husk reflected significant positive correlation with weight of huskednut and volume of water in fruit. The weight of huskednut in turn was positively and significantly correlated with volume of water in fruit, weight of shell and weight of kernel. The weight of shell and weight of kernal exhibited significant positive correlation.

Satyabal and Mathew (1984) reported significant positive correlation between weight of fruit and weight of huskednut, weight of fruit and weight of husk, weight of huskednut and weight of kernal, weight of huskednut and weight of shell, weight of huskednut and weight of copra, weight of kernal and weight of copra and weight of shell and weight of copra in coconut variety West Coast Tall. a very close correlation between weight of copra and weight of huskednut was earlier reported by Pieris (1934).

It was interesting to note that the oil content of copra, an important character of industrial importance was found to be significantly and positively correlated with weight of copra (-0.466) and weight of husk (-0.414) was significantly negative.

The results, therefore, indicated that size of the fruit (length and breadth), volume of fruit, weight of huskednut, weight of shell and weight of kernel were significantly and positively correlated with weight of copra.

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