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VITALITY OF RUBBER SEEDS.

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PLANTATIONS, F.M.S.

Seeds of *Hevea braziliensis* do not retain their vitality for a long period and the consequent difficulty of forwarding them successfully to distant countries is well known. This year several hundred thousand Para seeds from tapped trees were packed in Venesta chests with charcoal and forwarded to Trinidad. The results obtained were far from satisfactory although the seeds were most carefully selected and packed.

There is no doubt that seeds picked immediately on falling, and carefully packed, give the best results. If they are allowed to be on the ground, or if badly packed, a smaller percentage of germination will be obtained. It must be borne in mind however, that no matter how the packing has been done, the vitality of Para seeds cannot be retained for any length of time if they are not gathered immediately. The seeds must not be packed too many in a box, otherwise fermentation starts and the whole mass heats and loses its vitality; the packing material must be just sufficiently moist to prevent the seeds from drying out and not moist enough to encourage the growth of moulds and bacteria. For the same reason the packing must be fairly tight and yet not quite air-tight. Small boxes seem better than larger cases.

Experiments have been carried out as mentioned in a previous article* at the suggestion of the Director of Agriculture to compare the germinating power of seeds from tapped and untapped trees (Expt. I.) and to see if by coating the surfaces of the seeds with various substances (Expt. II.) the germinating power could be retained for a longer period. The tapped and untapped trees selected for the experiments are 12 years old; the first mentioned have been tapped for the past 2 years, the seeds were collected fresh each morning and treated as mentioned in the following list.

Experiment I.

The Vitality of Seeds from Tapped and Untapped Trees.

All seeds were packed with burnt padi husk in biscuit tins, each containing 200 seeds. The tins were wrapped in brown paper and sealed.

Boxes Nos. 1, 2, 3, 4, 5 and 6 were kept 3, 5, 7, 8, 9, and 10 weeks respectively then opened, and the seeds planted in well prepared nursery beds. It will be seen from the tables that seeds from untapped trees gave on an average 50 per cent. higher germination than those from tapped trees reckoned on the absolute percentage. In each test the former showed from two to three times as many germinations as the latter.

A record of similar experiments is published in the Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon, Volume IV., No. II, May 1908. This circular states that "seeds from tapped trees kept for five weeks did not germinate but those kept for four weeks showed 28 per cent. germination while seeds from untapped trees kept for four weeks did not germinate and those kept for three weeks showed only 3 per cent. germination. Both in percentage, germination, and time of germination the seeds from tapped trees are better throughout." No information is given regarding the manner in which the seeds were kept previous to planting.

It will be seen that the Ceylon figures are at variance with those obtained here, but it is difficult to say why this should be.

The Ceylon Circular also states that seeds from tapped trees are smaller, weigh less per 1000 seeds than those from untapped trees. This agrees with the figures obtained here, namely, seeds from untapped trees were found to be on an average 10.7 per cent. heavier than those from tapped trees of similar ages. The figures in Experiment I. are of interest not only as regards the suitability of exporting seeds from untapped trees but they also tend to show the effect tapping has on the vitality of the seed. Tapping lessens the weight and size of the seeds, and according to the present experiments reduces the germinating power.

* Agricultural Bulletin of the Straits and Federated Malay States Vol. X. No. II, p. 345, November 1911.

It is evident that seeds which are to be exported are best selected from untapped trees.

Experiments are to be conducted to compare the growth of plants resulting from seeds of tapped and untapped trees.

Table I.

Percentage of Seed Germination obtained from Tapped and Untapped Trees.

No of box.	No. of seeds in box.	Length of time the seeds were in boxes.	No. of plants obtained.		Percentage of seed Germination.	
			Tapped.	Untapped.	Tapped.	Untapped.
1	200	3 weeks	67	156	33	78
2	200	5 "	46	133	23	66
3	200	7 "	48	100	24	50
4	200	8 "	40	167	20	83
5	200	9 "	40	164	20	82
6	200	10 "	49	165	24	82

Experiment II.

The Preserving of Rubber Seeds from Tapped Trees.

The seeds in these experiments were collected and packed in a similar way to those in the first experiment but they were coated respectively with bees wax, hard paraffin, and vaseline. The bees wax and hard paraffin were melted and the seeds dipped into their respective liquids, allowed to solidify and then packed. Previous to planting the seeds, the hard paraffin, bees wax, and vaseline were removed.

The percentage of germination of untreated seeds from tapped trees can be seen by referring to experiment I. On comparing this with the seeds coated with bees wax it will be seen that the latter showed an increased germination to the extent of approximately 30 per cent. The seeds coated with hard paraffin gave better results than untreated seeds from tapped trees but not as good as those coated with bees wax.

The seeds treated with vaseline did not germinate. The coating of rubber seeds with any substance is undoubtedly an expensive treatment but if seeds have to be sent to countries which take from 1½ to 2½ months to reach and seeds from untapped trees cannot be obtained, then, I think that the extra percentage of germination resulting from seeds being coated with bees wax would more than repay the extra expense entailed by this system of treatment.

Table II.

Percentage of Germination of Seeds from Tapped Trees coated with Bees Wax and Paraffin.

No of box.	No. of seeds in box.	Length of time the seeds were in boxes.	NO. OF PLANTS OBTAINED.		PERCENTAGE OF SEED GERMINATION.		
			Bees Wax.	Paraffin.	Bees Wax.	Paraffin.	Untreated.*
1	180	3 weeks	107	62	59	34	33
2	180	5 "	108	71	60	40	23
3	180	7 "	94	74	52	41	24
4	180	8 "	82	66	45	37	20
5	180	9 "	100	61	55	34	20
6	180	10 "	86	58	47	32	24

* Untreated seeds from tapped trees (see Expt. I.)

In no case was there apparent a large falling off in germinating power from the third to the tenth week.

It is hoped to repeat both experiments in 1912.

GOGO VINE.

(*Entada scandens*, Benth).

In the "Board of Trade Journal," September 14th last, reference is made to samples of "soap bark," the prepared bark of the Gogo Vine recently received from H. M. Consul at Manila, with the information that the material is suitable for the manufacture of soap and hair-washes.

From small specimens of the stem and prepared bark obtained from the Board of Trade, it has been possible to determine the material as the produce of *Entada scandens*. This is an immense climber cosmopolitan in the tropics, and may be readily recognised by its spirally twisted stems and huge pods which are from two to four feet long, containing hard polished flat circular seeds of a chestnut colour. So long ago as May, 1855, the late Mr. T. C. Archer presented to the Museum a similarly prepared sample of the bark under the same vernacular name, with a note to the effect that it contains saponaceous properties, forms a lather with water, and is much used by Manila ladies for cleaning the hair. The following particulars as to the mode of preparing the bark and its local applications are gathered from "The Medicinal Plants of the Philippines,"