

Friday Morning, December 11, 1987

The morning session was convened at 8:00 a.m. with Clayton Fuller serving as moderator.

PROPAGATION AND PRODUCTION METHODS FOR SOUTH JERSEY

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INTRODUCTION

South Jersey is in the center of the Bos-Wash megalopolis, and for the purpose of this discussion, includes approximately the southern 50 miles of New Jersey. The nursery industry is mostly located in a North-South strip in the center of the state. The production area is located in the center of the USDA Zone 7, which results in a climate similar to that of central to western North Carolina. On a calendar year basis, the season starts with propagation in January, and concludes in late December with the last digging of field stock.

Soils in the area are relatively light and well drained. The soil types in the area establish a critical need for irrigation in order to effectively produce nursery stock. Fortunately, the southern part of New Jersey sits upon the Cohansey aquifer. The aquifer water comes out of the Pine Barrens of New Jersey, which is a protected area, and results in one of the largest aquifers on the East Coast. Water in Cumberland County is generally found approximately 15 to 60 ft below the surface of the ground, with pumping rates in excess of 2000 gpm not uncommon for 12 in. wells. The importance of water can be demonstrated by considering the monthly electric bill for the very dry summer of 1987. One grower's electric bill for the operation of pumps exceeded \$5000 for three consecutive months.

NURSERY INDUSTRY

The production of deciduous and evergreen shrubs, small shade trees, and a small but growing industry specializing in large specimen trees fills our niche for field stock production. Container production centers on those plants which will not ship well across the country such as evergreen shrubs, and specialty plant material. The propagation component of nursery production consists of seed propagation of shade trees, deciduous shrubs, and other specialty material, as well as cutting propagation of deciduous and ever-

green shrubs, herbaceous perennials, and some trees. A small grafting industry remains in the area.

The value of the nursery industry in South Jersey is about \$90 million, and it is mostly wholesale with a growing re-wholesaling portion. Over the last 6 or 8 years container stock has been the most rapid growth area for the nursery industry in South Jersey, with a value of approximately \$60 million. Presently, there are approximately 1500 to 2000 acres of field stock in production with about 3000 additional acres having been purchased for the production of field stock in 1986 and 87. Shipment is mostly within a radius of 250 miles; a limited amount is shipped nationally and internationally.

I have become heavily involved in industry expansion. I receive calls averaging two per week from individuals interested in starting new operations. Most of those interested have no background. From my estimates, about 20% should succeed in the business. Expansion of existing operations ranges from 5 to 30%/year depending on the operation. The rate of expansion is highly dependent of the potential level of management.

PROPAGATION

Most commercial propagation in South Jersey falls into three classes: field seeding, cuttings, and grafting. Both the field seeding and the grafting are conducted using traditional techniques. Propagation by cuttings has benefited from advances in greenhouse engineering. While Professor William Roberts of Rutgers University conducted much of the early research into the application of heated floors for general greenhouse production, nurserymen have only recently adapted the technology to the industry. Nurserymen from the South Jersey area are presently using heated floors made of solid concrete in the propagation of nursery liners. They incorporate the double header return system and also make use of polybutylene tubing to conduct the flow of water.

Nursery liner stock produced using the floor heating system has resulted in a reduced production cycle, since the liner is larger when potted into the production container. Some azalea liners have up to a 6 in. crown size upon potting, and there is a like response for most plants produced on such a floor.

Early in the development cycle, growers used floor heat as the total source of the heat for the propagation houses. While liners overwintered and grew well, some liners entered a type of dormancy when potted and placed in the production houses in the spring. Presently, growers are using a system where the heated floors are allowed to drop to the vicinity of 40°F for a period of 45 to 60 days from mid-December to mid-February in an effort to overcome the dormancy problem. Energy conservation blankets of several types are now being used on an experimental basis in an effort to overwinter liners with less energy input.

Another area which has been seriously looked into has been that of misting and mist controlling. In addition to the traditional wire deflector nozzles, growers have used a spinner sprinkler imported from Israel, a large droplet fog system from Virginia, and a moderately high pressure true fog system engineered by area growers. All systems have benefits and drawbacks, and many growers are incorporating multiple systems depending on the crop produced. Controllers include a timer, a mechanical leaf, and a carbon-rod evaporation controller. Again, there is no definitive benefit of one system over another. It does appear that the traditional time-clock is being slowly replaced by more accurate clocks or evaporation systems. Most growers feel there remains the need for a better misting controller.

PRODUCTION

Labor management has been an area for increased concern in South Jersey. It has become increasingly difficult to get any type of labor for the industry. Both management level and laborer level personnel are in high demand. Employers are working intensively to make the work environment more desirable for their employees. In the development of this process, nurserymen have noted that personnel respond not only to reductions in the physical side of labor, but also to changes which make the working environment more desirable. The positive attitude of employees is a major factor in the success of labor management and the business.

While much of the innovation in technology has been directed toward the container industry, field operations have also benefited. A number of types of labor saving equipment has been integrated into area nursery operations. Some of those include the use and/or development of: big gun irrigation systems, potting machines, line mixers, skid steer loaders, loading docks, and conveyors. Also, growers have updated greenhouses to give more comfortable working conditions, to conserve energy, and to allow for a greater percentage of land coverage. The use of soil conservation practices including land shaping and ditching for water control, and the incorporation of new methods of applying pesticides more safely has also aided in benefits to worker interest and morale.

With the attitude that "quality sells", growers have instituted several methods of increasing quality through production practices. Post-production nutrition has become an area of increasing concern. Since growers are increasingly making use of name recognition in the marketing of stock, there is the need for the stock to look good not only at the time of delivery, but also for the period necessary for sales of that item in the garden center or other sales location. Fertilization to the very end of the production cycle or the use of granular or slow-release fertilizers prior to shipment have developed as options.

Winter watering has increased, with most growers watering container nursery stock at least once a week on the average during the winter. The rule of thumb most growers are now using is that of "if the root ball is unfrozen, water". Stock lost due to all factors in the winter has dropped into the 0 to 2% range.

Passive forcing is the technique of using sunlight to heat closed overwintering houses which results in rapidly increased growth of slightly undersized stock and/or enhanced the color of certain stock prior to sale. This process was developed in the area and is now being incorporated into the production programs of a number of area nurseries on specific types of stock.

NURSERY MANAGEMENT

Management and the management component of marketing are the keys to the most successful of area nursery businesses. It is well recognized that quality of produced stock allows growers to survive during periods of reduced sales and/or recession. In fact, the only parts of the market where we usually have problems are those where a "national" market exists. These "national" markets periodically over-supply our local markets with a low-cost product. In order to partially counter these periodic episodes of "dumping", growers are attempting to more effectively meet the needs of their clientele, and help establish a more personal relationship.

Analysis of production management programs for nurseries has indicated that profits to a large extent depend on the rate of turnover for the crop. As a consequence, most production is geared toward a one to two year crop. Since much of the cost of production is dependent on overhead costs, figures have been developed to determine the overhead cost per square foot of production area. Presently, growers are looking at the potential for the use of larger container production houses, thereby increasing the percentage of land used for production, in order to bring down the overhead costs.

With the periodic influx of excess nursery stock from other parts of the country, growers look upon expansion of their own businesses carefully. While there is an increase in production from year to year, growers base this increase on unfilled orders plus a percentage of production, also considering the business climate. There is little speculative expansion, resulting in a relatively stable local industry.

Computerization of nursery businesses has played a major role in all phases of business management. While there is considerable time spent in the entry of data, the options available for output and manipulation of information are well worth the investment of time. Computers are presently being used for billing, payroll, inventory, and orders. Output of information entered in addition to that of business analysis includes sheets for pulling orders which list the loca-

tion of all plants to be pulled and a location for consolidating the orders. Fall grading of nursery stock with identification of grades by the use of colored plastic strips or ribbons is necessary for the rapid pulling of orders in the spring.

Education is another area which has stimulated quality growth of the industry in South Jersey. Traditional attendance at meetings of management and other higher level nursery personnel has expanded to include field workers. Applied research is being conducted not only by or in conjunction with Rutgers Cooperative Extension and Rutgers University, but also by growers themselves. Close interaction with Rutgers Cooperative Extension in problem solving has always been a strength of the industry, and will continue to be. In addition to the traditional forms of education or expanded forms, is the involvement of nursery personnel in educational trips. Presently, approximately 80% of the nurseries send individuals to various parts of the country and the world at least once a year looking for new ideas and new technology.

CRITICAL AREAS

South Jersey offers many benefits to the grower with respect to location, climate, infrastructure, and the number of progressive growers. Coupled with these benefits are also concerns. With the construction of an interstate highway into the area to be completed in the fall of 1988, and the existing proximity to Atlantic City, there has been a tripling of land prices in the last 18 months. New purchases of land in the area indicate that South Jersey is becoming a "bedroom community" for Atlantic City and Philadelphia. It appears that we will be feeling the effect of real population pressure in the near future.

In addition to the direct population pressure are the pressures of finding employees since other business is moving to the area as well. Pay, while being high, is not the issue. Hard work is. People are not willing to spend the time or energy associated with agricultural production when they can earn a similar salary elsewhere with less effort expended. Migrant labor, and the associated regulation, has also created additional concerns. Presently, we cannot find labor in the nursery business, either skilled or unskilled.

Pesticide use is of concern with the increasing urbanization of South Jersey. Regulations in New Jersey are among the most stringent in the United States which places us at a competitive disadvantage when compared to states with less stringent regulations. Aerial application of pesticides is decreasing as the result of regulation, as is the use of mist blowers in many locations. Liability problems may be the final blow in an individual's effort to remain in business.

Water quality, quantity, and runoff have recently become an issue of national importance. Even though South Jersey sits upon one of the largest aquifers on the East Coast, ground water is

limited. We are in the midst of industry expansion and homeowners in the area, and there are projections of water crises in the future. There are also no options for reservoirs because of soil type problems, and there are no major rivers from which water can be taken in the South Jersey area. In an effort to maintain water quantity and quality, growers are now looking at options and alternatives for water conservation. Possibilities include the collection and recycling of water, with the monitoring of water quality already being conducted. There is also concern for terminal users of nursery production, the landscaper and homeowners, and their possible loss of the rights to use water during establishment of plants in the landscape.

OPPORTUNITIES

Where there are problems, there are also opportunities. The South Jersey nursery industry has been expanding rapidly for the last 6 to 8 years. The market is within an easy day of travel time, and will continue to expand in the foreseeable future. We have a very large proportion of progressive, results-oriented producers in the area, and an expanding market based on consumer demand. Growers also accept change as necessary for survival and expansion of their businesses. As a result, I see the South Jersey nursery industry as being a major factor in the innovative future of the nursery industry.