

HARDENING OR ACCLIMATIZATION IN THE SCREENHOUSE



A Sensitive plants such as yams and cassava can take 4 - 5 months in the screenhouse before they are ready to plant in the field.



B Other plants such as taro, bananas and sweet potatoes take 2 - 3 months before ready for field planting

KEEPING THE PLANTS HEALTHY MANAGING PESTS AND DISEASES

C. All plants can be attacked by mealy bugs and red spider mite while in the screenhouse. After the first sign of an outbreak, the relevant treatment must be used. In SPC CePaCT in Fiji, Confidor insecticide is used, at the recommended rate of 1g in 1000mls of water as required.

FERTILIZER APPLICATION

Fertiliser can be applied either by incorporating into the compost/soil mix as slow release fertiliser or as a foliar spray to the plants (for example, Lush). Early application of fertiliser to newly transplanted plants, can result in huge losses. Spray plants with a very dilute solution of liquid fertiliser or apply half a teaspoon of slow release fertiliser per plant after 2 to 3 months of plant establishment.

TYPE OF SCREENHOUSE

A newly potted plant should ideally be placed in a screenhouse. The screenhouse should be located close to amenities such as a good water supply, and away from direct sunlight and or wind direction.



C An insect-proof screenhouse is essential if you want to keep the plants virus free for as long as possible.



D If a screenhouse is unavailable, a shadehouse will do or even a shed with adequate natural lighting.

7 TRANSPLANTING OF TISSUE CULTURE PLANTS INTO THE FIELD

Plants with well developed root systems will establish in the field without much problem. Ideally they should not be planted in full sun, 50-70% shade should be provided for a short adjustment period.



A SPC tissue culture taro established well in Wallis and Futuna. Taro can be planted either in dryland or wetland depending on cultural preference.



B SPC tissue culture bananas well established in the Cook Islands

REFERENCE : Pacific Regional Agricultural Programme., 1999. PRAP Leaflet. No. 5. Revised Edition 1999. The transfer of tissue culture plantlets from the tube to the soil.

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TRANSFER OF TISSUE CULTURE PLANTLETS FROM TUBE TO SOIL



WHAT ARE TISSUE CULTURE PLANTLETS?

- Tissue culture plants are small plantlet grown in an artificial medium in a sterile container.
- Tissue culture plants provide a safe way to transfer plants from one country to another.

HOW TO ACCESS TISSUE CULTURE PLANTLETS?

Plants may be requested from;

CENTRE FOR PACIFIC CROPS AND TREES (CePaCT)
Secretariat of the South Pacific Community (SPC)
Private Mail Bag, Suva. FIJI ISLANDS

Ph: +679 3370733 Fax: +679 3370021
Email: ValerieT@spc.int or MaryT@spc.int
CePaCTcurator@spc.int

IMPORTANT

Anyone can request Tissue Culture Plantlets. Before requesting plants and import permit from the quarantine department of your country must be received by the Centre for Pacific Crops and Trees (CePaCT).

A STEP BY STEP GUIDE - FROM TUBE TO SOIL

1 WHAT TO DO WITH THE TISSUE CULTURE PLANTS WHEN YOU RECEIVE THEM?

Keep plants in a cool place for 1-2 days (away from sunlight) as plants have probably been exposed to extreme conditions, varying temperature and constant darkness.



2 PREPARATION OF POTS FOR PLANTING TISSUE CULTURE PLANTS

The roots of tissue culture plants are very fragile and not well developed and so they have to be planted in a compost/soil mix that has good drainage and aeration. The mix should be sterilized - can use a commercial potting mix. Make sure the mix is well watered before you plant.

Yams, cassava, kava and breadfruit - grow well in a porous mix of 3 parts perlite/vermiculite or river sand to 1 part potting mix or soil (left pot).

Taro, bananas, sweet potatoes - establish well in a mix of 1 part of perlite/vermiculite or river sand to 3 parts of potting mix or soil (right pot).



3 TAKING THE PLANT GENTLY OUT OF THE TUBE OR BAG

A forcep or tweezer can be used to remove plantlet and avoid any damage to the roots. **It is important not to grip the stem too hard if this breaks the plant is permanently damaged.**



4 WASHING OFF THE AGAR FROM THE ROOTS

The culture medium, in which the plants are growing, contains nutrients and sugar which attract fungi and bacteria. Wash the agar (culture medium) from the roots of the plant thoroughly otherwise a root rot will develop and the plant will die.



5 PLANTING THE PLANT IN YOUR COMPOST/ SOIL MIX



Pots are ready with the compost mix as described in **Box 2**. Make a hole with your thumb and place all roots inside. Press soil gently and carefully around the roots.



Make sure your **pot** is correctly labeled (variety/code/date). Cover plants with clear plastic bag without holes for at least 4 weeks. This maintains high humidity and helps the plant to adjust to its new environment.



After 4 weeks the plastic bag should be gradually removed, initially for a few hours a day and then for 1 day, 2 days, etc, over the course of a week.

6 AFTERCARE WATERING

Water plants 3 or 4 times a week on alternative days depending on the weather and screen-house conditions. Avoid watering of the plant directly but apply water around the plant. Underwatering and overwatering in early stages of establishment should be avoided.

- 1 month after planting - water should be applied from the top until the plant has developed a good root system.

- 3 months after planting - water should be applied to the tray.

