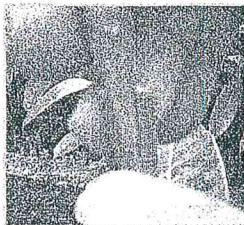


- 6) Insert the 'wedge' shape portion of the scion in the rootstock aligning the cambium layers properly.



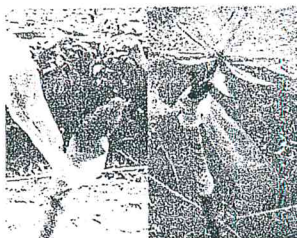
- 7) Secure the point of union between scion and rootstock by tying with plastic strip.



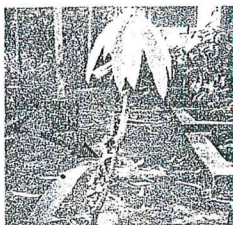
- 8) Cover/wrap the remaining portion of the scion with plastic strip to prevent drying. Place the graft under shade.



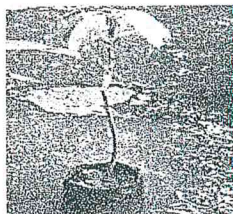
- 9) Exposed the tip of the scion when shoot emergence is observed to enhance flush development



- 10) Remove shoots that developed on the rootstock to ensure successful survival of the scion.



- 11) Do not remove the plastic that ties the scion and stock until the wound is totally healed to ensure successful union.

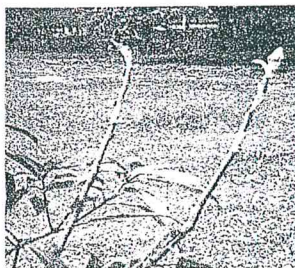


## CARE FOR THE GRAFTS

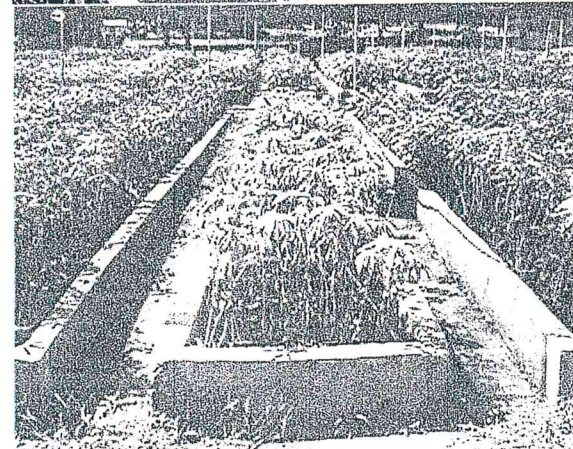
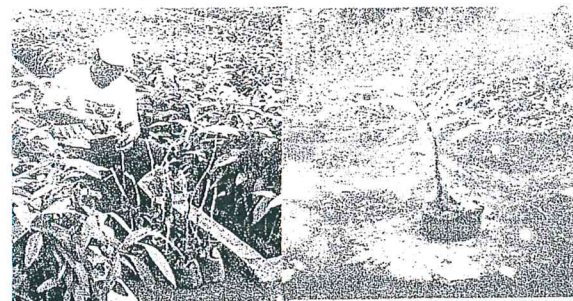
- From shoot development to leaf maturity (2 to 3 months), application of fertilizer (2-3 gms) and water are necessary. Continue fertilization and irrigation if plants are maintained in the nursery or until they are ready for field planting.
- Monitor the presence of insects and diseases on the branches and leaves. Spray insecticides/fungicides when pest incidence is high. Otherwise, do manual collection/removal of infected and infested parts.
- Weeds compete with developing grafts particularly for nutrient and water. They have to be removed by hand weeding.
- Plants are ready for planting 8 to 10 months after grafting. However, it is recommended to harden the grafted seedlings before field planting. This is done by reducing water application and gradually exposing the plant to direct sunlight.

## OTHER METHOD OF PROPAGATION

- 1) *In 'situ' (field) grafting* - In places where availability of grafted mangoes is a problem, it is recommended to plant seedlings at a desired spacing. When seedlings are about 2 years old, graft shoots with scion from NSIC registered mother trees.



# MANGO PROPAGATION



DEPARTMENT OF AGRICULTURE  
BUREAU OF PLANT INDUSTRY

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Mango propagation could be done either by sexual or asexual method. Sexual propagation is the growing of plants through seeds, while asexual is through its clone or vegetative parts. There are several methods of asexual propagation in mango and the most common is cleft grafting.

#### ADVANTAGES OF SEXUAL PROPAGATION

- Trees planted from seeds are deep-rooted, as such anchorage and nutrient exploration are enhanced.
- Long lived, could survive over hundred years and prolific bearer.
- Easy and fast way of multiplying a variety.

#### DISADVANTAGES OF SEXUAL PROPAGATION

- Seeded trees do not produce fruits that are "true to type."
- Trees have enormous size (tall with large canopies).
- Takes a longer period to bear fruits (8 to 10 years from planting).

#### ADVANTAGES OF ASEXUAL PROPAGATION

- Produce fruits that are "true to type" (carries the characters of the parent tree).
- Earliness to bearing (precocity) takes shorter time (1 to 2 years after planting) but it is recommended that 4 years of growth should be maintained for proper establishment of the tree.
- Trees are generally small in size and more plants per hectare can be established.

#### DISADVANTAGES OF ASEXUAL PROPAGATION

- Grafted trees are shallow rooted and are easily uprooted by strong winds and typhoons.
- It is a common notion, that grafted trees have shorter life span, however this is yet to be proven since there are grafted trees which are more than 80 years old and are still vigorous and productive.

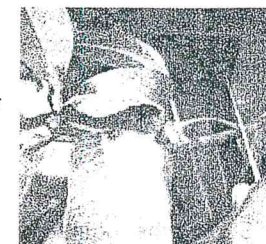
#### ROOTSTOCK PRODUCTION AND MAINTENANCE

One important use of seeds is to grow them as rootstocks. Healthy and vigorous rootstocks is the key to successful asexual propagation of mango. Depending on variety, rootstock can be fast growing as in 'Pahutan,' medium growing as in 'Pico' and 'Indian' mango while, 'Carabao' is slow growing. In growing rootstocks, the following should be considered:

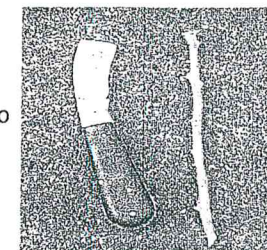
- Seeds should come from mature fruits, free from insect damage, diseases and mechanical injuries. Avoid seeds from processing plants for most of them are non-viable due to heat exposure.
- Husk of the seeds should be removed to facilitate fast germination. Dehusked seeds should be plump and contain enough reserved food. Well developed seeds sink while unfilled seeds float.
- Seeds should be sown with concave side down, 5 cm apart and 1 cm deep in wooden box (20 in. L x 20 in. W x 3 in. H) with sand, coconut coir or sawdust. For nursery, a 2 m x 8 m seedbed is recommended.
- Germination starts from 10 to 15 days after sowing. When seedlings have 2 to 3 pairs of green leaves, they are ready for transplanting in 7 in. x 10 in. plastic bags with potting media composed of 2 parts garden soil and 1 part manure.
- When transplanting older seedlings, leaves and roots should be cut into half to minimize transpiration. Otherwise this will result to wilting and eventually death of plants.
- Fertilization is applied a month after transplanting (1/2 tsp. T-14 or foliar spray of Urea at 1 tbsp. per 20 li. water). It must be repeated at monthly interval until seedlings are vigorous and ready for grafting.
- Water is necessary especially during dry months. It must be directly applied to the soil and not poured on the leaves to minimize incidence of disease like anthracnose.
- Inspect the seedlings weekly for presence of insects particularly scales, corn silk beetle, tip borer, cecid fly and diseases such as anthracnose and seedling rot.
- Seedlings should be grown under shade by providing nets or coconut leaves to prevent drying and leaf scalding.
- Seedlings are ready for grafting when the stems attain pencil-size diameter or about 8 to 10 months old.

#### STEPS IN CLEFT GRAFTING

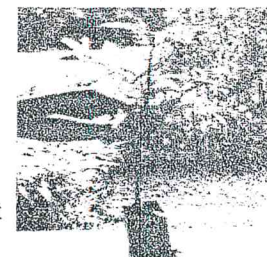
- 1) Collect scions about pencil - size in diameter with protruding buds from registered mother trees using a pruning shear/knife.



- 2) Cut the scions about 6 to 8 inches long and remove the leaves.



- 3) Using a sharp knife, cut the rootstock 15 to 16 inches from the base to give allowance for second grafting if the first one failed to develop.



- 4) Make incision on the stock just enough for the sharpened end of the scion to be inserted.



- 5) Make a perpendicular cut on both sides of the scion to form a 'wedge' shape tip.

