

## Hand Pollination of Cherimoya Improves Fruit Set

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The cherimoya, said to be among the world's finest fruits, is well adapted to many sections of southern California.

One of the limiting factors of commercial production of the cherimoya in California has been irregular and light yields together with the formation of poorly shaped fruits.

Investigations carried on by the Division of Horticulture at Los Angeles have shown the cause of poor quality fruit and irregular production to be the result of inadequate pollination.

It is evident from experiments and many observations that the cherimoya is not extensively pollinated by insects in California. Hand pollination has been clearly shown to be a very practical method of performing this necessary process in order to assure fruit set.

### **The Cherimoya Tree**

The cherimoya is a tender semi-deciduous, subtropical plant restricted to those areas which are relatively frost free and where strong winds and very dry atmosphere are not prevalent.

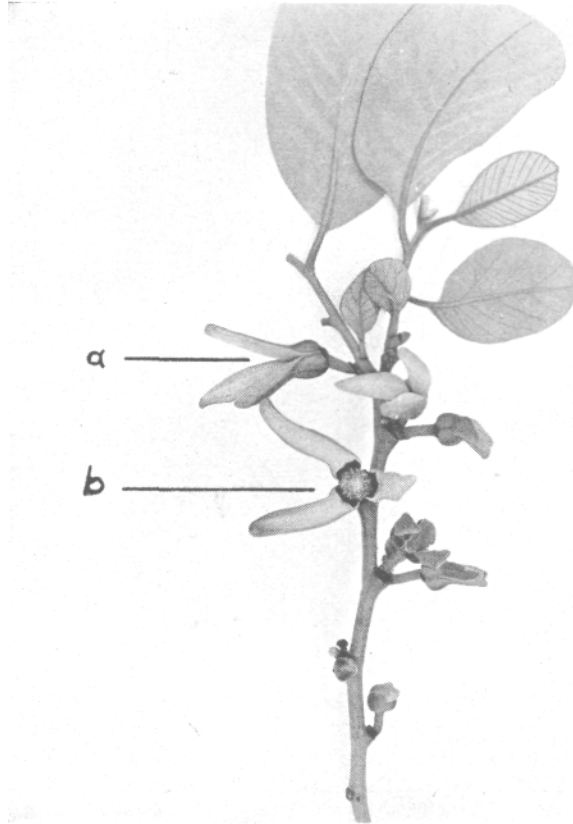
The tree attains considerable size—up to fifteen feet high—when grown in good soil. The lush, dark green, elliptical and pointed leaves make the plant very desirable, not only as a fruiting specimen but as an ornamental as well. The leaves are shed and the plant is bare for a short period in early spring just before the flowers and new leaves appear.

### **The Fruit**

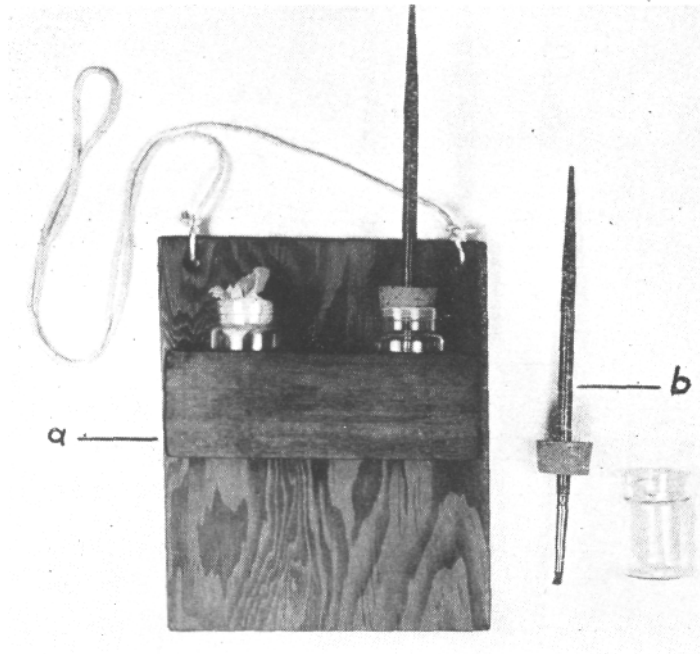
The delicious and interesting fruits—sometimes erroneously referred to as custard-apples, as are a half dozen other fruits—mature from November to June, depending upon the locality and the variety grown.

The fruit is short conical to spherical in shape and attains a weight of three fourths to one and one half pounds. The surface is marked by spirally arranged tubercles or depressed segments. The skin is moderately delicate, light to yellow-green in color and sometimes has a faint peachlike down.

Enclosed within the skin is a mass of creamy white flesh of custard-like consistency, in which are embedded numerous brown-black seeds the size of coffee beans. The flavor of the fruit suggests to most people, a blend of pineapple and banana. It is primarily a dessert fruit of high quality when grown under the proper conditions.



**FIG. 1 CHERIMOYA FLOWERS**  
a. Flower just starting to open, but pollen not shedding.  
b. Flower open and pollen shedding.



**FIG. 2 POLLINATION KIT**  
a. Holder with two vials of pollen.  
b. Soft, blunt, camel's hair brush used for transferring pollen.

## Hand Pollination

The cherimoya flower contains both male (stamens) and female (pistils) parts, but under ordinary conditions these two parts frequently do not mature at the same time in any given flower. Therefore cross-pollination of flowers on the same tree or of flowers on different trees is necessary to induce fruit set. This pollination can be done easily by hand.

The process of hand pollination is accomplished as follows: When the rather large, inconspicuous, fleshy flower first opens, the central pistil mass which eventually gives rise to the fruit is receptive, sticky and cream colored. The pollen of the flower is not shed at this time.



FIG. 3  
Transfer of pollen to cherimoya flower.



Chaffey Cherimoya

After a period of eight to twenty-four or more hours, depending on weather conditions,

the petals open wider, while the pistil mass becomes brown and dry and is no longer receptive; hence here is illustrated a lack of overlapping of the maturity of the sex parts, a condition which the botanists refer to as dichogamy.

If the pollen is taken by means of a soft brush from a flower which is in the pollen-shedding stage and placed on the pistil mass of a flower which has just opened and is receptive, pollination will result in fruit set.

When hand pollination is done on a large scale, the pollen of many pollen-shedding flowers is first gathered into a small glass vial and is used to pollinate other freshly opened flowers.

Pollination can be done at any time during the day, except when the air is extremely hot and dry.

Hand pollination has been practiced by several growers on a commercial basis and has been found to be feasible and economical. There appear to be no varietal pollination problems such as self-sterility or cross-sterility in the varieties now growing in California.

### **Timing of Pollination**

The cherimoya sheds its old leaves in spring just before the new leaves and flowers appear. Hand pollination is done during the months of June, July and August when the flowers are fully developed and after the new leaves have expanded and have attained good size. On many occasions flowers may appear before the leaves have developed and poor fruit sets results from these early blooms, even if hand pollination is practiced.

—California Agriculture, July 1947