

ADDITIONS TO THE LIST OF ABNORMALITIES IN ARECANUT

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THE occurrence of abnormalities is a common feature in all crops and arecanut is no exception. Nayar (1943), Adyanthaya and Bhat (1955), Rao (1959), Raghavan (1957), Murthy and Bavappa (1959), Bavappa and Murthy (1959, 1961) and Davis (1960) have recorded abnormalities in respect of root, stem, leaf and flowers in this crop. Some more abnormalities noticed by the author are listed below:

1. Tow leaves and two spadices in one node

The arecanut palm produces only one leaf at a node and the leaf encloses a single spadix. In 1959, the occurrence of two leaves on the same node was observed in the garden of Sri K. Ganapathy Bhat at Karyad. The leaves were of normal size, opposite and each enclosed a single normal-sized spadix (Plate-I). The leaves dropped in the normal course and both the spadices developed normally and carried the fruits to maturity.

Later, in 1961, the occurrence of two spadices enclosed by one leaf was noticed in the garden of Dr. Ishwara Bhat near the Central Arecanut Research, Station Vittal. In this instance however, one spadix was of normal size while the other was undersized but contained appreciable number of female flowers. Both developed normally and while the former carried about 200 fruits



Two spadices in one node

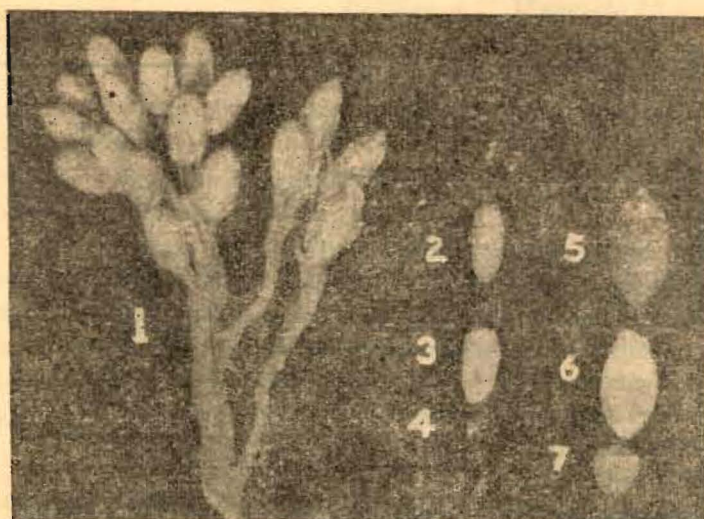
to maturity, the latter carried only nine fruits to maturity.

2. Seedless fruits:

The arecanut fruit consists of a thick, tough and fibrous pericarp (husk) enclosing a single seed or kernel. In 1960, the author noticed the stray occurrence of fruits without the seeds. The seedless fruits were much smaller than the normal fruits in size but the pericarp was unusually thick in relation to the size of the fruit. Instead of

the normal seed the pericarp enclosed small dark-brown to black fairly hard kernel-like structures which were without an embryo

(Plate-II). The measurements of a few normal and abnormal fruits such as those described here are given below.



- 1 Portion of a bunch with seedless arecanut fruits,
- 2 A seedless fruit,
- 3 L. S. of a seedless fruit,
- 4 Rudimentary kernel-like growth,
- 5 A normal seed fruit,
- 6 L. S. of seeded fruit and
- 7 Kernel or seed of a normal fruit

TABLE
Size of normal seeded fruits

Ft. No.	Entire fruit			Kernel (seed)			Embryo			
	Green weight gm.	Volume c.c.	Length c.m.	Diameter c.m.	Weight gm.	Vol. c.c.	Len. cm.	Dia. cm.	Len. cm.	Diameter cm.
1.	15.35	15.00	4.78	2.54	4.79	4.00	2.04	2.00	0.30	0.32
2.	18.07	18.00	4.88	2.67	5.56	5.00	2.17	2.00	0.30	0.32
3.	18.87	18.00	4.88	2.78	5.84	5.00	2.11	2.12	0.32	0.30
Mean	17.43	17.00	4.85	2.66	5.40	4.67	2.11	2.04	0.31	0.31

Size of seedless fruits

Ft. No.	Entire fruit			Rudimentary kernel				
	Green weight gm.	Volume c.c.	Length cm.	Diameter cm.	Weight gm.	Volume c.c.	Len. cm.	Dia. cm.
1.	1.67	2.00	2.12	1.40	0.005	—	0.30	0.24
2.	2.60	3.00	2.94	1.40	0.015	Less than	0.42	0.24
3.	3.37	4.00	3.18	1.64	0.080	0.10	0.65	0.52
4.	3.79	5.00	3.27	1.58	0.090	0.10	0.72	0.48

5.	3.64	5.00	3.24	1.55	0.100	0.10	0.78	0.50
6.	4.06	5.00	3.50	1.66	0.095	0.10	0.75	0.52
7.	3.88	5.00	3.52	1.55	0.100	0.10	0.79	0.52
Total	22.95	29.00	21.77	10.78	0.495	0.60	4.41	3.02
Mean	3.28	4.14	3.11	1.54	0.071	0.09	0.63	0.43

It can be seen from the data that there is a great deal of variation as regards size of fruits and kernel among the abnormal fruits.

It is not possible to say if the production of such abnormal fruits is case of parthenocarpy, or arises out of the failure of further development of the zygote due to abnormal conditions. In this connection it may be stated that according to Gardner, Bradford and Hooker (1952) the immediate cause of seedlessness in fruits, that have not developed parthenocarpically, is embryo abortion, which might have been brought about by internal or external factors. Further studies in this regard are necessary.

The occurrence of parthenocarpy has been recorded in the oil palm (De Blank, 1952) a close ally of the arecanut and it is quite possible that the occurrence of above type of fruits in this crop is an instance of parthenocarpy. The occurrence of seedless fruits or parthenocarpy is a highly desirable feature in most edible fruits. But in the case of arecanut, where the seed constitutes the end product, such a feature is a disadvantage.

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