COMMERCIAL CROP PRODUCTION GUIDE SERIES

Growing Mango in Nigeria

United States Agency for International Development
www.usaid.gov

Information and Communication Support for Agricultural Growth in Nigeria
www.ics-nigeria.org

Guide to the Production of Mango

Site

Mangoes can be grown successfully under a wide range of soil and climatic conditions. Sandy loam soil is however ideal for rapid growth. Mango has been found to grow abundantly in moderately heavy clay soil, though its initial establishment was difficult. The soil must be deep to allow easy penetration of the taproot.

Varieties

The following varieties have been found promising and are recommended for production.

- Alphonso
- Zill
- Julie
- Palmer
- Keitt
- Lippens
- Saigon
- Edward
- Haden
- Early gold

They mature 3– 4 years after transplanting or in-situ grafting. These varieties are available and can be obtained at NIHORT.

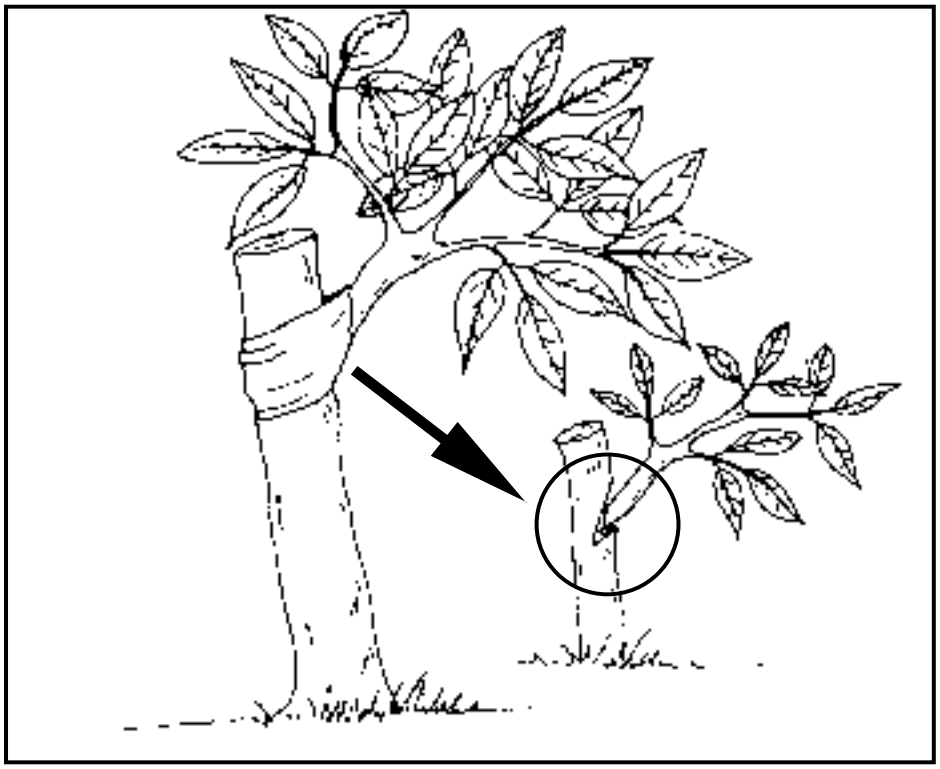
Propagation

Mangoes are propagated using grafts raised though veneer grafting or any other propagation technique as recommended by NIHORT. These techniques are:

VENNER GRAFTING

In this technique scion selection is of utmost importance. Terminal shoots of about 3 months are prepared by defoliation 10 days prior to severance of such shoots from the parent trees. At this stage, all the petiole stubs drop and buds begin to buldge. Such scions are ready for grafting or may be stored for about a week by wrapping them in wet newspaper and packed in a polythylene bag.

Rootstocks for grafting are obtained from stones (seeds) sown in the pre-



Grafting method

nursery spaced 50 cm apart or obtained from seeds sown directly in a 30 x 50 cm polybag containing manured topsoil. Grafting is done when the seedlings are about pencil size. 5 cm long slanting cut is made at the proximal end of the scion stick. A similar cut is given on the rootstock so that both fit well without any air space in between. After joining the two, they are tied lightly with polythylene tape. About three weeks after grafting when the scion begins to sprout, the upper part of the rootstock is clipped off. After about 1,1/2 months, when the scion has grown sufficiently the stock is cut back just above the point of union. Thereafter the mango grafts are ready for transplanting and this should be done within one week. It is essential that the grafts always be kept wet.

EPICOTYL GRAFTING

Sow seeds on sand or leaf mould so that it can be removed without disturbing the roots. Freshly germinated seedlings are taken out with all their roots and kept in a bucket of water. The seedlings are taken out one by one when they are about 10 to 30 days old, and bench grafted by wedge method using thinner scions. The scions are prepared by defoliation 10 days prior to grafting. The scion and stock are then tied together lightly with polythylene tape. The graft is immediately planted in a polythylene bag filled with a potting mixture.

Newly planted grafts are watered and kept either in the glasshouse or under a covered shed but never in the rain, till sprouting.

Sprouting begins after about 21 days. Grafts prepared by this technique though smaller in size, can better withstand transportation. Survival of the plants is also much higher than plants prepared by other techniques.

STOOLING

This technique may be useful for the clonal propagation of mango rootstocks. The plants are headed back (cut) after about 2 years of growth to height of 20 cm during February. Indole Butyric Acid 5000 ppm in lanolin is applied in the ring of the shoots developed after heading back during July. Percentage survival of plants is about 80%.

TOP-WORKING OF INFERIOR SEEDLINGS

This technique is used mostly for inferior trees found growing as isolated plants. Such inferior trees in the age of 10 –20 years can be converted to superior varieties by top-working, and such trees start bearing again after 3 years. The seedling trees are headed back to a height from where branching begins.

The cut ends are treated with fungicidal paint. New shoots will develop below the cut ends. When these shoots are about pencil thick they are veneer grafted as detailed earlier. The grafts here develop much faster than nursery plants. Within 3 years, the tree will have half the size of the original canopy. Under home garden, several cultivates of identical growth habit can be grafted on the one tree.

Orchard

After about $1^{1}/_{2}$ months, the grafts are removed from the nursery bed with a ball of earth. If the graft is too big, branches are pruned to reduce leaf area. In extreme cases, remove all leaves before transplanting.

However, for quick establishment of mango orchards, grafting seedling in-situ is highly recommended. Here, mango stones are planted out in the field after lining. Seedlings may be used. Established seedlings are then venner grafted (as discussed earlier) in-situ. Seedling are planted at distances of 10 m x 10 m apart each way for dwarf cultivars. Dig holes 50 cm x 50 cm. The pits may be filled with one bucket of compost duly mixed with soil. The grafts are planted one in each planting. Watering may be continued during dry season, plant may be mulched to retain moisture.

Fertilizer

After fertilizer in ring to each plant. The fertilizer should be in the following proportions,

- 1st year: 100 g N.P.K (1:1:1) per plant – one dose.
- 2nd year: 200 g– N.P.K (1:1:1) per plant– three doses

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packed inside a crate in a single layer with some soft materials like paper dipping.

Pests

In Nigeria, pests are not a serious problem at present in mango orchards, however incidence of some pests may occur .Coccus spp. which attacks the fruits and the leaves. Control by applying Rogor 40 EC at 15 mls per 10 liters of water.

The information for this Production Guide was obtained from Extension Research Liaison and Training Unit
National Horticultural Research Institute (NIHORT)
P M B 5432,
Idi - Ishin, Ibadan.

About ICS-Nigeria

Information and Communication Support for Agricultural Growth in Nigeria (**ICS-Nigeria**) is a project which aims to increase the quantity and quality of information available for increased agricultural production, processing, and marketing and also strengthen the capacity of farmer assistance organizations to package and disseminate information and agricultural technologies to farmers for the alleviation of rural poverty.

In the recent past, investment in the support services to Nigerian agriculture has been neglected with the result that this sector has not realized its full potential to contribute to the prosperity and economic development of the country. Meanwhile, increasing population pressure and the accompanying need to intensify agricultural production is leading to erosion of the natural resource base on which agriculture depends.

The sustainability of production is threatened by a vicious cycle of declining soil fertility and increasing problems of pests, diseases, and weeds. Moreover, the lack of knowledge on how to add value through proper storage, processing, and marketing impedes agricultural growth.

Promising technologies exist to address these problems, but their adoption is constrained by a lack of information packaged in appropriate formats, and poor communication channels for this information, between farmers and the research, extension, and education organizations that are supposed to address these issues.

ICS-Nigeria aims to assist in meeting these challenges by developing appropriate format materials for disseminating information and agricultural technologies to target user groups, while increasing capacity of farmer assistance organizations to produce information materials. At the same time, communication channels will be reinforced so that information flow is enhanced.

Agricultural technologies have been selected on the basis that they will lead to agricultural commercialization thereby enhancing rapid income generation for farmers and private sector practitioners. The project is taking advantage of existing agricultural development programs in Nigeria, national research institutes, and international research institutes in and out of Nigeria to identify these technologies. The project is also taking advantage of existing successful partnerships arising from recent and ongoing programs to enhance information flow.

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