UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Field Nursery Production

Introduction

Field nurseries are the traditional method of producing and marketing ornamental trees, shrubs, fruit trees, and perennial flowers. Until the mid 1900's nearly all nursery crops were produced in the field. Even with the advent of above-ground container production and pot-in-pot, field nurseries are still widely used. Some of the advantages of field production over other production methods: less demanding in terms of maintenance and labor during the growing period, plants do not require winter protection, and lower start-up costs.

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. WHOLESALERS 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 for bare root plants involve nation-wide sales and shipping and can extend the market area to include international markets.

Market Outlook

Nationwide, 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

The primary consideration in selecting a site for field nursery production is the soil. Not only must the soil be well-drained, but it must hold together around the roots when plants are dug for ball and burlap. Production of bare-root plants requires a soil that will easily fall away from the roots. Fields should also be free of large stones or hard pans that could interfere with root development. A source of clean, pest-free water is another important consideration. The ideal site will have a slightly sloping topography for proper air drainage and offer water drainage to a pond or retention basin for recycling back to the crop. Potential growing sites should be tested for soybean cyst nematode infestation as the presence of this pest in the soil could severely limit out-of-state export.

NEW CROP OPPORTUNITIES CENTER

Maintenance
Shade trees are often top-pruned in both winter and summer to ensure that a central leader is maintained and the shape of the head of the tree is in proportion to the trunk. 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. Trees may need to be staked to maintain a straight trunk. Some growers root prune either routinely or prior to harvest to help trees survive digging and transplanting.

Pest management
Methods of weed 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
The time it takes for plants to reach a saleable size will vary depending on the type of plant and growing conditions. In most ball and burlap operations, plants are harvested three to five years after planting. Nursery crops grown in-ground are ideally harvested during the dormant season to minimize transplant stress, however, it is not uncommon for digging to continue through the summer as well.

Harvest is determined by the stage of development to be marketed. Plants may be sold as liners, whips or finished plants. The term LINERS 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 market place: form, size, branching, and trunk size.

Plants are harvested either by hand or with a mechanized tree spade. The root balls of ball and burlap trees are placed into burlap-lined wire baskets. Smaller trees can be harvested bare root.

Labor requirements
While labor demands for field-grown nurseries is considerably less intensive on a per acre basis than other production methods, it is the single greatest production expense in this type of nursery. A common rule of thumb is to employ one worker for every seven to eight acres actually in production.

Economic Considerations

Beginning a nursery business requires a large capital investment, even if land does not need to be purchased. Expenses include: equipment, buildings, supplies, plant material, and the installation of an irrigation system. Additional costs include labor, utilities, insurance, licenses and inspections. The minimal size for a field nursery to be economically profitable is 200 acres.

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 field 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

- Getting Started in the Nursery/Landscape Industry (University of Kentucky)
http://www.ca.uky.edu/HLA/Dunwell/Nlgetstart.html
- Nursery Crops Development Center (University of Kentucky)
http://www.ca.uky.edu/HLA/Dunwell/win1.html
- Best Management Practices for Field Production of Nursery Stock (North Carolina State University)
http://www.bae.ncsu.edu/programs/extension/ag-env/nursery/index.html
- NurseryWeb (University of Maryland)
http://www.nursery.umd.edu/
- The Nursery Business – Sources of Information and References (North Carolina State University)
http://www.ces.ncsu.edu/depts/hort/nursery/cultural/topic1.html
- Nursery Crops Science (North Carolina State University)
http://www.ces.ncsu.edu/depts/hort/nursery/
- Production and Marketing of Field-Grown Trees in Georgia (University of Georgia, 1999)
http://pubs.caes.uga.edu/caespubs/pubcd/B1115-w.htm
- Sustainable Small-scale Nursery Production (ATTRA, 2001)
http://www.attra.org/attra-pub/nursery.html