POLLINATION

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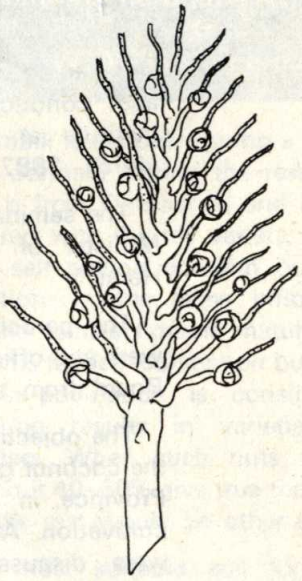
Introduction

The seeds derived by hand-pollination of carefully selected parent trees are of high quality. As the superior characters of such parent trees are known, it is likely that the seeds derived from such trees will also have most of these characteristics. The parent trees of an ordinary seednut are not known. Even if the mother tree is known, pollen could come from an unknown tree, and the resulting progeny could be weak. This condition could be obviated by hand-pollination. The seednuts derived from hand-pollination are even better than those from improved trees.



Hand pollination

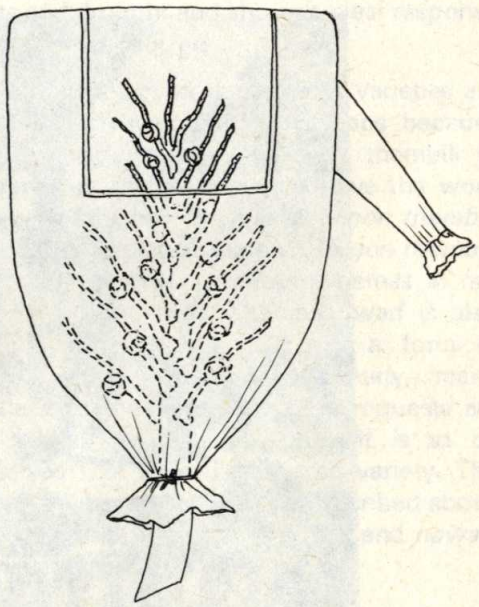
In hand pollination, it is essential to select mother trees with superior characters. In such trees, the date on which the inflorescence opened should be noted.

Emasculation

All male flowers should be removed three days after the inflorescence is naturally opened. This process is known as emasculation. The spikelets are cut about 15 cm away from the female flowers. The remaining male flowers should be removed by hand. Normally, male flowers mature from 3–18 days after the inflorescence is opened. Emasculation prevents the collection of pollen in the same inflorescence.

Bagging

Emasculation is carried out 3 days after the natural opening of the inflorescence. Poorly developed female flowers are removed 14 days after the opening of the inflorescence. The inflorescence is then covered with a bag made of white poplin which has a polythene window and a sleeve (see diagram). This bag will prevent the entry of pollen from outside. Before the bag is placed, the sleeve should be



Note: This is a translation of an article written in Sinhala.

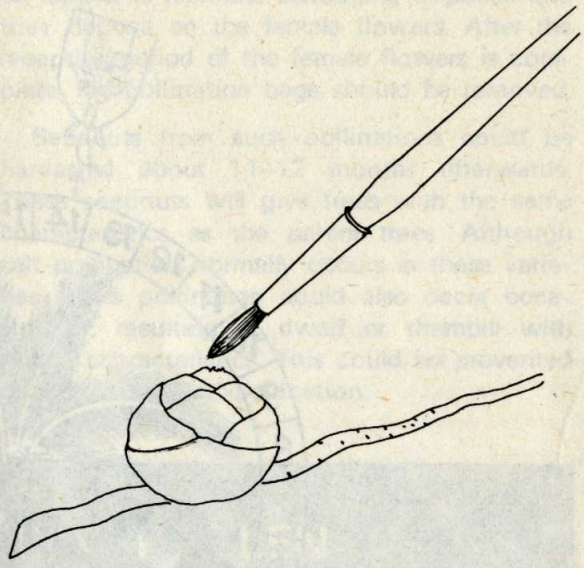
tightly closed. After the inflorescence is inserted into the bag, it should be carefully closed inserting a wad of cotton wool to prevent the entry of insects. An insecticide is then applied to the base of the inflorescence and to the outside of the bag. This will also prevent the entry of insects. The female flowers mature in 21–23 days after the opening of the inflorescence and will be receptive for pollination. The inflorescence should be bagged at least six days before the female flowers become receptive. This is because under normal conditions, pollen could be viable for about six days. When the inflorescence is bagged after 14 days of opening and if there is any alien pollen, that will not be viable when the female flowers become receptive.

Earlier, emasculation was not carried out in hand-pollination. However, this is practised now to ensure that pollen from the same tree do not fall on the female flowers.

Previously, polythene was used to make the pollination bags. It was observed that water condenses inside such bags. Also the temperature inside polythene bags could be high, resulting in drying and falling of female flowers. Much better results could be obtained by using pollination bags made of poplin with a polythene window.

Pollination

The female flowers become receptive 21–23 days after the opening of the inflorescence, at which stage the distal end of the flower become whitish. Also, sweet nectar oozes out. The female flower is suitable for pollination at this stage. Before pollination, hands should be washed with 75% Ethyl Alcohol. Pollen collected from the selected tree should be applied on to the female flower using a camel hair brush. The brush is inserted into the pollination bag through the sleeve (see diagram). The pollen will quickly germinate once applied in this manner. It is preferable to apply pollen on the same female flower on two consecutive days as all female flowers do not become receptive on the same day. A single inflorescence may have to be pollinated for 3–4 days. Pollination should be carried out in the forenoon.



Removal of pollination bags

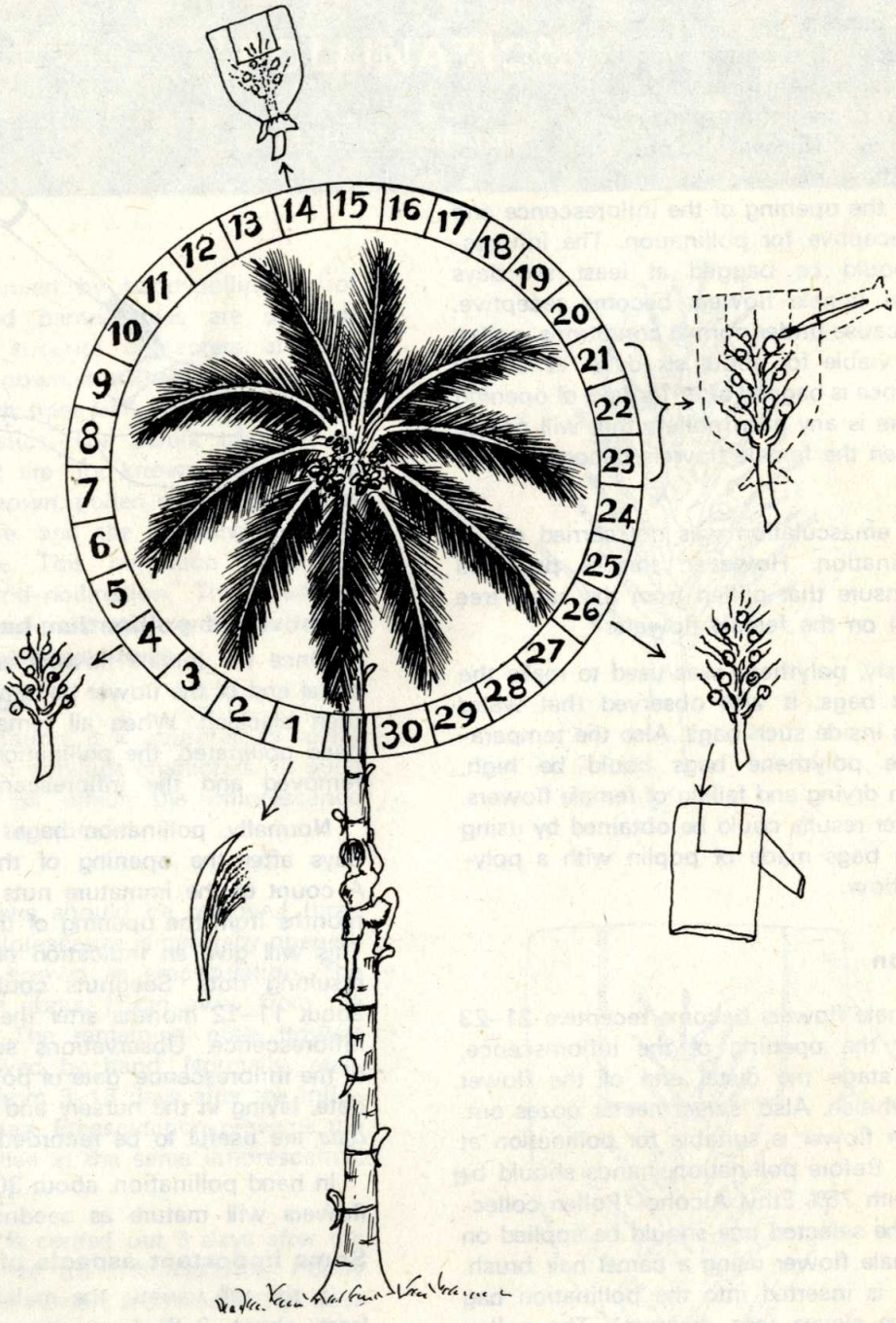
Once the female flowers are pollinated the distal end of the flower becomes brownish and then blackish. When all female flowers have been pollinated, the pollination bag should be removed and the inflorescence tagged.

Normally, pollination bags are removed 26 days after the opening of the inflorescence. A count of the immature nuts is taken after 3 months from the opening of the inflorescence. This will give an indication of the number of resulting nuts. Seednuts could be harvested about 11–12 months after the opening of the inflorescence. Observations such as opening of the inflorescence, date of pollination, harvest date, laying in the nursery and the germination data are useful to be recorded.

In hand pollination, about 30% of the female flowers will mature as seednuts.

Some important aspects of pollination

In the tall variety, the male flowers mature from about 3–8 days after the opening of inflorescence whereas the female flowers become receptive from 21–23 days after opening. Therefore, in this variety, there is **cross-pollination** as pollen from another tree would be required to pollinate the female flowers. In the dwarf variety and in thembili, the male flowers mature over a period of time until they fall.



The female flowers become receptive from 7–10 days after opening of the inflorescence. In these varieties, the female flowers are receptive when the male flowers are mature, resulting in **self-pollination.**

Controlled self-pollination

In dwarf and thembili varieties, the spathe is removed on or 1–2 days prior to the opening of the inflorescence. The poorly developed female flowers are removed and the spikelets are cut about 20 cm from the male flowers. This inflorescence is then bagged with a pollination bag without a sleeve. An insecticide is applied, as described earlier, to prevent the entry of insects. About 7–10 days after bagging, the female flowers become receptive, at which stage the male flowers are also mature. When the female flowers are receptive the bag should be tapped to facilitate dislodging of pollen and their deposit on the female flowers. After the receptive period of the female flowers is complete, the pollination bags should be removed.

Seednuts from such pollinations could be harvested about 11–12 months afterwards. These seednuts will give trees with the same characteristics as the parent trees. Although self-pollination normally occurs in these varieties, cross pollination could also occur occasionally, resulting in dwarf or thembili with hybrid characteristics. This could be prevented by controlled self-pollination.