

## MANGO INDUSTRY IN THE PHILIPPINES

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### Introduction:

The Philippines is one of the largest exporters of fresh mango almost exclusively to Hong Kong and Japan. the demand for mangos in Japan is estimated at 191,300 tons per year. Advances in the technology of mango production, particularly flower induction and fruitfly control have shown considerable promise in increasing the yields, to levels that may permit to meet the major portion of the demand in Japan. One of the most important break through is the discovery that certain chemicals can effectively induce the flowering of the Philippine Mango Thus with  $KNO_3$ ; for example, it is now possible to produce more and off season fruits. In due time, production is expected to increase with surplus fruits available- and mango industry will soon be a major activity of the country.

### Cultivars:

Several cultivars are grown in the Philippines but the most important varieties of commerce are the 'Carabao' and the 'Pico'. Carabao (commonly known as Manila super mango) is recommended both for local and export markets.

Carabao: fruit size medium to large, about 240g, shape oblong, with blunt apex and rounded base, skin smooth, yellow and thin, flesh yellow very tender and melting, flavour very delicate, aromatic and spicy, fiber medium coarse but short and confined almost entirely to the edge of the stone, eating quality excellent.

### Artificial Flowering of Mango:

Flowering of Pico and Carabao trees, as in most of other mango varieties, is highly seasonal, (January to April) and biennial, ie. profuse in one year and sparse, if any, the next year.

### Smudging:

To improve and induce earlier flowering in mature trees, growers build smoky fires generally below the trees and allow the dense smoke to pass through the foliage; this practice known as smudging, induces early flowering. Smudging is laborious, expensive and uncertain method of flower induction.

### Chemical Induction:

Ethephon was the first chemical, successfully demonstrated to induce off season flowering. However, with ethephon the flower regulation was not consistent. Application of  $KNO_3$  is a much more reliable method of inducing off season flowering. Besides being more effective,  $KNO_3$  1) forces mango trees to flower uniformly 2) allows a systematic spraying of pesticides, and 3) is cheaper and easier to use. The commercial preparations of  $KNO_3$  is now commonly available under the trade names such as Flower-Kem, Mangrow, Flowerset, Agriblum etc.

However it is important to select plants at proper stage of growth for best results by flower induction. A mango tree ready for artificial flower induction has prominent well developed buds and brittle, dull green, greenish brown or copper coloured leaves.

### Pest and Disease control:

An adequate knowledge of the pests or diseases minimizes cost of production inputs. Some pest and diseases are prevalent at a certain time or season of the year or at a certain stage of growth of the tree.

The most important insect pests in the Philippine mango industry are 1) Mango hoppers (*Idioscopus clypealis*), 2) Mango tip borer (*Chlumetia transversa*) and 3) Fruit flies (*Dacus dorsalis*), and the common diseases are 1) Anthracnose (*Colletotrichum gloeosporioides*), 2) Scab (*Elsione mangiferae*) and 3) Stem end rot. Insecticides and fungicides are used to minimize the damage. Necessarily to be effective, these chemicals are applied directly to the portion of the tree to be protected at the weakest stage of the pest or the disease as the case may be.

However it is important to note that almost all important varieties and cultivars of mango grown in Sri Lanka are monoembryonic type with Indian origin, whereas the Philippine mangos which have originated in South East Asia are polyembryonic. It has been revealed that only the South East Asian type polyembryonic mangos respond satisfactorily to the artificial flower induction. The researchers of the mango producing countries such as India, Philippines, Pakistan and also Sri Lanka have so far unable to find a satisfactory method of artificial flower induction of Indian Mango varieties.

Some Philippine technics adaptable under Sri Lankan conditions:

- 1) Almost all mango varieties that are grown in Sri Lanka are seasonal (except 'Ambalavi' and Valamba), so commercially important varieties of polyembryonic type could be introduced to have a continuous supply.
- 2) Sri Lanka presently testing large number of varieties, and it is important to select the correct varieties to suit the market condition.
- 3) It is important to promote the mango industry in Sri Lanka to the orchard scale farming coupled with a proper pest and disease management programme.
- 4) Initiation of an evaluation programme of local mango varieties under different climatic conditions of the country.