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STORAGE OF TEA SEED

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These pioneer experiments of Mr. Hume, in which he has demonstrated that tea seed can be successfully kept in cold storage at 40°F for periods of up to six months without loss of germination, should prove of the greatest value to all tea seed producers.

It must frequently happen on estates where tea seed is sold in large quantities, say 150 to 200 maunds a year, that it is not always possible to dispose of the total harvested crops, particularly during the heavy cropping months. On this particular estate nearly 3/5 of the annual crop is harvested during the period June/September. It may be that for one reason or another there is no demand for seed or it may be that monthly crops, which can not always be accurately estimated, greatly exceed expectations and buyers are not to be found at short notice to purchase these few additional maunds. On the other hand it must frequently happen that the supplier has to refuse numerous requests for tea seed during the period October/May as seed at that particular time of year is in short supply but in strong demand. This has certainly been my experience on Chapelton in 3 out of the 7 years that I have been in charge of this estate. To my knowledge, 2 years ago, on an estate which sells some 200 maunds of tea seed a year, 40 odd maunds of seed had to be thrown away during July, August and September, because unexpectedly good seed crops were harvested, and there was at that time very little demand for seed. If that seed could have been stored for say 2 to 6 months I have no doubt at all that it could have been disposed of to the mutual benefit of supplier and purchaser. I have been involved in a similar situation more than once but fortunately not involving so great a quantity of seed.

As a result of this experience I began to make extensive enquiries on the storage of tea seed. The only information and advice I was able to obtain was to store seed in air tight containers, *i.e.* kerosene oil tins or larger containers depending on the quantity of surplus seed involved. This was tried out with several maunds of seed packed with or without charcoal, in kerosene oil tins, in lined tea chests and so on. The results even after only 2 and 3 months storage were extremely disappointing; no seed stored in such a manner could be sold, since even 50 per cent. germination could not be guaranteed after 3 months storage.

It then occurred to me that most vegetables, fruits, etc. can be, and are, stored for considerable periods of time in a deep freeze; why then should tea seed not be similarly stored? I therefore wrote to the T.R.I. asking their advice and views on this idea. Mr. Portsmouth was enthusiastic and immediately wrote giving me temperatures at which this experiment might be tried out which were briefly as follows:—

(1) Tea seed stored in sealed tins with charcoal at a constant temperature of 20°F.

(2) Tea seed stored in wooden boxes, lined with paper, but naturally not air tight, at 40°F.

Unfortunately I had at this particular time very little surplus seed and I was therefore only able to pack 5 wooden boxes, each containing ½ maund seed, and 2 kerosene oil tins, each containing 29 lbs. (This was the total amount of seed which could be put into one kerosene oil tin). The seed was carefully selected. Each ½ maund box contained approximately 8,500 seeds: a more normal quantity would have been from 10,000 to 12,000 seeds. Before despatch the seed was "floated", and seed which sank within 5 minutes was then put in the sun for 5 minutes before being packed. The containers were numbered and dated and sent down to the Cold Stores Ltd., Colombo for storage at the recommended temperatures. The containers were withdrawn from Cold Stores for germination tests after periods of 1, 3, 4½, 5 and 6 months.

The results of the germination tests on the seed stored in the boxes are given in Table 1. The seed stored in the [illegible] oil tins was a complete failure, a fact which was obvious as soon as the tins were opened.

Table 1. *Germination of samples of stored tea seed.*

Sample no.	Storage period	Total no. of seeds	Number germinating	No. not germinating	% germination
1	1 month	8,122	7,293	829	89.8
2	3 months	7,459	7,336	123	98.5
3	4½ months	8,671	8,387	284	96.7
4	5 months	8,384	8,200	184	97.8
5	6 months	8,234	7,609	625	92.4

In the above experiment the figures apply to all the seed in each box. The seed in each sample was picked over at regular intervals, and in every case the good seed germinated within 5-6 weeks of the first picking over. The results speak for themselves. The only disappointing result was sample No. 1. This box was despatched to a friend of mine who was in need of seed. The seed was given on condition that careful germination results were kept. I think that this must have been left to the tender care of a nursery labourer! The other boxes were germinated most carefully under my personal supervision and can be vouched for.

Since it is commonly held that "floaters" are bad seed, I decided to germinate the sinkers and floaters in sample No. 5 separately. This box had been stored for 6 months. The results are given in Table 2.

Table 2. *Germination of "floaters" and "sinkers" in tea seed stored for 6 months.*

Date picked over	No. of seeds germinated		
	"Floaters"	"Sinkers"	Total
31-3-55	1,035	1,642	2,677
4-4-55	1,010	1,475	2,485
8-4-55	500	515	1,015
12-4-55	305	274	579
16-4-55	185	154	339
20-4-55	160	83	243
24-4-55	152	36	188
27-4-55	57	7	64
2-5-55	11	2	13
6 -5-55	6	0	6
Total germinated	3,421	4,188	7,609
" ungerminated	604	21	625
Germination %	85	99.5	92.4

I hope that the germination results above will be of some comfort to those who believe that floaters are automatically bad seed and will not germinate. Seed when collected is always "floated" before sorting and it is only the floaters from the initial test which can be said to be bad and that is not always so.

I have received a few complaints from purchasers that 50 per cent. of the seed supplied are floaters. These have even been returned to me on occasions. They have germinated very well! As much as 5 days to a week may elapse between collecting and sorting seed until they arrive at their destination, during which time there may have been a certain amount of drying which will cause the seed to float. Immediately seeds are received they should be "floated". Sinkers should immediately be put out to germinate in moist sand and the floaters can be left in water for several hours during which time the majority will sink. Floaters may then, if desired, be germinated separately and will in all probability take somewhat longer to germinate. But do not condemn floaters automatically as useless and throw them away.

I have to thank the Managing Director of Cold Stores Ltd., for his co-operation in these experiments. Without his assistance the experiments could not have been carried out to, I consider, a very successful conclusion. For the information of anyone who may be interested the charge for storing seed at Cold Stores Ltd. would be Rs. 3/- per case of 40 lb. or part thereof, per month or part.