Pot-in-Pot Production of Nursery Stock

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INTRODUCTION

The pot-in-pot production system has been increasing in acreage steadily during the 1990s. The system is centered around the production of shade and flowering trees and large shrubs in containers which are placed in the ground. A permanent container (socket pot) is placed in the ground where it may last for a decade or longer. A production container, with plant, is inserted into the socket pot. The time a plant is in a production container can be from 6 to 9 months but not more than 2 years. Unit sizes have varied from 3 gal up to 30 gal. On an acre basis, more units in the 7-, 10-, and 15-gal sizes may be in production today. The socket pot and production pot need to be two distinctly manufactured units. Compatible units during the past few years have been manufactured only in the mid-range sizes. Container media consists of the common bark-based media existing in the industry.

THE SYSTEM

Holes are augered using a size related to the size of the container. Spacing is dependent upon the size of the canopy at harvest time. Common spacing in both directions has been 4, 5, or 6 ft. Where soil percolation of water is not rapid, drainage (tile) is provided near the bottom of the hole and throughout the length of the row. The socket pot is inserted into the augured hole. It should rest on firm soil so that it will not settle any deeper. It is leveled. The socket pot determines the orientation of the plant in production and new plant growth needs to continue the axis formed by the trunk. New growth will grow vertical whether the trunk is straight or tilted. Copper-treated paper or fabrics are placed at the bottom to cover the drain holes to keep roots from escaping. Escaped roots destroy the socket pot and thus disrupt the value of the system. A spacer is set in the bottom of the socket pot. The spacer should be a fraction on an inch taller than the length of the air gap between the bottoms of the two containers. This prevents the weight of the production container and plant from becoming wedged into the socket container. The industry may or may not place fabric over the entire production area. Fabric (landscape fabric) may be more common in the Southeast U.S. An "X" is cut in the fabric above each socket container it is covering. The fabric keeps down weeds and allows movement around the area at all times. Most acreage in the Northeast and Central part of the U.S. have left the area open. The production pot is treated on its inner surface with copper in order to reduce circling roots and root escapes. Once the plant is placed in the production container, it can be transported to the production site and inserted into the socket container. Microirrigation is a must and the nozzle should be one that sprays water across the entire media surface. Water schedules on timers should be adjusted to multiple waterings per day. Weed control and fertilization practices are similar to those existing in container production.

BENEFITS

- More plants per acre.
- Can harvest on any day of the year.
- A container-grown plant that should not be root bound.
- Plants have the advantage that they are anchored in the ground and do not blow over in the wind.
- Overwintering uses the natural ground heat without the need to heal-in or move to a structure.
- Moisture and nutrients can be monitored better than in a field situation.

Adventitious Bud and Shoot Formation in Pawpaw [*Asimina triloba* (L.) Dunal] Using Juvenile Seedling Tissue

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INTRODUCTION

Current clonal propagation methods for the North American pawpaw [*Asimina triloba* L. Dunal] are limited to budding and grafting techniques (Layne, 1996). No work has been published detailing a micropropagation system for the pawpaw, but Callaway (1992) indicated limited success in regenerating shoots using leaf tissue. Successful micropropagation systems have been developed for related *Annona* species (George and Nissen, 1987). The objective of this research was to observe the effect of ontological age on adventitious bud and shoot development of pawpaw nodal explants in culture. Explants from a juvenile source (seedlings) and mature sources (forced stems and shoots produced on root pieces) were used to study the effect of ontogenetic age during the establishment phase.

MATERIALS AND METHODS

Seedling Explants. Stratified seeds were planted in vermiculite and germinated in a 25C growth chamber. Approximately 12 weeks after planting, seedlings had 6 to 10 nodes.

Mature Wood Explants. Dormant stems were collected from 26 genetically different mature, flowering trees and surface sterilized. Stems were forced in beakers in a 25C growth chamber. After 6 weeks, shoots had expanded to ≥ 10 cm.

Explants from Shoots Produced on Root Pieces. Root pieces (≥5 mm diameter, 10 to 12 cm length) were obtained from mature trees in a native stand. Shoots were forced on root pieces kept in a 22C greenhouse and after 20 weeks shoots had expanded to ≥ 10 cm.