

The Influence of Drying on the Germination of Seed Arecanuts (*Areca catechu* L.)

by

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Introduction: The importance of arecanut industry in the economy of the country has been recognised only recently. Except undertaking certain measures for combating some important diseases of the palm, very little work has been done regarding the fundamental breeding or agronomic aspects of this crop, though it occupies a total area of about 2,60,000 acres.

Amongst the agronomic practices followed in the cultivation of this crop, the treatments given to the seeds before sowing is observed to be of considerable importance. The seed arecanuts are usually partially dried before sowing or allowing them to germinate. It is not known if it is really essential to dry the nuts or to give a sort of dormancy period before sowing them, to get a successful germination. It is also believed that partial drying of nuts helps to disintegrate the husk at a later stage (when the nuts are irrigated) and ensures easy emergence of sprouts. Hence, with the object of determining the necessity or otherwise of partial drying of nuts to get successful germination of nuts, an experiment was conducted. The data collected and the results achieved are presented in this paper.

Review of Literature: Literature on this subject seems to be meagre. However, Nambiar (1949), Coleman and Venkata Rao (1918) and Yegnanarayana Iyer (1944) have mentioned that the arecanuts are dried before sowing. They have not mentioned the reasons for drying the arecanuts. To quote Sri K. K. Nambiar, the agronomic practices of areca are still "primitive, affording considerable scope for improvement of its cultivation."

Material and Methods: The trial was conducted for a period of five months commencing from January 1955, at the Arecanut Research Station, Vittal, South Kanara district. Seed nuts were selected from healthy trees of regular and good yielding nature. Bunches which were almost uniformly ripe and from which ripe nuts had begun to drop were selected and the nuts selected for the trial were from the middle portion of the bunches. Immediately after separation of the nuts from the bunches they were dipped in cattle-dung solution. Sowings were commenced from the day of

harvest up to after 21 days of drying. The nuts were dried by spreading them under a pandal. From each bunch 110 nuts were selected and ten nuts of each were sown on every alternate day, thus sowings were done on 11 days. Each day's sowing was done in separate rows and a uniform spacing was maintained throughout giving three inches between nuts along rows which were one foot apart. The nuts were dibbled with their top (or calyx) ends pointing upwards and level with the surface of soil. The experiment was repeated five times by obtaining nuts from 5 bunches of 5 different trees. Watering was done immediately after sowing by using a rose-head can daily, except during rainy days and it was ensured that the ground was kept continuously moist but without stagnant water at any time. The observation of the number of nuts germinated in each row was made on alternate days. The data regarding the number of days required for germination of the nuts sown on different dates and the percentage of nuts germinated in each group are given in the tables.

The following conclusions may be drawn from the data set out in the tables.

1. Cent per cent germination of seed arecanuts was obtained from those which have been sown either immediately after harvest or sown after one day's drying.

2. Drying of arecanuts does not seem to increase the capacity of nuts to germinate.

3. Seed-nuts obtained from the same bunch itself required varying number of days for germination under identical conditions.

4. Germination commences from about 47 days after sowing and extends up to 81 days after sowing. The average number of days required for germination is 63.

Discussion: From the enquiries made by the author and also as reported by Nambiar and Coleman it is known that drying of arecanuts for varying number of days before sowing is almost a universal practice. It is believed by some that successful germination could be obtained only by partial drying of arecanuts required a sort of dormancy period. With the object of finding out the necessity to dry arecanuts before sowing, the above experiment was conducted and the results go to show that it is not necessary to dry arecanuts before sowing. It was also observed from the morphological point of view that the seedlings that have come up

TABLE I
Percentage of nuts germinated (sown on different dates)

Repli- cations	Date of sowing											Mean
	31-1-55	2-2-55	4-2-55	6-2-55	8-2-55	10-2-55	12-2-55	14-2-55	16-2-55	18-2-55	20-2-55	
I	100	100	90	100	90	100	100	100	100	100	60	92.7
II	100	100	100	90	100	90	70	80	50	60	Nil	76.3
III	100	100	100	100	100	100	100	100	100	100	80	98.2
IV	100	100	100	100	100	100	100	100	90	80	60	93.6
V	100	100	100	100	100	100	100	100	100	50	60	91.8
Mean	100	100	98	98	98	98	94	96	88	74	52	—

TABLE II
Number of days after sowing required for germination of nuts sown on different dates

Sowing No. and Date	I			II			III			IV			V			Mean		
	Min.	Max.	Av.	Min.	Max.	Av.	Min.	Max.	Av.	Min.	Max.	Av.	Min.	Max.	Av.			
1. (31-1-55)	57	77	67	63	73	68	61	67	64	57	73	65	57	65	61	59.0	71.0	65.0
2. (2-2-55)	59	79	69	55	71	63	63	73	68	59	75	67	55	75	65	58.2	74.6	66.4
3. (4-2-55)	59	77	68	57	67	62	57	73	65	53	73	63	53	73	64	56.2	72.6	64.4
4. (6-2-55)	55	77	66	57	71	64	57	75	66	53	71	62	53	63	58	55.0	71.4	63.2
5. (8-2-55)	53	73	63	59	71	65	53	63	58	49	59	54	49	63	56	52.6	65.8	59.2
6. (10-2-55)	53	57	55	53	63	58	53	71	62	47	67	57	49	57	53	51.0	63.0	57.0
7. (12-2-55)	53	65	59	53	65	59	51	57	54	57	61	59	49	63	56	52.6	62.2	57.4
8. (14-2-55)	51	59	55	55	67	61	51	59	55	57	69	63	51	67	59	53.0	64.2	58.6
9. (16-2-55)	51	67	59	61	81	71	51	67	59	61	77	69	53	65	59	55.4	71.4	63.4
10. (18-2-55)	47	67	57	51	71	61	50	67	63	63	75	69	55	69	62	55.0	69.8	62.4
11. (20-2-55)	49	65	57	Nil	Nil	Nil	57	67	62	63	75	69	55	67	61	56.0	68.5	62.2

from the nuts that have not been dried are not inferior to the seedlings obtained from those obtained from dried nuts. Hence it can be concluded that the drying of arecanuts before sowing is not necessary to get good areca seedlings. Even though the experiment was primarily intended to correlate the germination capacity of arecanuts with drying, the trial was further utilised to get a correct idea of the number of days required for the nuts to germinate. The fact that only 52 per cent of the nuts that have been dried for over 21 days have germinated, gives an indication that they begin to lose their viability after a certain stage of drying. However, since the ultimate aim of any experiment is only the yield per tree, it is quite necessary also to see and compare how these seedlings obtained from nuts of different stages of drying will fare when they begin to yield.

Summary: With a view to find out whether it was essential to dry ripe arecanuts before sowing to get a good germination, an experiment was conducted by sowing ripe arecanuts after drying for different number of days. The results obtained go to show that it is not necessary to dry arecanuts before sowing at all and the germination started after about 47 days of sowing. The process of germination continued up to 81 days.

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