

# Container Nursery Production

## Introduction

The container nursery business involves the production and marketing of ornamental trees and shrubs, fruit trees, and perennial flowers grown in above-ground containers. This production method has helped revolutionize the nursery business in the last few decades. Some of the advantages of container production include: less acreage required for production, handling convenience, and a nearly year round harvest and planting season.

## Marketing

Nursery crops may be marketed in a number of ways. **RETAILERS** produce and market directly to the homeowner. This type of business requires a retail outlet along with the on-site growing area and must be conveniently located for consumer access, generally near large urban areas. **WHOLESALE** produce plants that are sold to other nurserymen, landscapers or retailers. **LANDSCAPE NURSERIES** produce plants for their own in-house landscaping service, but may have a retail outlet. Plants can be sold locally to a **FARMERS' MARKET** at retail prices. **MAIL ORDER** and **INTERNET MARKETS** involve nationwide sales and shipping and can extend the market area to include international markets.

## Market outlook

Nationally, the nursery business has experienced steady growth



in the past two decades. In Kentucky, the nursery industry was a 30-million dollar business in 2002, and continues to expand at a rate of 3 to 6 percent annually. An increase in housing starts and the growing number of hobby gardeners has helped fuel consumer demand.

## Production considerations

### *Site selection*

Container-grown plants need to be frequently irrigated, often daily, throughout the growing season. A source of clean, pest-free water is probably the most important consideration in selecting a suitable site.

Since container production entails growing plants above ground using customized soilless growing media, the type of native soil at the site is not nearly as important as it is with field-grown crops. Generally, container production requires a firm surface with good surface drainage. The ideal site has a slightly sloping topography for proper air drainage and offers water drainage to a pond or retention basin for recycling back to the crop.





### *Crop selection*

Nursery operators may choose to either produce their own planting stock or purchase seedlings and cuttings from other growers. Most nurserymen grow a variety of plants with known high market demand; others may specialize. Some specialty nurseries grow native plants or uncommon cultivated plants. This type of specialized production can serve niche markets and is especially well suited for the small grower.

### *Maintenance*

Shrubs are pruned regularly to establish a height and density for the planned market. Plants grown for the landscape trade tend to require specialized pruning. Inexpensive plants for the discount trade may be allowed to grow looser and taller before pruning, thus enabling them to get to size quickly.

Winter protection for container-grown plants is needed in Kentucky. Above-ground container-grown trees are not typically produced in Kentucky due to overwintering problems.

### *Pest management*

Weed control in nurseries requires efficient and effective management. Methods of control can include a combination of hand weeding, mowing, mechanical cultivation, mulching, ground cloth, and chemical methods. Insect and disease management requires IPM strategies, such as planting resistant cultivars, scouting, and practicing best management practices.

### *Harvest*

Nursery crops grown in containers can be

harvested any day of the year. The time it takes for plants to reach a saleable size will vary depending on the type of plant and growing conditions. In general, container-grown plants may be in propagation for 6 to 12 months. Plants then spend one year as a 1-gallon plant and one more year as a 3-gallon plant, for a total of 30 to 36 months. The length of time a plant can be grown in a container is limited. Once unsold plants outgrow their containers, they will have to be repotted to larger containers or discarded.

Harvest is determined by the stage of development to be marketed. Plants may be sold as liners, whips or finished plants. The term **LINERS** once referred to plants after one year of production from seed, cuttings or tissue culture. Today this term refers to any plant placed ('lined out') into a production system so it can be grown to a larger finished plant. **WHIPS** are plants consisting of a straight stem with little branching. **FINISHED PLANTS**, the final stage of production, have all the characteristics expected in the marketplace: form, size, branching, and trunk size.

### *Labor requirements*

The level of management for container-grown plants is significantly higher than in field production. A common rule of thumb is to employ one worker per actual acre of container production.

### **Economic considerations**

Beginning a nursery business requires a large capital investment, even if land does not need to be purchased. Expenses include grading for drainage, gravel beds to set the plants on, equipment, buildings, supplies, plant material, and the installation of an irrigation system. A greenhouse or over-wintering structure will be needed.

Additional costs include labor, utilities, insurance, licenses and inspections. With the large overhead investment required, the minimal size for a container nursery to be economically profitable is 17 acres. The return on a container nursery operation will be realized more quickly

than for field-grown stock. However, the initial investments and production costs are much higher for container-grown plants.

A grower must be prepared to make substantial investments for several years before realizing any positive returns. It can take 2 to 4 years of operation before significant returns can be expected, and an additional 3 years before showing a profit. In addition, the nursery operator will need to be able to handle the cash flow ups and downs associated with seasonal sales.

Below are 1996 University of Kentucky budget estimates for container production.

ITEM	COST
Capital requirement	\$223,170.00
Machinery/equipment operation	\$15,650.00
Fixed cost	\$350,450.00
Fixed cost per plant	\$16.35
Variable cost	\$157,650.00
Variable cost per plant	\$7.36
Total cost	\$508,100.00
Total cost per plant	\$23.71

## More information

### Production

- Getting Started in the Nursery/Landscape Industry (UK)

<http://www.ca.uky.edu/HLA/Dunwell/Nlgetstart.html>

- Introduction to Field and Container Nursery Production (UK) *Power Point presentation*

[http://www.uky.edu/Ag/NewCrops/adcintro\\_files/frame.htm](http://www.uky.edu/Ag/NewCrops/adcintro_files/frame.htm)

- Best Management Practices Guide for Producing Container-Grown Plants (Southern Nursery Association, Atlanta, 1997)

*Available for purchase at this Web site*

<http://www.sna.org/snastore/bmp.shtml>

- Site Selection and Layout for Plant Nurseries (North Carolina State)

[http://www.ces.ncsu.edu/depts/hort/nursery/pdf/cultural\\_practices/site\\_selection\\_layout/site\\_selection.pdf](http://www.ces.ncsu.edu/depts/hort/nursery/pdf/cultural_practices/site_selection_layout/site_selection.pdf)

- Sustainable Small-scale Nursery Production (ATTRA, 2001)

<http://www.attra.org/attra-pub/nursery.html>

### Nursery crops Web sites

- Nursery Crops Development Center (UK)

<http://www.ca.uky.edu/HLA/Dunwell/win1.html>

- Nursery Crops Science Web site (N.C. State)

<http://www.ces.ncsu.edu/depts/hort/nursery/>

- NurseryWeb (Maryland)

<http://www.nursery.umd.edu/>