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EVOLUTION OF THE FLORIDA FOLIAGE PLANT INDUSTRY[1]

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Abstract. **The tropical foliage industry since World War II has perhaps been the fastest growing segment of American agriculture. A century ago foliage plants in this country were seldom found outside of conservatories and large estates. Now they are in a high proportion of homes as well as businesses and institutions. An overview of the historical development of the foliage plant industry in Florida is presented.**

From the tropical plants that once grew wild in the jungles of the world has evolved today's tropical foliage industry. One of the world's fastest growing, if not the fastest growing, agricultural enterprises in the period since World War II has been tropical foliage.

Many events and personalities have contributed to the fast rise of the modern foliage industry. This paper examines briefly various aspects of the evolution of the foliage industry in the United States. It also traces certain major happenings in the historical development of commercial foliage operations in Florida from the beginning of this century to the present.

Most of the information presented here came from personal interviews, correspondence, and telephone calls with foliage growers and others familiar with the early development of the foliage industry in the United States (5). Where available, information was acquired from printed publications and statistical compilations.

U.S. Foliage Industry Development

From small early beginnings, the tropical foliage plant industry in the United States reached a sales level at wholesale value in excess of $13,000,000 in 1949 (5). During the 1950s sales followed an upward trend, with annual grower marketings of $32,000,000 achieved in 1959. However, sales leveled off during the 1960s; some people attribute this to competition from artificial foliage plants. During the 1970s growth developed at a geometric rate with the primary increases occurring in Florida and California. U.S. foliage growers had sales approximating $270 million in 1979 (6).

Plants and Institutions

In the early portion of this century the major users of foliage plants were conservatories and large estates (2). The situation has changed dramatically to one in which every household in the western world is a current or potential user of foliage plants. There has been a vast expansion in consumer demand with plants being sold not only by specialized importers, greenhouses and nurseries, but by a large variety of outlets, including such mass market operations as discount, variety, and grocery stores, garden centers, and others. Specialized firms have evolved to service the needs of malls, business firms, and institutions as well as households in the furnishing and care of tropical foliage plants.

Plant brokers did much to foster the development of the tropical foliage plant industry (2). Through travel, telephone, and other communications, they contacted possible buyers of plants, including greenhouses, wholesale and retail florists, and other outlets and did much to bridge the gap between buyer and seller. Brokers are recognized as having played a very large role in the popularization and expansion of the market for tropical foliage plants, especially during the 1940s and 1950s and also in the ensuing years.

Florida Foliage Industry

Although Florida now leads the nation in the production of tropical foliage plants, it did not become a major entity prior to World War II. Grower sales of Florida foliage increased from $2 million in 1949 to $127 million in 1979. Much impetus to industry growth was given by the non-availability of ocean shipping from Puerto Rico during World War II to transport foliage cuttings to northern markets. Florida's initial demand was for rooted cuttings from northern greenhouse operators. Later Florida growers shifted to plants for the consumer market; this was brought about in part by the availability of plastic pots.

A synopsis of some of the major happenings in south and central Florida follows.

South Florida

Early operation. Historical evidence indicates that one of the earliest foliage operators in Florida was the Soar Brothers, who operated a nursery at Little River, north of Miami, from 1897 to 1909 (2). In addition to citrus trees, they also grew ornamental plants, including ferns and many plants found in the Everglades and on nearby islands for use in greenhouses and homes.

In 1909 John Soar started the Little River Nursery. This firm specialized in small potted plants which were shipped mostly barefoot. F. M. Soar formed the F. M. Soar Nursery in which he propagated ferns, *Pandanus veitchii,* and sansevieria.

Sansevieria spp. were introduced into the United States by the Robert Craig Company (2). One of the early growers was Roger Spicer, who produced these plants in the Stuart area about the time of the first World War. Shipments were generally made by sea.

Another large sansevieria grower was Fabian Oskierko, who came to the United States from Russia in 1899 (2; Personal communication from F. Oskierko, Feb. 1978). In 1926 he purchased land in the Homestead area and began growing sansevieria, *Dracaena massangeana,* and pandanus. Paul, the eldest son of Fabian Oskierko, came to Florida in the 1930s to continue the business, which became known as Horticultural Plant Farms.

In the early years of the Florida foliage industry growers obtained free or at minimal cost many waste materials from other industries (2). These included cypress slabs from nearby sawmills and old telephone poles, which were used as supports for lath houses. Now these have been generally supplanted by saran and other materials.

Some of the pioneer foliage plant growers of Florida began their operations by harvesting bromeliads, or "swamp orchids," from the Everglades and selling them primarily to variety and other chain stores (Personal Communication

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from Dan J. Greer, Nov. 1975). Still others had experience in landscape nursery operations.

Boston fern. This item, which has had a leading role in the tropical foliage industry, has an interesting history. David Fairchild notes that John Soar, who migrated to south Florida before Miami was in the planning stage, discovered some pretty ferns with unusually large fronds on the keys and took a selection of them to his nursery (1). Following this, he grew them and sent some to friends in Boston. The account states that the famous "Boston fern," which is really a native of Florida, has since become one of the more popular foliage plants.

Truckers, brokers, and large plants. Paul Oskierko was the first trucker of plants in the Dade and Apopka areas (Personal Communication from Theodore Brown, Dec. 1978). Currently Johnny Brown's is the largest firm trucking plants. Brown began by hauling eggs from Wisconsin and Minnesota to Florida and then, as return loads, carried plants to Bachman's in Minneapolis and receivers in Chicago and Madison. Many other trucking firms are also involved in hauling foliage plants.

Until Woolworth and other chain stores entered the plant business on a large scale, brokers marketed more plants than any other outlet. These organizations had sales forces which covered major cities, the buying offices of large stores, and many nurseries.

Dade County nurserymen in the 1940s included not only the Oskierkos but also a group of others, including Dan Greer, Raymond Hogshead, Hugh Lalor, Duncan Macaw, Oscar Nelson, and Jim Vosters. They were followed in the 1950s by Lou Super, Lex Ritter, and Arvida. Many additional firms have since joined the industry. It has expanded from its earlier locations in Dade into Broward and Palm Beach Counties as well as Martin in the north and Lee in the west.

Central Florida (Apopka Area)

Boston fern. The Boston fern also played an important part in the initiation of the foliage industry in central Florida. A Mr. Powell, the sales manager of a Springfield, Ohio, floral company, developed the idea in 1912 of producing Boston fern, a product very expensive to grow in northern locations, outdoors in Florida (4). He and Harry Ustler, a clerk in the floral company, estimated that they could grow Boston ferns in Florida for 20 percent of the cost in Ohio.

Ustler made it down to Florida, but Powell for some reason did not do so. Problems were encountered in financing the proposed operation. While in the Orlando area Ustler met W. P. Newell, who furnished the venture capital to get the operation started. Their fern growing business was shifted from Orlando to Apopka in 1917. Other operators, of which there were later more than 100, soon entered the business.

Initial foliage plant production. In 1928 W. W. Walters made the "first" attempt to produce foliage plants commercially in central Florida (4). Walters had been in St. Louis and noticed *Philodendron scandens oxycardium (cordatum)* plants growing in the D. S. Geddis greenhouse. He asked for some of the material to grow in his Apopka fernery. However, he destroyed the test plantings two years after he began growing them. Apparently no one was favorably impressed with the rank growth of vines on a trellis.

The first person to grow cordatum commercially in Orange County was Robert Mitchell (4). Mitchell had been a student at Washington University in St. Louis, and also worked at the Missouri Botanical Gardens for a few years. In 1929 he came back to Orange County and went into business at the Shore Acres Nursery in southern Orlando.

During the Great Depression of the 1930s the market for ferns became less profitable than in the past. Growers had successful markets for ferns in earlier years and saw no need to diversify. However, with a larger number of ferneries, the supply of the product increased with resulting drops in prices and value of sales.

Shift to foliage plants. Mitchell succeeded with cordatum where Walters had been unsuccessful in that the former was able to find a market (4). Mitchell had established contact with a number of people in the St. Louis area when he worked there. Glen Turner of the National School of Floral Design was the key contact and had encouraged him to grow cordatum. Turner promised to promote the use of heart-leaf philodendron over much of the country and to encourage potential users to get in touch with Mitchell for supplies. This effort turned out to be successful.

Another leader in the Apopka foliage industry was John Masek. The Apopka Fern Growers Association, of which he had been executive secretary, ceased to exist during the 1930s. Masek began a marketing firm around which he organized and developed his own nursery. Masek is perhaps best known for pioneering with mail order and other techniques used in developing mass markets for foliage plants. He spent many of his summers studying at the University of Chicago, where he earned a doctorate in business. Masek has been characterized as the "Henry Ford" of the foliage industry because his pioneering efforts helped other growers as well as himself. Pioneers honored at the first Foliage Hall of Fame banquet in 1978 included John Masek as well as Harry Ustler, Raymond Hogshead, and Alex Laurie.

Changes and Comparisons

Many other changes have occurred in the Florida foliage industry in all its production areas. New cultivars have been added to the product mix. Glass and plastic greenhouses, the use of which contributed to high productivity and better quality, were constructed. Plants were propagated in Central America, the Caribbean, and other tropical areas. Conglomerate firms entered the industry. Specialized input supply and marketing firms appeared on the scene. Technological innovations resulted in improved efficiency.

Central and South Florida both sustained rapid increases in foliage production over the 30-year period from 1949 to 1979 (5, 6). Central Florida had more than a 50-fold increase compared with one of over 95 times for south Florida.

Other differences show up when the industries in the two areas are analyzed. Production operations, with larger proportions of plants grown out of doors, are more extensive in south Florida than in central Florida. South Florida tends to specialize in *Dracaena spp.* and *Ficus spp.* while central Florida is still strong in *Philodendron scandens oxycardium (cordatum)* (3), but also grows a wide spectrum of other plants. A third of the value of plants produced in south Florida in 1975 was in 9-inch or larger pots whereas only 12% of those in central Florida were in this size grouping. While only 4% of the plants sold by south Florida growers were in 3-inch or smaller pots, the comparable figure for central Florida was 39%.

Outlook

Further changes are certain to take place in the Florida foliage industry. Recently there has been a slowdown in demand, with firms making adjustments in business operations. Currently there appears to be a shift in consumer

desires from green plants to flowering ones. As the foliage industry adjusts to the continuing energy crisis, which is affecting certain regions more adversely than others, Florida, despite rising energy costs, nevertheless has advantages over many of its competitors. The application of new technology on tissue culture, nutrition, plant acclimatization, insect and disease control, the generation of new cultivars, etc., plus efforts to stimulate consumer demand, should enable Florida to compete effectively for markets.

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EFFECTS OF LIGHT AND FERTILIZER LEVELS ON CUT FOLIAGE PRODUCTION[1]

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Abstract. **Two 3 x 4 factorial experiments of light intensity, 30, 47, and 63% shade, and fertilizer level, 160, 320, 480, and 640 kg N/ha/yr from a 6 N - 2.6 P - 5 K fertilizer source, was conducted over a 5 year period on** Pittosporum tobira **(Thunb.) Ait. and** P. tobira **(Thunb.) Ait. 'Variegata'. Total yield of cut foliage over the 5 year period was greatest when plants were grown under 47% shade. Fertilizer level had no effect. Data on economic value of pittosporum as well as tissue levels are included.**

Pittosporum tobira (green pittosporum) and *P. tobira* 'Variegata' (variegated pittosporum) are woody ornamental shrubs often used for landscaping in Florida. In addition, these shrubs also produce excellent cut foliage for use in flower arrangements. The Florida Department of Agriculture and Consumer Services (3) reported that of the more than 3,000 acres of cut foliage production in central Florida, minor ferns and hardy greens (which include woody cut foliage) account for 10%. Thus, the estimated wholesale value of woody cut foliage is between 4 and 5 million dollars per year with green and variegated pittosporum representing approximately 50% of sales.

Although the cut woody foliage industry has been in existence since the early 1900's, no research [except for a preliminary report on this experiment (1)] has been reported on the nutritional requirements of these plants under situations of continual harvesting nor has any yield data been reported. Light intensity levels used in production vary considerably with woody foliage plants grown on perimeters of established ferneries or in separate production areas under natural tree shade or polypropylene shadecloth of various levels. Because of the lack of information on optimum light and nutritional levels for production of pittosporum these experiments were initiated.

[1]Florida Agricultural Experiment Stations Series No. 2660.

Materials and Methods

On April 15, 1975, two 3 x 4 factorial experiments were established using green and variegated pittosporum at the Agricultural Research Center, Apopka. Liners in 15 cm pots about 20 cm in height were planted in ground beds of Rutledge fine sand with 2 plants per 4.5 m^2 plot on 1.2 by 1.8 m centers and replicated 3 times. Treatments included 3 light intensities, 30, 47, and 63% shade from polypropylene shadecloth (approximately 84, 64, and 44 klx maximum) and 4 fertilizer levels, 160, 320, 480, and 640 kg N/ha/year applied monthly from a 6 N — 2.6 P — 5 K fertilizer source. Fresh weight (kg) of cuttings were recorded at each harvest date and grouped into annual and 5 year totals. The first harvest date for green pittosporum was March 1976 and for variegated pittosporum August 1976. Final harvest date was March 1980 at which time tissue analyses were determined.

Results and Discussion

Total yield of green pittosporum over the 5 year harvest period was greater when grown under 47 or 63% shade (Table 1). During the 1st and 4th year, yield was not significantly different while in the 2nd, 3rd, and 5th years the 30% shade treatment produced lowest yields. Although producers do not have a quality grade for green pittosporum, the market requires foliage to be dark green and flat to be considered acceptable. Cut foliage grown in the 30% shade plots was marginally acceptable because of its lighter color and rolled leaf edges; foliage from the 47 and 63% shade plots was considered excellent with dark green color and flat edges. All cut foliage harvested from these plots was marketed through normal commercial channels.

Except for a linear decrease in yield during the 3rd year, there was no effect of fertilizer level on yield (Table 1). Thus, the lowest fertilizer level would be most economical.

Total yields of variegated pittosporum over the 5 year harvest period (actually only harvested in years 2-5) were greater under 47% shade than 30 or 63% (Table 2). As compared to green pittosporum, there was not as much apparent difference in quality between light level treatments and all cut foliage was of good quality.

As with green pittosporum, fertilizer level for the 5 year