

The Occurrence of Barren Nuts in Arecanut

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The production of barren nuts without or with imperfectly developed kernel 'Manikayee' (Male nuts) is not uncommon in arecanut. In coconut also, this is a common feature and it is believed that many reasons like defective fertilization resulting from defective pollination, existence of some incompatibility mechanism etc. are responsible for this phenomenon. It is also indicated that some physiological factors controlled genetically or otherwise may be responsible for the disturbance in the metabolic process resulting in the abnormal developments. Instances of palms producing only barren nuts from the very initiation of flowering are however very rare. The present study deals with a peculiar arecanut palm which has been producing only barren nuts since the commencement of bearing.

This palm is an introduction VTL-1 from Fiji Islands, maintained in the main field since 1961 at the Central Plantation Crops Research Institute, Regional Station, Vittal. The fully tree ripe nuts are small and contain thick husk and hard rudimentary kernel inside without embryo. The palm appears healthy with a graceful partially drooping crown.



The Palm Bearing Barren Nuts

The palm produces three to four inflorescences in a year which are quite normal in appearance. There is no abnormality in the floral parts or in the number of the stamens. Pollen sterility is found to be below 10 per cent which is almost negligible.

With a view to studying this phenomenon in detail the inflorescences were pollinated under controlled condition with the pollen of the same palm. This could not effect normal fertilization; but the buttons (female flowers) slightly elongated in size and swelled up a little than the normal ones. They reach their maximum development in 4-5 months time. Shedding of buttons and nuts (a common feature in arecanut) was not observed till the nuts were fully tree ripe. Further, two inflorescences were emasculated and bagged separately before the female flowers became receptive, thereby preventing the chances of pollination completely. This showed no difference from that of self-pollination. Afterwards one of the inflorescences was artificially pollinated by using pollen from another introduction which was normal in all the respects and as a result 60% fruit-set was obtained which has been more than the average fruit-set in arecanut (37%) under South Kanara conditions. The nuts thus obtained were of normal size and shape with properly developed kernal and embryo.



I A Bunch Showing Barren Nuts (Open Pollination)

II A Bunch of Fully Developed Normal Nuts (Controlled Pollination)

The germination of the nuts was also satisfactory (92%). The next bunch was pollinated in the same manner using pollen collected and bulked from different palms and an increase of 6 per cent fruit-set (i.e. in all 66%) was obtained.

The above results reveal that the production of barren nuts in this palm is due to defective pollination which prevents successful fertilization and the normal developments of nuts.