

SOME EXPERIENCES WITH COCONUT IN THE WEST COAST

By M. GOVINDA KIDAVU, DIP, AGRI.

Deputy Director of Agriculture, IV Circle.

It is generally the rule in plant life, as in the case of animal life, that the characters of the parent determine the progeny. The object of this study on coconut is to find out how far the visible characters of a tree influence its yielding quality and whether this yielding quality can be improved, modified or altered by cultural and manurial treatments.

It is a matter of common observation that, in spite of similar conditions of light, spacing, cultivation and manuring, remarkable differences are often seen between individual trees of any coconut garden, not only in the yielding capacity, but also in the colour, size and shape of nuts.

Seed-selection is an important, well-recognized fact in the case of any crop, and especially so in the case of any valuable perennial crop like coconut. The attempt at seed-selection to improve the progeny, in the case of coconuts, has not always been attended with happy results. The writer had read before the Science Congress at Benares in 1924 a paper on 'Pollination in Coconut' where it was stated that Nature has fitted the coconut tree mostly for cross-fertilization, although there is provision for self-fertilization as well. Even under very careful selection of seednuts, one notices all sorts of variations in the trees. In the Government coconut stations at Nileshwar and Pilicode of South Kanara, though the seeds were collected from some of the best trees available on the West Coast under the direct supervision of responsible officers, variations are observed in the young trees. Attempts are, however, being made in the Government coconut stations to make a study of self-pollinated seeds.

For purposes of this study, observations made at the Kasargod coconut station are fairly conclusive. This station was acquired in 1916, when the age of the coconut trees was between 20 and 25. The soil is red loam with a good admixture of sand.

Detailed studies of the character and yield of trees in Block I of this Station, which is 2.5 acres in area containing 144 trees, of almost the same age, and situated at about 27 feet apart, were made. All the trees in this block receive the same or similar cultural and manurial treatment. During the Monsoon, the monsoon plough is worked three times, and during the hot weather the cultivator or *guntaka* is worked six to eight times. The block is manured uniformly with a mixture of 10 lbs. of fish guano and 20 lbs. of ashes per tree. A green manure and cover crop is grown during the Monsoon. The soil in this block is uniform for all practical purposes. Other factors, like season, affect all trees alike, although a good tree would stand an unfavourable season better than a bad tree.

Coming to classification, the character of a coconut tree can be determined by examining its various parts, such as the stem, the crown and the leaves, in addition to the most important factor, yield. The colour and size of nuts give a clue to the classification of the trees. Thus, the coconut trees have been classified into different types according to the colour and shape of their nuts.

Colour.—The main types of coloration, commonly met with, are the greenish and the reddish, although variations extending from green to reddish green, and from reddish green to red, are also noted. One can easily fix the colour of the nut, as this is generally correlated with that of the leaf and flower-stalk. In attempting a broad classification of the nuts into greenish and reddish, difficulty was experienced with those whose colour lay near about the border line. But they have been classified according to the type to which they appeared to approach most. That there are still exceptions, which cannot be brought under the above classification, is no doubt undisputed; for example the writer, during his recent tour in the Laccadives, observed on one coconut tree, in the Kalpeni Island, three bunches with green nuts, one bunch with yellow nuts and another, a fifth bunch, with both yellow and green nuts.

Shape.—Taking the shape of the nuts into consideration, a classification was also made. Here also, they are, for purposes of this study, grouped into two broad divisions, the round and the oval, although, in this case also, there are variations in shape, which are sometimes appreciable from bunch to bunch, and even from nut to nut of the same bunch of a tree. Then, there are nuts more long than oval—exceptions to the above classification. But they have been brought under either of the two divisions to which they appeared to approach most.

Thus, the two main types of character, colour and shape, are grouped into and classified under the following four divisions :—

- (i) Greenish round.
- (ii) Greenish oval.
- (iii) Reddish round.
- (iv) Reddish oval.

The table, below, shows the classification of the trees in Block I according to the colour and shape of their nuts. The numbers denote the tree numbers.

Greenish round	Greenish oval	Reddish round	Reddish oval
2. 6. 7. 9. 11.	3. 10. 14. 15.	27. 50.	26. 52.
12. 13. 17. 20.	16. 19. 21. 25.		
22. 23. 24. 29.	28. 32. 33. 37.	113. 134.	77. 122.
30. 31. 36. 39.	41. 42. 44. 48.		
43. 45. 57. 58.	51. 55. 56. 59.	146. 158.	128. 129.
60. 62. 76. 81.	61. 63. 64. 65.		
83. 84. 86. 87.	66. 67. 68. 74.	182.	130. 135.
88. 93. 103. 104.	78. 79. 80. 82.		
106. 109. 117.	85. 91. 100. 101.		138. 139.
118. 119. 121.	102. 105. 110. 111.		
123. 124. 126.	114. 116. 120. 125.		142. 143.
133. 147. 149.	127. 131. 132. 136.		
156. 159. 170.	148. 151. 152. 154.		161. 162.
171. 173	155. 157. 160. 163.		
	164. 165. 167. 168.		166. 175.
	169. 172. 174. 176.		
	177. 178. 179. 183.		180. 181. 184.
Total ... 50	68	7	19

To classify the trees according to their bearing capacity, the average yield for the past five years ending 1927 was taken into consideration. Trees which yield up to 30 nuts per year are classified as poor bearers, those which yield between 30 and 100 nuts as medium bearers, and the rest, i.e., those which yield above 100 nuts per year, as heavy bearers. Under the two types, the greenish and the reddish, the trees are again classified according to their bearing capacity into the above three divisions as given in the following table.

Reddish nuts			Greenish nuts		
Poor	Medium	Heavy	Poor	Medium	Heavy
26.	50. 52. 77.	180.	2. 3.	7. 9. 11. 12. 13. 14. 15.	10
				16. 17. 20. 21. 22. 23.	41
27.	113. 122. 128.	182.	6. 19.	24. 28. 29. 30. 31. 32.	44
				33. 36. 37. 39. 42. 43.	58
143.	129. 130. 134.	184.	25	45. 48. 51. 55. 56. 57.	62
			67	59. 60. 61. 63. 64. 65.	76
162.	135. 138. 139.		74	66. 68. 78. 79. 80. 81.	109
	142. 146. 158.		84	82. 83. 85. 86. 87. 88.	114
	161. 166. 175.		91	100. 101. 102. 103. 104.	168
	181.		93	105. 106. 110. 116. 117.	174
			111	119. 120. 121. 123. 124.	
			118	125. 126. 131. 132. 133.	
			127	136. 147. 149. 151. 152.	
			148	154. 155. 157. 159. 160.	
			156.	163. 164. 165. 167. 169.	
				170. 171. 172. 173. 176.	
				177. 178. 179. 183.	
Total .. 4	19	3	15	93	10

It would be interesting to describe the main characteristics of a few (say three) typical trees classified according to their bearing capacity.

Poor bearers.—1. Tree No. 3.—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
3	16	9	15	21	9	14.00

Short description.—Stem is rough due to stunted growth. Crown loose. Leaves apart. Petioles long and slender. Flower stalks lean and weak. There was a nux vomica tree near this, which was removed. Nuts green oval.

2. *Tree No. 25*.—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
25	18	11	16	18	17	16.00

Short description.—Stem rough due to deep leaf-scars. Crown compact and rather closed. Petioles broad and narrow. Leaflets broad and near. Flower-stalks short but somewhat slender. Nuts green oval.

3. *Tree No. 127*.—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
127	21	7	13	21	12	14.8

Short description.—Tree tapering towards the crown and inclining south-west. Stem rough due to scars caused by peeling of leaves, leaves apart. Petioles thin, short and very weak. Flower stalks short and strong. Leaflets short and slanting to the tip. The tree is suspected of root-disease and so isolated by trenching. Nuts green oval.

Medium bearers.

1. *Tree No. 29*.—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
29	69	57	69	72	57	64.8

Short description.—The stem is rough due to leaf-scars. Crown compact. Petioles fairly long and thick. Leaflets near and pretty broad. Flower stalks long and rather weak. Nuts green round.

2. *Tree No. 65*.—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
65	67	72	68	67	55	65.8

Short description.—Stem smooth and a bit sloping to the west. Crown rather closed. Petioles short and thick and leaves apart. Leaflets broad,

near and drooping. The tree is very shady. Stalks are short, but slender, though well supported. Nuts green oval.

3. *Tree No. 167.*—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-27)
167	73	47	58	93	50	64.2

Short description.—Tree is tapering towards the crown. The girth at the base is about 3 feet 6 in. Scars, due to peeling of leaves, are seen on the stem. Leaves are rather apart. Petioles broad and weak. The crown not shady. Flower stalks rather long. Nuts green oval and of good size.

Heavy bearers.

1. *Tree No. 58.*—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
58	125	122	126	118	113	121

Short description.—Stem is fairly smooth with an average girth of 2 feet 4 inches. Crown quite compact. Petioles long, thick and broad. Leaves are strong, and of a persistent nature with plenty of broad leaflets arranged very close. Flower stalks strong and rather long. Nuts are light green in colour, oval in shape and medium in size.

2. *Tree No. 76.*—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
76	113	111	98	121	101	110

Short description.—Stem is smooth with an average girth of 2 feet 4 inches. Crown is very compact with broad and well-formed leaves arranged very close. Petioles short, broad and strong. Peduncle is very strong. Nuts, green, oval and medium-sized.

3. *Tree No. 168.*—Annual yield of nuts :—

Tree No.	1923	1924	1925	1926	1927	Average of 5 years (1923-7)
168	154	129	114	100	104	120

Short description.—Stem is rough and not uniform in girth. Crown compact and spiral distinct. Leaves long and closely packed, with long,

broad and strong petioles. Flower stalks are strong and long. Nuts are light green, oval and medium-sized.

Analysing the various factors which influence the yield of trees, one finds the inherent quality of the tree counts and not the environmental factors like soil, manure, etc. The fundamental difference between any two plants whether it be in the physical appearance or yielding capacity, is due to their heredity. It is seen from the individual records of trees that, in spite of the uniform cultural treatment, certain trees are inherently superior yielders and certain others poor yielders. Better cultivation or manuring can improve the yields only up to a certain limit. It is the inherent yielding quality that is primarily responsible to make a certain individual a good yielder, another a medium yielder and a third a poor yielder.

The ultimate aim in the improvement of this crop should therefore be to get a strain which has an inherent good yielding quality and develop a race from it. The first step to achieve this object is to see that the seeds are selected from the best types; for, it is clear that it is through seeds that all characters are inherited. Hence, seed-selection from reputed bearers is one of the important things that can be done at present to improve the progeny.

THE MOTOR VEHICLES TAXATION ACT AND MADRAS AGRICULTURE

BY E. S. SUNDA, B.A., B.L., F.A.U.

Vakil and President of the City Audit Union, Madura.

Readers of the Journal are aware of the recent passing of the Madras Motor Vehicles Taxation Act. They may be also aware of Section 11/A of the Act which came in at the instance of our President-elect, Rao Bahadur T. A. Ramalingam Chettiar. The section reads thus:

'Nothing in this Act shall apply to a motor vehicle used solely for the purposes of Agriculture.

Explanation—A Motor Vehicle used for transporting agricultural produce along a road shall not for the purpose of this section be deemed to be used solely for the purposes of Agriculture.'

The main body of the section gives an appearance that the Act is out to help the Agriculturists. Mr. Chettiar in proposing the amendment said 'as in other countries, in this country also motor tractors and other machinery are coming to be used for agricultural purposes. If the Government are going to tax these vehicles as is proposed in the schedule, then the practice of using machinery for agricultural purposes will be suppressed completely. I think that is not the intention of anybody here.' But the explanation takes off the merit of the body of the section when it says 'transporting agricultural produce along a road' (say to a market or godown) is not an agricultural purpose under this section. Many of us are aware that Indian agriculture suffers for want of facilities for quick transport and easy means of communication. If taking paddy to a market for sale or to a godown