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# Stem Cutting Propagation for Breadfruit

# Acknowledgments

- Kay Parkinson, Director, and the staff at LaReunion Propagation Center, Trinidad
- Laura Roberts-Nkrumah, PhD, UWI, St. Augustine Campus, Trinidad

# Our assumptions

- Cultivating breadfruit increases food supply, creates new products, new markets
- A profitable value chain can be created, both commercially and at artisan level
- An adequate supply of inexpensive fruit is the current market expansion limitation
- Tree propagation needs to increase
  - Seeds don't exist or not viable
  - Tissue culture is best method but difficult, expensive
  - Other methods: root cutting, air layering ("circumposing"), grafting, may be slow
  - Stem culture may be best in many situations

# Stem cutting propagation

- Start with mother stock
- Harvest stem (keep moist)
- Trim leaves
- Clean diagonal cut
- Dip in root hormone
- Plant in damp coconut fiber; keep in low light, high humidity, 6 weeks
- Replant cutting into potting bag with soil/manure mix
- Harden in shade house, 6 weeks

# Harvest stem from mother stock



Find a stem about  $\frac{1}{2}$  inch (1 cm.) diameter

Cut stem at an angle, minimize damage to the mother stock

Cut where woody branch growth overlaps green growth

# Keep cuttings wet





# Trim leaves

- All tools should be sterilized in 10% bleach before use
- Cut leaves back about two-thirds
- Remove a few leaves entirely by snapping off; this directs future growth to produce root tissue
- Make a diagonal 45 degree cut an inch below the lowest leaf node



# Dip into root hormone

Don't let the shoot touch the container; just dip the freshly cut end briefly





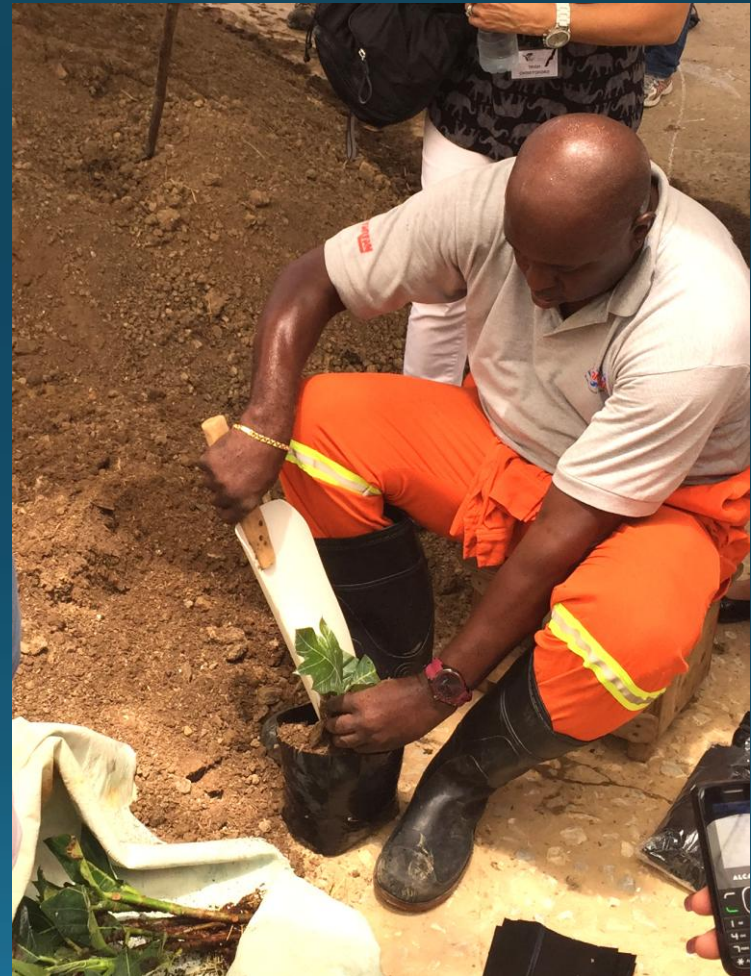
# Plant in growing medium



- Coconut husk fiber material is superior to peat moss; stays moist, doesn't shrink
- Cover in heavy shade to limit leaf growth (after a few weeks, medium shade)
- Keep the fiber very moist
- About 6 weeks

# Replant into potting bag

- Roots should be at least 1 inch long
- Use a mix of 2/3 potting soil and 1/3 horse manure
- The worker first fills the bag about half way; then turns it at 45 degree angle
- Then places the cutting that has now developed roots, gently on top of the potting mixture
- Then shovels potting mixture on top
- The cutting is not pushed down into the soil to avoid damaging the delicate new roots
- The potting bag is heavily watered and moved to shade house





# Harden in shade house



Approximately 6 weeks until ready for distribution

# Future plans

- Training
- Sharing details
- Approval by Trinidad Govt. propagation station
- Establishment of additional propagation nurseries in Jamaica, Haiti and other countries

# Trees That Feed Foundation

- Our mission is planting trees to feed people, create jobs and benefit the environment
- We've planted over 75,000 fruit trees
  - Mainly breadfruit, also cashew, mango, guava, pomegranate, fig, depending on rainfall, soil and other environment conditions
- We also provide equipment and training
- We also buy products from our partners, to stimulate the market for trees, fruit and other goods



# Trees That Feed Foundation

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