Economics and Marketing

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Using GIS Technology to Evaluate Transportation of Ornamental Crops in Georgia

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Index Words: Geographic Information Systems, transportation alliance, ornamentals

Significance to the Industry: The increase of energy and gasoline prices, the worldwide financial recession characterized by the weakening of the U.S. dollar and the reduction in personal income are all factors expected to reduce the consumption of discretionary agricultural products such as ornamental crops. The ornamental industry faces difficult economic and climatic times in part due to the decrease in sales, increase in production costs and the fact that the market has become more dynamic and competitive. In 2007, the Floriculture and Nursery Crop Yearbook highlighted competition from imports of unrooted cuttings from overseas as an important factor in sales reduction; while attributing as the main cause of reduction in overall consumers' demand to higher energy and food prices.

Among all the factors that affect the expansion of nurseries and greenhouses: production, marketing, personnel and transportation costs are considered the most relevant ones [1]. In the 2003 Southern Cooperative Bulletin Survey, nurseries ranked transportation as an important factor of concern for expansion of trading, ranking it above debt capital, equity capital, marketing and below personnel and production [2]. The significant importance of transportation costs has remained at the forefront for the past ten years, turning it into an enormous strategic factor that must be taken into account if economic growth and social change are to occur. However, in recent years, transportation costs have increased steadily, forcing businesses to give up a higher percentage of sales revenue to transportation costs. The 2008 3rd quarter report from the USDA stated that average truck cost rates have increased to $2.67 per mile, 13% higher than in the 2nd quarter and 23% higher than the same quarter the year before [3]. Gasoline and energy sources will continue to diminish, thus transportation will eventually become one of the highest, if not the highest, determining factor of success for any business; especially those in agriculture.

In the agricultural industry, the importance of transportation costs is heightened as evidenced by the fact that transportation accounts for over 8% of the wholesale value of total farm shipments [4]. Logistic cooperation is an important strategic alternative to reduce costs and increase efficiency in the agricultural sector. The remedy for the medium and small sized carrier businesses is to establish coalitions or alliances in order

to extend their resource portfolio and reinforce their market position [5]. In the case of Georgia's ornamental industry, producers may share clients, routes and origins; still, each producer has an independent transportation system. 85.8% of the total annual sales of Georgia's nursery industry have repeated customers, making it the third highest ranked state with most repeated customers [2]. The study, published in May 2008 by the Canadian Investment Bank CIBC World Markets, calculated that the recent surge in shipping costs is on average the equivalent of a 9% tariff on trade. The report concluded that "the cost of moving goods, not the cost of tariffs, is the largest barrier to trade today," effectively offsetting all trade liberalization efforts over the last three decades [6].

Nature of Work: The main objective of this study is to determine if a transportation alliance through horizontal cooperation and routing junction would reduce shipping costs and increase distribution efficiency among ornamental producers in Georgia. A convenience sample of 10 medium and small nurseries/greenhouses in Georgia were surveyed from March through September, 2009. The survey consisted of a letter of intent explaining the benefits and reasons of the study and a questionnaire regarding information related to shipping costs, orders and fleet management. The data gathered was tabulated and evaluated with recent research in the transportation industry for data validation. Using the GIS software ArcLogistics 9.3 various routing plan analyses were conducted to evaluate different constraints such as: depot locations, number of services, and order sharing. The routing analysis considered the 20 most relevant location deliveries per participant. Subsequently a sensitivity analysis was constructed for all constraints.

Results and Discussion: The majority of participants responded that transportation is a key limiting factor for economic growth in ornamental production, in which 80% of respondents stated that their transportation costs have increased in the last year at an average rate of 21%. Transportation accounted for 10% of total cost of production. The total cost for a medium sized truck averaged $1.98 per mile, fixed costs of $0.619 per mile, variable costs of $1.361 per mile and externality costs of $0.37 per mile. Fixed costs were composed of depreciation, return on investment, insurance costs, overhead expenses, taxes and registration fees; variable costs were composed of fuel costs, tire costs, labor costs, maintenance and repairs; and externality costs were composed of air pollution costs (CO_2 emissions per ton per mile) and accident costs (monetary amount paid per truck to reduce the risk of an accident occurring).

Table 1. Average total truck cost (dollars per mile)

Fixed	Variable	Total
0.619	1.361	1.98

The ArcLogistics 9.3 routing simulation determined that by joining routes and sharing orders, ornamental transportation costs decreases by 1% to 15%, total miles driven decreases by 2% to 14%, and the number of trucks used decreases by 2% to 41%. Clusters of clients and operation locations were found. Therefore, three different

location alliances were simulated, north alliance with 3 depots, central alliance with 8 depots, and south alliance with 3 depots. Within each alliance two locations were analyzed: a central depot location and a major highway depot location. Major depot highway location alliances showed greater and faster cost reductions than central depot location alliances. The north alliance showed total cost reductions starting at 1 order per route, the south alliance at 3 orders per route, and the central alliance at 4 orders per route. Total costs decreased by adding more orders to each route at a maximum of 5 orders per route. Time windows consisted of 60 minutes per pickup and 60 minutes per delivery. Volume delivered was considered the same for all orders due to the high variability and differences between ornamental products.

Transportation alliances through horizontal cooperation and routing junction are an important alternative to reduce transportations costs to rates of 15%. Location of the main depot plays an important role in transportation costs. Delivery and operation clusters need to be taken into account for future routing analysis. Adding more orders per route reduced transportation costs.

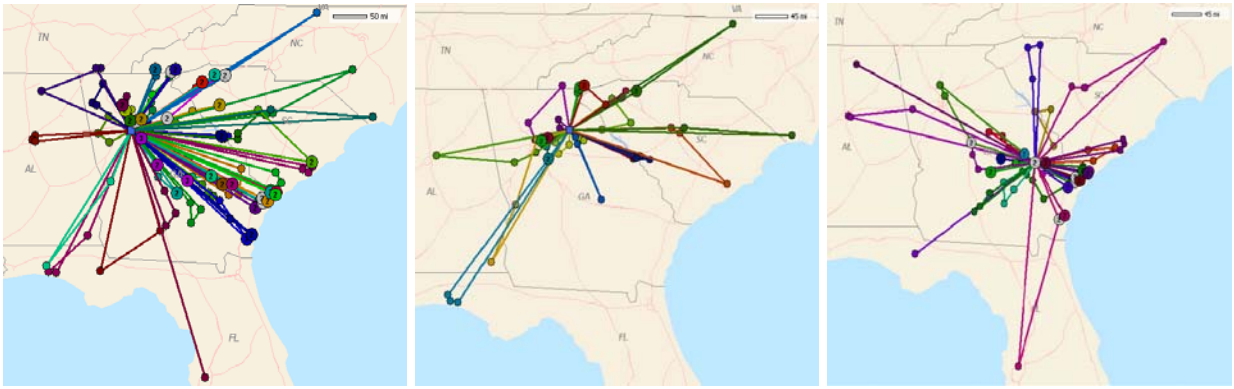

Figure 1. Routing central alliance (left), north alliance (center), and south alliance (right)

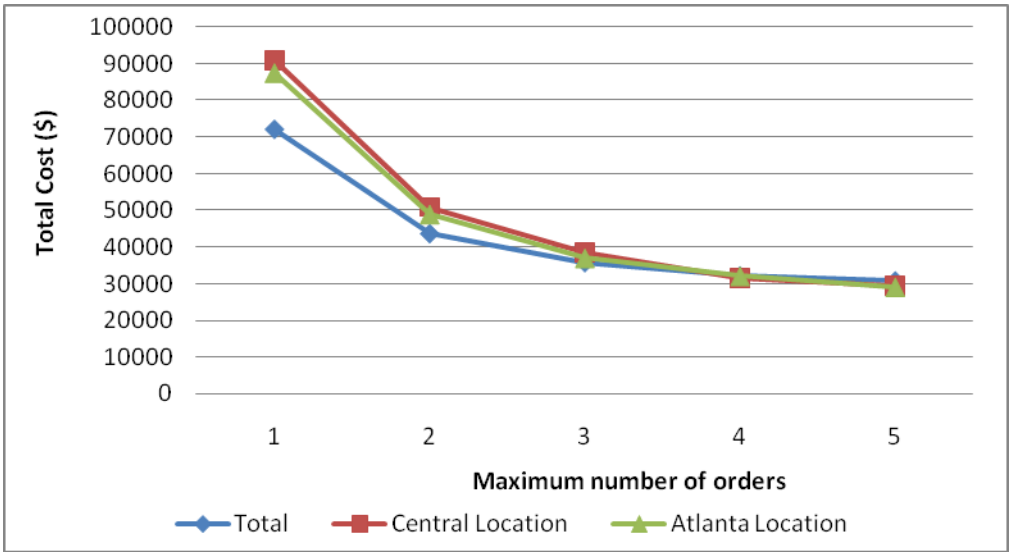

Figure 2. Total costs of total single locations and central alliance locations from 1 to 5 order sharing.

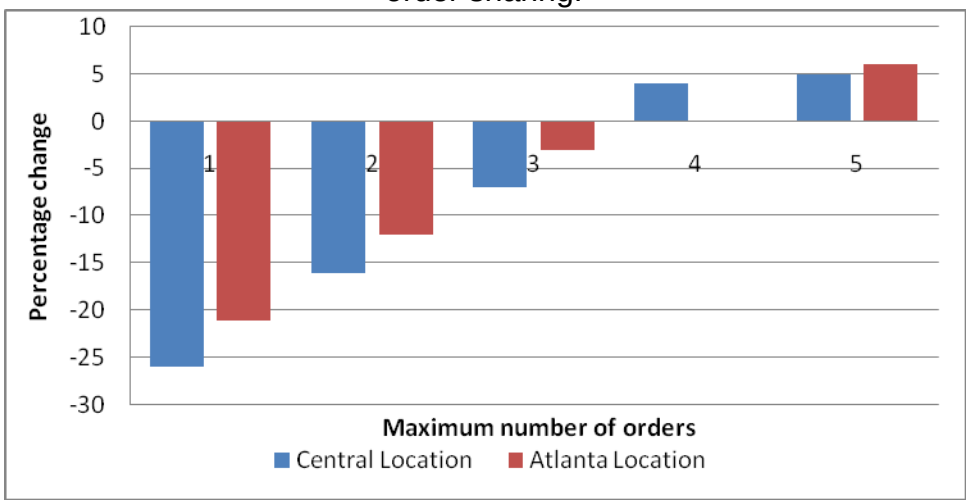

Figure 3. Percentage savings of total costs in central location alliances.

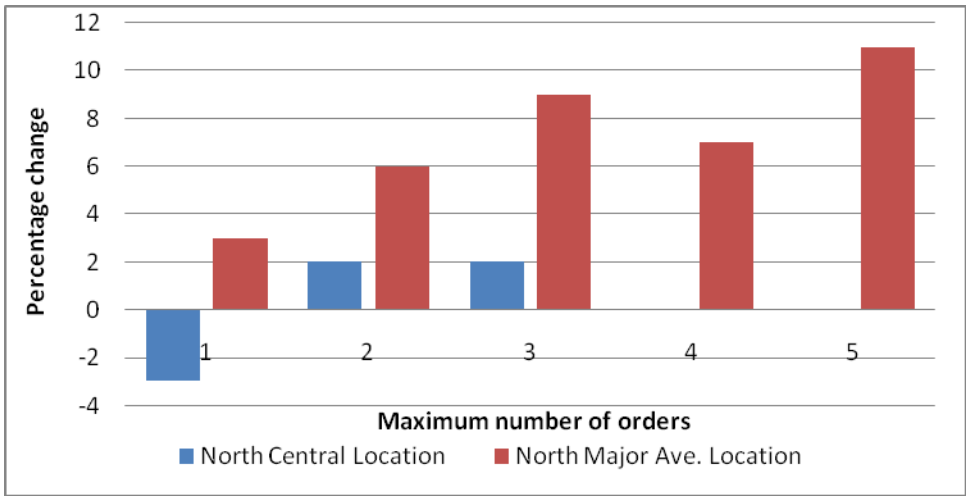

Figure 4. Percentage savings of total costs in north location alliances.

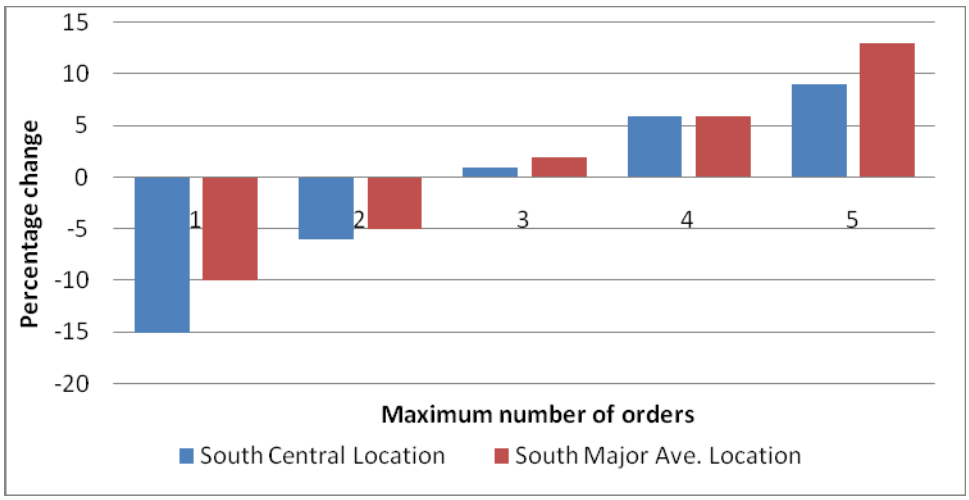

Figure 5. Percentage savings of total costs in south location alliances.

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Internet Marketing Opportunities and Problems for TN Nursery Product Growers

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Index Words: advertising, Internet marketing, computers, greenhouse/nursery producers

Nature of Work: The Internet is an important channel for marketing. There has been increasing use of this channel in the marketing of agricultural commodities including nursery/greenhouse products and services. In spite of its importance as a marketing network, the Internet presents numerous opportunities and problems. The following paper (1) discusses opportunities and problems presented by the Internet in the advertising and marketing of nursery/greenhouse products and services, and (2) presents findings of a survey of nursery and greenhouse, products and services in middle Tennessee. The Internet allows growers to showcase their products to different consumers at the same time. Internet marketing allows the producers to promote their products directly to potential buyers without the help of middlemen. However, inaccessibility to computer and lack of knowledge of computer can pose problems. According to Kanto 1998 “Internet marketing allows farmers and consumers contacts in a way never before available”. This channel allows farmers to provide information about their products to multiple recipients 24 hours a day seven days a week. The number of Internet shoppers has increased significantly over the last decade. Approximately 56 percent of the Internet users in the United States shop on line (Klotz, 2002). This presents a tremendous opportunity for nursery and greenhouse producers to market their products and services on-line. Based on current statistics, world-wide, Internet users increased from 361 million in 2002 to about 2 billion in 2009 (Internet World Stats). Also, in a United States Department of Agriculture study, producers reported $665 million in online buying and selling. This figure represents 33 percent of all purchases and sales by U.S. farms. The possibilities for selling on the Internet provide good opportunity for greenhouse and nursery growers. The number of Internet shoppers has increased significantly over the last decade. Approximately 56 percent of the Internet users in the United States shop on line (Klotz, 2002). This presents a tremendous opportunity for nursery and greenhouse producers to market their products and services on-line. A 21-item questionnaire was used in collecting information from 100 greenhouse and nursery producers who participated in the 2009 Tennessee State University’s Nursery Crop Research Center Field Day.

Results and Discussion: Data collected for this paper were analyzed using the Statistical Package for the Social Sciences. From Table 1, when asked the reasons for using the Internet, 15 percent of the respondents indicated that they used the Internet for locating customers. Seventeen percent of the respondents use the Internet to communicate with their customers while 14 percent used it for tracking inventory. Only five percent of nursery and greenhouse producers used the Internet to advertise. This low number of producers using the Internet to advertise can be explained by the small number of producers possibly using the Internet to market their products. According to the survey, two percent of the nursery and greenhouse businesses said that they did not use the computer because there was no Internet access in their area. While six percent indicated that they had no money to connect to the Internet, 14 percent responded that they lacked computer knowledge. Majority (78%) of the respondents gave other reasons for not using a computer in their businesses (Table 2). Table 3 presents information on the channels that producers used in advertising their products and/or services. Word-of-mouth identified by 15% of respondents was the most used method of advertising followed by Internet (14 percent), face-to-face (14%) and trade shows (13%). In response to the question of how much they spent on advertisement (Table 4), as expected the cost of advertising varied by the channel used. On average, while it cost $3,250 on TV, $2,569 on trade show, it only cost $500 to advertise on the Internet. This result seems to suggest that the Internet is the least expensive and possibly the most efficient channel in the marketing of nursery and greenhouse products.

When asked what percentage of their gross sales were generated as a result of using the Internet (Table 5), on the average, 58 percent of the respondents said that they derived 0 to10 percent of their gross sales from the Internet. Twenty-five percent of those surveyed stated that 11 to 40 percent of their gross sales were from using the Internet. About three percent of the participants also indicated that they earned 41 to 50 percent of their gross sales from the Internet.

Significance to the Industry: The greenhouse and nursery industry contributes significantly to agriculture. According to Hall in 2002, the US Green Industry generated $147.8 billion in output, 1,964,339 jobs, $95.1 billion in value added, $64.3 billion in labor income, and $6.9 billion in indirect business taxes (Hall, Hodges and Haydu, 2005). The Internet presents great opportunity for nursery/greenhouse producers to market their products and services. Findings from this study confirm that a large percentage of sales can be generated from using the Internet. A carefully designed and placed website can attract customers to producers. The industry can benefit from programs that encourage producers to design effective advertising and marketing programs for producers. The Internet will continue to be a viable channel for selling nursery/greenhouse products and services.

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Andre Russell and Kashin Thompson is greatly appreciated. The opinions expressed in this paper are those of the authors only.

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Table 1. Reasons for using the computer.

Stated Reason for Using Computer	Percent Response (%)
Advertising only	5
Advertising and selling	13
Communication with customers	17
Marketing and research	10
Identifying markets	8
Developing market plans	6
Developing business records	12
Tracking inventory	14
Locating customers	15

Table 2. Stated reason for not using the computer.

Reason	Percent Response (Percent)
Lack of computer knowledge	14
Lack of money to pay the computer	6
Do not have great need for it	2
Other	78

Table 3. Channels used for advertising/marketing of greenhouse/nursery crops

Channel	Percent Response (%)
Local news paper	10
Trade magazines	6
The Internet	14
Electronic media	3
Trade shows	13
Word-of- mouth	15
Radio/TV	5
Face to face	14
Other	21

Table 4. Advertising expenditure by selected channel

Advertising Channel	Average Expenditure ($)
Local Newspaper	1,300
Trade Magazine	625
The Internet	511
Electronic Media	1,000
Trade Show	2,569
word-of-mouth	2,000
Radio\TV	3,250
Others	3,914

Table 5. Percent of gross sales derived from using the Internet

Percent of Sales	Percent Response (%)
0 - 10%	57.5
11 - 20%	10.0
21 - 30%	7.5
31 - 40%	7.5
41 - 50%	2.5
Total Response	85.0
Total no response	15.0

Grower Needs, Attitudes, and Participation in Inputs Supply Buying Decisions

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Index Words: input supply, decision-making, service, product line, price, quality

Significance to Industry: Production agriculture is the nation's most dynamic and basic industry, even when considering the environmental horticulture industries. An annual productivity increase of 2%, enterprise specialization, highly variable inputs prices and availability, and a greater emphasis on trade and exchange rate fluctuations are all changing the character of production agriculture. As a result, progressive marketing or purchasing strategies are needed for production input marketing. Inputs are supplied by many types of vendors. Most production enterprises are serviced by local privately-owned input supply stores, input supply cooperatives, corporations and/or corporate direct sales representatives. The competitiveness of each vendor varies greatly by trade area and purchase(r) size and product grown or raised. It is known that producers/growers rely heavily on input supply dealers for inputs, information, and services. The needs of individual producers will continue to change and become more complex and dynamic. The overall objective of this study was to identify the relative importance of factors that affect production supply buying decisions within the green industry.

Nature of Work: The specific objectives were to determine: (1) the importance of input supply prices, services, products or product lines, and selected intangible concerns to growers; (2) how effectively the input supply industry is providing the needs of the growers; and (3) probable changes in products, services, and the general structure of the input supply industry. The results were based on personal interviews with plants growers (floriculture and greenhouse production, container-grown nurseries, and field-grown tree nurseries) in six different locales in the four states of southeastern and southern Georgia, upstate and low country South Carolina, panhandle Florida, and lower Alabama. The questionnaire was designed to elicit responses regarding factors influencing growers' purchasing decisions.

Several questions were designed to determine differences in growers' attitudes by product type. Five main classifications of products sold were used; media; fertilizer and soil amendments; chemicals and pest control; green goods (liners, seeds, transplants, etc.) and hard goods (containers, irrigation piping, greenhouses, etc.). One section of the questionnaire dealt specifically with the different types of services offered by input supply stores or dealers or manufacturers. Twelve services were selected for analysis, which varied from such tangible services as delivery to information services, such as advice or outlook, with growers asked to select from one of three choices on the

importance of particular services to them – from “services not needed” to “needed, but should be a free service” to “needed and willing to pay extra.” Another portion of the questionnaire was designed to determine growers’ reasons for patronizing a particular outlet or venue and the relative performance of the venues for addressing the growers’ needs or problems, using a rating scale. The final section of the questionnaire was designed for soliciting an open-ended response to the question, “What do you feel is the most important characteristic of a good input supply store, dealer-representative, or manufacturer?”

Results and Discussion: With respect to the evaluation of factors related to different product groups, the scores of the selected characteristics for all producers, regardless of product group, high quality was the highest priority among the characteristics. Dependable services ranked second, while competitive prices only rated third in the comparison. Knowledgeable manager and/or employees and wide variety of products or product lines trailed in the poll of characteristics, with ease of purchase or convenience and performance results bringing up the rear (except for the ‘other’ category for which there were few common responses).

The rankings of characteristics of general, one-stop shopping outlets for production inputs were the same as above (for the five different product categories) with the exception of a wider variety ranked fourth, flip-flopping with knowledgeable manager and/or employees.

The evaluation of importance of various input supply related services for all respondents indicated the following ranking for the 12 services selected: (1) credit availability and terms; (2) bulk delivery; (3) customization of media/mix; (4) soil/media sampling and testing; (5) storage until ready to use; (6) production advisement; (7) foliar sampling and diagnosis; (8) weed or pest identification; (9) crop scouting; (10) financial advisement; (11) automatic reorder; and (12) soil mapping.

The same twelve factors that were ranked by importance were also ranked by performance for the facilities that growers patronized.—bad; good; or very good – with an identification of key performance factors deemed to be most important when evaluating the performance of an input supplier. The ranking of the twelve most important performance measures was: (1) dependability of marketing services; (2) attitude of manager; (3) employee assistance; (4) quality of product in inventory; (5) variety or selection of products, product lines, brands, etc.; (6) marketer’s product knowledge; (7) consistency in quality; (8) credit policy; (9) location; (10) accessibility; (11) competitive price; and (12) specials offered.

In regard to the open-ended question of “What do you feel is the most important characteristic of a good input supplier?” the responses were summarized into nine categories with the ‘first choice’ receiving a score of three and descending to a one for ‘third choice.’ Product line, competitive pricing of product, and marketing services dominated as the important marketer characteristics. The remaining notable

characteristics were quality of product, staff for assistance, product knowledge, facility efficiency, location, and other.

With one of the study's objectives being to suggest possible marketing strategy opportunities and probable changes to the input supply industry, indications of future changes were derived by using assumptions about the changing structure and economy as observed within the green industry. Since the study was cross-sectional and not based on time series data, techniques to determine trends could not be used. Consequently, a bullet-list of suggested alternative marketing strategies was developed:

- Maintain a reputation for high quality products through a consistent advertising program to assure all types of growers that a consistent, high quality be available.
- Maintain competitive flexible pricing through volume discounts and more rapid price shifts to meet prices from competing corporations and direct sales.
- Analyze the price and cost structure of maintaining central buying and warehousing facilities as profit centers.
- Maintain and update a web or internet presence reflecting turnover and availability of all available merchandise and services.
- Place emphasis on timely, efficient service.
- Concentrate on maintaining well-trained, personable drivers and employees, and keep delivery, installation, and repair/maintenance equipment in excellent operating condition.
- Facility should be competitive on quality, dependability, product knowledge of all products and services, good management and good employee attitude.
- Customize local input supply venues to meet grower or producer needs and maintain competitive pressure in local market areas. Simply put, do not have a standardized full-line supply in every market; let each store or distributor adjust its price-service mix to best fit the market with low turnover items being discarded.

Literature Cited: Available upon request.

Sources of Financial Stress Among Plants Producers and Marketers

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Index Words: finance, cash flow, debt, demand, sales

Significance to Industry: For the past two years, growers and marketers of plant materials in the Southeast have experienced financial viability and stress issues that resulted from prolonged drought and mandated watering restrictions affecting the demand for their plants, as well as the affects of the recent recession – declining consumer incomes, rising unemployment, withering consumer confidence, the weakening of the US dollar, and global tensions. If not in the financial statements, the financial stress was at least borne out in the conversations around the community and region – at the café, courthouse, church, gas station, conferences and tradeshows.

Nature of Work: Because the economic and financial success of these local agribusinesses hinge on the derived demand for their products and services, they are not exempt from experiencing financial stress. What are the various sources of this stress and what assistance can the Cooperative Extension Service provide to help alleviate the stress? What is the relative magnitude of influence or importance of the financial stressors, as identified by the grower-wholesalers and marketers of plant materials?

The objective is: [a] to identify, from the business manager or owner perspective, the aspects or factors that contribute to financial stress during the most recent two growing and marketing years, and [b] in some scalar methodology, to determine the relative proportion of financial stress contributed by each stressor. A survey instrument was completed by managers/operators of greenhouse and container nurseries and independent retail garden centers. These businesses are located in rural or small communities (less than 10,000 population) in seven Southeastern states. The survey respondent rank ordered the stressors identified as well as rated or scored each stressor on a five-point Likert scale as to the relative importance of each factor as a financial stressor to the agribusiness.

A one-page survey instrument was distributed to 300 plants producers and/or retailers located in identified rural communities scattered throughout the seven states of Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee. The targeted businesses were selected from membership lists provided by the respective state's Department of Agriculture, Department of Commerce, Agribusiness Council, or state trade association serving these two sectors of the state economy.

Of the 300 distributed surveys, 172 were completed and returned. Questions indirectly addressing the financial stressor analysis included the length of time the business has been operating at that site, the years experience of the manager/decision maker for the business, the relative value of sales (selected from a series of ranges in values), the business organizational structure, numbers of full-time and seasonal employees, relative value of total assets (selected appropriate range of values), and an itemization of products marketed. As for the identification of financial stressors, a list of 30 issues were provided with instructions to rate or score each factor on a five-point scale as to the relative importance as a financial stressor, from the respondent's perspective of his/her own business. Although some of the terms or issues were truly not "text book" financial management concerns, a pre-test with community agricultural portfolio bankers in Georgia suggested the topics presented did influence the agribusiness manager's perception of financial management, and would be included in the decision makers' thought process. Using a scale of 1 to 5 [1=not a financial concern; …; 5=a very important, nearly continuous financial stressor], the weighted average of the responses for each of the two dozen factors (concerns, issues) was calculated to determine a relative magnitude of importance as a financial stressor.

Results and Discussion: For the 172 respondents of the 300 distributed surveys, the firms reflected the following highlights:

Organizational Structure

Proprietorship	47% of total
Partnership (full or limited)	34%
Cooperative (member-owned)	17%
Corporation (stock or limited-liability)	2%

Length of Time at Present Location (average) – 27 years (range of 1 to 86)
Length of Managerial Experience (average) – 8 years (range of 1 to 49)

Annual Sales

Less than $1 million net sales	49% of total
$1 million to $5 million net sales	48%
Greater than $5 million net sales	3%

Total Asset Valuation

Less than $1 million	43% of total
$1 million to $3 million	36%
$3 million to $5 million	18%
Greater than $5 million	3%

Number of Employees (average) – 9 full-time and 13 part-time

For each of the following potential financial stressors to the grower-wholesaler or retailer, the weighted average calculation for the respondents as a whole is shown using the five-point scale, as well as the top 10 rankings for the grower-wholesalers and for the retailers.

Ranking Whole	Financial Stressor	Score	Ranking Among Growers	Ranking Among Retailers
1.	Cash flow (in and out)	4.4	1	2
2.	Demand for products	4.3	5	1
3.	Water regulations and bans	4.2	4	3
4.	Labor (wages, availability, etc.)	4.2	3	5
5.	Net working capital or liquidity	4.1	6	7
6.	Drought effects or impacts	3.9		4
7.	Cost of goods sold or produced	3.7	7	
8.	Interest rates for credit	3.7	8	
9.	Leverage or debt/equity ratio	3.6	9	
10.	Return on net worth/owner equity	3.5	10	
11.	Debt ratio or solvency	3.4		
12.	Comparative industry analysis	3.3		
13.	Revenue or net sales	3.2	2	10
14.	Product or service mix	3.2		8
15.	Capital investment in fixed assets	3.1		
16.	Personnel performance measures	3.1		
17.	Fringe benefits and incentives	3.0		
18.	Reconciliation of net worth	2.9		
19.	Inventory turnover	2.8		9
20.	Gross margin percentage	2.8		
21.	Trade credit (receivables, payables)	2.8		6
22.	General selling/admin. expenses	2.7		
23.	Operating loans/lines of credit	2.6		
24.	Family or personal matters	2.6		
25.	Return on assets	2.5		
26.	Financial ratio interpretation	2.1		
27.	Book value of fixed assets	1.9		
28.	Value of intangible assets	1.8		
29.	Taxes and tax management	1.8		
30.	Other or miscellaneous	1.5		

The results and observations can be summarized in a quote from Peter Drucker, “Customers are the only source of cash flow; everything else is expense.” Demand and sales, and their effects on cash flow, were the primary concerns – the drought was an externality affecting demand and sales.

Literature Cited: Available on request.

Use of Computers and Information Source Preference for Selected Landscaping Businesses in Metropolitan Nashville, Tennessee

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Index Words: Landscape businesses, computers, information sources and services

Significance to Industry: In the past less than two decades, information technology has affected the world in which we live dramatically, Information technology (IT) encompasses all computer hardware, software, and telecommunications technology. The IT breakthrough has also affected the way business persons and women conduct business in the green industry including businesses involved in providing landscape services. In addition to its use in sales, it is also very useful in accounting and other areas of management where various software could provide valuable insight into decision-making. There are soft ware's that can enable firms to participate more actively in its own (in-house) advertising campaigns without the necessity of involving an advertising company. In the last decade, computer software has been developed to target the horticultural industry including certain segments of industry such as landscape design and greenhouse management. The size of a business and the number of employees employed as well as the age of the business owner could have an impact on the decision to incorporate the use of technology as a means to move the business in the right direction.

Nature of Work: Landscape services, an agricultural industry sub sector, are increasingly becoming important as a source of employment and income. Landscape services may be defined as the design, installation and or maintenance of a landscape and represent a significant portion of the agricultural sector. This study examines preferences for the different types of informational resources used by landscape businesses in metropolitan area. The paper specifically investigates for what purpose selected business owners/managers, businesses, use the computer and whether the businesses have a website and for what purpose are, the websites are used. Another objective is to investigate the type of business information sources that are currently utilized. Additionally, some descriptive statistics are presented to characterize the type of landscaping businesses participating in the survey.

Results and Discussion: A mail survey questionnaire was developed and sent to all the registered landscaping businesses with the County Clerk's office in Davidson County. The office of the county clerk in Davidson County was contacted to obtain a list of landscaping businesses in Metro Davidson County. A list of 383 businesses with a

business license in Davidson County to operate as landscape businesses was obtained. The questionnaire included questions to collect data from businesses pertaining to five basic areas, which included: business location, organization and makeup; Personal characteristics of owners/managers; Types of services provided properties serviced; use of computers in business; and information sources used, problems faced, expansion plans, and future prospects. For the purpose of this paper only part of the questions contained in the questionnaire were analyzed and businesses were assigned, as small, medium, and large based on gross annual income. Four weeks after the initial mailing, non-respondents were reminded by a phone call and urged to complete and mail back the questionnaire. If necessary, the questionnaire was again mailed to the business. Forty-eight useable surveys were returned. All returned and completed questionnaires were checked for completeness, accuracy, and coded to maintain confidentiality of the respondents. The data were analyzed using the Statistical package for the Social Sciences (SPSS).

This report presents data based on 48 completed mail surveys received from randomly selected landscape businesses in Metro Nashville area containing Davidson, and surrounding counties.

The landscape service industry is generally made up primarily of small businesses. For this report, firms were assigned (Small, Medium, and Large) as perceived by owners/managers based on their gross sales. Respondents were asked to categorize their firm in one of the three categories based on income. A large majority (almost 53%) identified themselves as small followed distantly by medium (35.3%) and only 5.9% of the firms identified themselves as large (Table 1).

More than 88% of responding firm owners are Caucasian and only one was African-American and two were Asian/Pacific Islanders. Also, only about 6% were females and the remaining owners were males. Most of the owners were between 26 to 45 years of age. Only about 12% of owners were 56 years or older (Table 2). Education of the owner/manager may influence practices and sources of information used in business. In addition to education, it may also influence the success of a business. Among the business owners/managers, 49% had a college degree and about 20% had some college education. Also, 7.8% had a graduate degree. On the other hand, 29.4% had less than a high school education (Table 3). In general, owners/managers of larger firms had more education than the smaller firms. However, almost one-third of both small and large firms had owners/managers who had less than a high school education. When the question was asked if the owners/mangers attended special conferences and workshops/training as a source for their continuing education, more than half of all selected firms answered “Yes”. However, only 41% of small firms said “yes” as compared to 100% of large firms (Table 4). When asked if these firms have other landscape related business only about 16% said ‘Yes’. The remaining did not have any related business.

Use of computers has become an important aspect of operating a business successfully. More than 90% of respondents owned/used computers and all those who used computers had access to internet. Highest percentage of firms used computers for book/Record keeping (80.4%). “Internet Access” (78.4%) followed by general typing and “Billing” (Table 5). The percentage of computer use for various purposes increases as the firm size increases (Tables 5 and 6). Only about one-third of the selected businesses had a website for their businesses. Even smaller percentage (22%) of small size firm had website. However, all (100%) of the large firms had Websites. Most of the firms used websites to provide general information followed by for advertisement purpose and for E-Mail. Only a small percentage used this for receiving orders and buying supplies.

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Table 1. Distribution of selected business by size.

Size	Number of Respondents	Respondents (%)
Small	27	52.9
Medium	18	35.3
Large	3	5.9

Table 2. Distribution of selected businesses by age of owners/managers.

Age of Business Owners/Manager	Number of Respondents	Respondents (%)
18-25 yrs	4	7.8
26-35 yrs	15	29.4
36-45yrs	15	29.4
46-55yrs	9	17.6
56-65yrs	5	9.8
Over 65 yrs	1	2.0

Table 3. Education level of owner/manager of selected businesses.

Level of Education	Number of Respondents	Respondents (%)
Less than High School	15	29.4
High School /Vocational School	7	13.7
Some College	10	19.6
College degree	25	49
Graduate/ Professional School	4	7.8
Other	1	2

Table 4. Do your staff attend programs and conferences?

Do your staff attend programs and conferences	Respondents (%)			
	All	Small	Medium	Large
Yes	52.9	41	67	100
No	37.3	48	28	0

Table 5. Primary purpose of using computer as reported by selected business owners/managers.

Purpose for using a computer		Size of Firm		
	All	Small	Medium	Large
	(%)			
Have a website for business	33.3	22	44	100
No website	62.7	74	56	0
Purpose of Website				
Provide general information	31.4	19	44	100
Receive order	9.8	4	22	0
Buying supplies for the business	11.8	0	22	67
Email	23.5	11	39	67
Advertising	27.5	15	39	100
Other	3.9	4	6	0

Table 6. Use of Computer as Reported by selected Business Owners/Managers.

Use of computer		Respondents (%)		
	All	Small	Medium	Large
Book/record keeping	80.4	81	83	100
Payroll	43	37	56	67
Finance/balance sheets	4.9	44	67	100
General use (Typing)	31.4	37	28	0
Internet access	78.4	74	89	100
Research analysis	52.9	56	50	67
Entertainment/music	31.4	37	28	0
Billing	68.6	70	72	67
Landscaping design	37.3	30	39	100

Table 7. Type of information sources currently utilized by selected businesses.

Information Source		Mean Response		
	All	Small	Medium	Large
Landscape/Nursery Association	2.4	2.5	2.6	2.7
County extension office	3.11	1.9	1.8	3
Scientific journals	3.2	1.8	1.5	2.7
University research stations	3.2	1.8	1.7	2.3
Private consultants	3.3	1.5	1.9	2
Trade magazines	2.7	2.2	2.4	2.7
Radio/TV	3.4	1.7	1.4	1.3
Internet	2	2.8	3.3	3.3
Your own research	1.7	3.2	3.5	3.3
Friends/Family	2.8	2.3	2.1	1.3
Other farmers/neighbors	3	2.1	2.1	1.3

Transferring Your Business and Creating a Retirement Paycheck

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Index Words: Estate planning, farm transfer, business transfer, retirement income

Significance to Industry: We created an on-line guidebook that contains 10 modules about topics related to retirement planning for farm households. The topics were indicated as areas of concern by two focus groups of farmers above age 50 in New Jersey during the summer of 2008. While many farmers never plan to retire, our goals were to help farmers generate adequate retirement income (i.e., helping farmers make their businesses more profitable so they earn more money to save for retirement) and to create a retirement "paycheck" (i.e., helping farmers convert illiquid assets into cash and plan sustainable asset withdrawals so that savings lasts a lifetime). The overall objective of the modules is to increase the financial security of farmers in later life. Along with investment asset allocation and prudent retirement asset withdrawals to reduce the risk of outliving one's assets, crop insurance is presented as a risk management and wealth accumulation technique. Like all older workers facing retirement within the next 15 years, many farmers are also making up for lost time and need to learn strategies to jumpstart their savings. Some of the modules are new while others link to other websites and do not "reinvent the wheel."

Nature of Work: We conducted two face-to-face focus groups to determine agricultural producers' perceptions about retirement, level of preparedness for retirement, and preferred methods for educational information delivery in two New Jersey counties. Participants represented the diversity of the farming community within the state (including full-time farmers, part-time farmers, land owners, renters, and new producers). We gave each participant a $50 gas card as an incentive to participate. The discussion focused on a series of thirteen questions on a variety of topics related to retirement and estate planning topics, unique concerns of farm households, and educational delivery methods.

Results and Discussion: Several key findings emerged from the focus groups that served to inform development of an online retirement planning course for farm families:

- Most participants agreed that they would work a reduced time schedule or still maintain part of their farming operation in retirement.
- Although the majority of farmers surveyed did not plan to retire, most had positive retirement role models in their lives. A common theme among these role models was remaining active, both in the community and in daily activities.

- Lack of interest in farming among heirs was the most common response in situations where focus group participants reported uncertainty regarding their farming operation's future.
- A majority of focus group participants had some type of retirement investment account such as IRAs. In some situations, they reported that their spouse was primarily responsible for any additional retirement savings (e.g., 401(k) plans from off-farm employment).
- Several participants noted that they avoided using tax-deferred savings plans designed for the self-employed (e.g., SEPs, SIMPLEs, and Keoghs) because of future income uncertainty, a desire to avoid administrative paperwork, and/or the legal requirement to fund employees' accounts if they make plan contributions for themselves.
- Many producers in the focus groups reported limited availability of financial planners with expertise in farm financial management. The unique cash flows and expenses associated with an agricultural operation require a level of expertise not common among area professionals.
- In several instances, landowners sold their development rights to generate positive cash flow. However, some expressed concerns about this decision due, in part, to restrictions associated with preservation and fluctuations in land value.
- The importance of a smooth and equitable transfer of the farm assets was of particular concern in families where some heirs intended to farm while others did not.
- Participants repeatedly stressed the importance of not postponing farm transfer and estate planning decisions until it is too late as advice for other farmers.
- Legal restrictions and regulatory impacts on development and subsequent land values were a concern among a majority of landowners in the focus groups. Changes is local zoning ordinances, environmental regulations, "Right to Farm" litigation, and land taxes were among the concerns shared by both focus groups.
- We observed differences in preferred learning methods between the two focus groups. One group showed a strong preference for traditional Extension programming, including sessions at agricultural meetings, workshop series, and small group discussions. The second focus group was more receptive to non-traditional educational methods and said they would be interested in participating in an Internet program on retirement.
- Both focus groups expressed a willingness to participate in Extension retirement education programming, citing Cooperative Extension as a trusted, non-biased, information source.

Online Retirement Planning Course

Following the focus group study, a ten-module online retirement planning course for farmers was developed called *Later Life Farming: Creating a Retirement "Paycheck*" (http://laterlifefarming.rutgers.edu/). The title was selected to emphasize the fact that many older farmers plan to work past traditional retirement age but also have a need to convert land and other farm assets into a liquid stream of income. The Web site includes a combination of original material and links to resources such as *Who Will Get*

Grandpa's Farm? *Communicating About Farm Transfer* and the *Retirement Estimator for Farm Families* (1), both from Purdue University. Below are the titles and a brief description of each of the modules:

Module 1: Creating a Retirement "Paycheck"- Describes the concept of a retirement "paycheck" and discusses tools to estimate life expectancy, how retirement in the 21st century differs from that of previous generations, and unique retirement issues and challenges faced by farm families.

Module 2: Farming in Later Life- Discusses factors to consider when deciding whether to continue working in later life. Also explores the concept of "phased retirement," as it applies to farm families, and occupations that can make good use of a farmer's work experience and skill set.

Module 3: Where Am I Financially?- Includes an online financial quiz and worksheets to calculate net worth, develop a spending plan, and calculate the savings required to fund financial goals. There is also a link to the 20-page tabloid *What Older Adults Need to Know About Money.*

Module 4: How Much Do I Need to Save?- Includes tools to calculate retirement savings and links to online calculators and a research paper about how U.S. farmers plan for retirement.

Module 5: Sources of Retirement Income- Includes information about Social Security and tax-deferred investments and links to an online publication for late savers. Also discusses unique sources of income for farm families, an online tool for farmers to estimate their retirement savings need, and a discussion of savings plans for the self-employed versus IRAs.

Module 6: Investing and Investment Diversification- Links to an investment course developed especially for farm families and a home study course for consumers. Also includes an online quiz to determine investment risk tolerance and an Excel spreadsheet to analyze portfolio asset allocation (i.e., the division of assets among asset classes such as stocks, bonds, real estate, and cash equivalents such as money market funds).

Module 7: Making Your Money Last- Discusses strategies to reduce household expenses, health insurance, and long-term care. Also covered are the recommended sequence of steps for "tax efficient" asset withdrawals and Monte Carlo analyses that determine how long assets will last.

Module 8: Farm Transfer Decisions- Includes a link to *Who Will Get Grandpa's Farm?,* a Purdue University Web site that describes suggested communication methods for family discussions about farm transfers and succession. There is also a worksheet to analyze the pros and cons of various farm transfer strategies and a link to a publication with case studies about actual farm transfers.

Module 9: Regulation and Tax Issues- Addresses factors that reduce the retirement income of farm families including state regulations (e.g., building restrictions) that affect farm value and farmland preservation programs where operators are paid for the development rights to their farm. Also discusses federal and state estate taxes and federal income taxes as they apply to farm families.

Module 10: Getting Help- Describes factors to consider when selecting a professional financial advisor. In addition, it includes links for online resources about investing and

personal finance and Purdue University's online retirement planning course, *Planning for a Secure Retirement*, and a description of eXtension, Cooperative Extension's 24-7 electronic information delivery system.

Implications

Following are five implications of this study for Extension educators:

- Avoid overuse of the word "retirement" in marketing financial education programs to farm households. Instead, focus on their need to create regular cash flow and find meaningful pursuits in later life. Additionally, a unique challenge for farm households is how to create retirement cash flow when their primary asset, land, is illiquid and they have no plans to sell it.
- Explain to farmers that they don't have to fund retirement accounts for employees (e.g., SEPs) in "lean" years but, then, they can't fund their personal accounts either. Focus educational efforts on tax-deferred investments that farmers can fund solely for themselves (e.g., IRAs) since they seem to prefer them to savings plans that require employee contributions.
- Encourage farmers to have a family conversation about farm transfer and confront emotional issues, if any, "before it's too late." A helpful resource is Purdue University Extension's Web site *Who Will Get Grandpa's Farm* (http://www.ces.purdue.edu/farmtransfer/). Information about a Cooperative Extension farm transfer workshop can be found in Hachfeld et al. (2).
- Encourage farmers to explore ways to phase into retirement to gain the flexibility and reduced workload that many desire. Specific strategies include: gradual transfer to the next generation, grooming a non-family member to take over the farm, downsizing the farm operation, seeking alternative employment other than farming, and selling equipment and/or livestock.
- While farmers value the unbiased perspective of Cooperative Extension, partnering with attorneys and others who understand agriculture and business transfer issues is critical. In addition, multiple teaching methods are necessary to appeal to a variety of learning styles.

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Socioeconomic Characteristics of Nursery and Greenhouse Managers and Operators

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Index Words: lifestyle satisfaction, nursery capital, labor availability

Significance to the Industry: A socioeconomic survey of nursery automation was conducted in the Gulf South as a part of a research program undertaken by the Mississippi Agricultural and Forestry Experiment Station and the U.S. Department of Labor entitled Enhancing Labor Performance of the Green Industry. The socioeconomic survey consisted of eight parts, namely: workers' demographic characteristics, nursery characteristics, nursery automation, greenhouse automation, labor and capital markets, pesticide and chemicals, working conditions, and respondents' characteristics (9). In this paper, the overall goal is to present the socioeconomic characteristics of managers or operators of participating nurseries and greenhouses and their perceptions of the risks and uncertainties associated with the availability of capital and labor for their operations. The participating managers or operators represent a very significant pool of human capital associated with the management and operation of nursery and greenhouse operations.

Nature of Work: The socioeconomic survey of wholesale nurseries and greenhouses in seven Gulf South states: Mississippi, Alabama, Louisiana, Florida, Tennessee, South Carolina and Georgia was conducted between Dec. 2003 and Sep. 2008. Official lists of certified nurseries were retrieved from the Mississippi Department of Agriculture and Commerce (8), the Alabama Department of Agriculture and Industries (1), the Louisiana Department of Agriculture and Forestry (7), the South Carolina Department of Agriculture (10), the Florida Department of Agriculture (3), and the Georgia Department of Agriculture (4). Additional information about the growers were retrieved from industry buyer's guides (2, 6, 11) and an earlier draft of an extension service reference guide (5). Only wholesale growers operating throughout the seven states, except in North Florida, were included in the selection of survey participants. In Florida, nurseries were randomly selected from the listing using only the nurseries in counties from Alachua and North. A random sample of 50 growers was generated in each of the seven states. These selected growers were contacted via mail and asked for their cooperation and participation in the survey, and were asked to return a postcard indicating willingness to participate in the survey. Those nurseries which indicated willingness to participate were then contacted by phone, and interviews scheduled. As shown in Figure 1, a total of 185 nursery automation survey forms were completed through personal interviews with

wholesale nurseries (N=66), greenhouses (N=48) and mixed nursery and greenhouse operations (N=71) in Mississippi (32), Louisiana (29), Alabama (26), Florida (27), Tennessee (17), South Carolina (30) and Georgia (24).

Results and Discussion: The socioeconomic characteristics of managers or operators included in the survey were gender, marital status, race, age, educational attainment, and length of nursery experience. A series of questions were also asked about their perceptions of the level of satisfaction with current lifestyle, perceptions of labor availability, perceptions of long-term availability of capital, and perceptions of operating capital availability. A summary of the socioeconomic characteristics of the participating managers or operators is shown below:

1. More than eight out of ten were males.
2. Almost nine out of ten were married.
3. More than nine out ten were Caucasian or White.
4. More than four out of ten were between 40 and 49 years old and three out of ten were between 50 and 59 years old.
5. More than four out of ten completed college degrees and more than two out of ten finished some college education
6. Nursery experience ranged from two to fifty years averaging nineteen years.

When asked about their level of satisfaction with their current lifestyle, almost nine out of ten participating managers or operators were satisfied or very satisfied. Almost seven out of ten participating managers or operators believed that labor was available or highly available to the nursery industry. More than seven out of ten participating managers or operators believed that long-term capital is available or highly available to the nursery industry. Likewise, more than seven out of ten participating managers or operators also believed that operating capital is available or highly available to the nursery industry.

The survey results indicated that majority of the participating nursery and/or greenhouse managers or operators are male, married, Caucasian or White, between forty to fifty nine years old, less than half completed college degrees, and had been in the nursery business in an average of nineteen years. Most of them are satisfied or very satisfied with their current lifestyle. Looking forward to the future, majority believe that labor and capital will be available or highly available to the nursery industry.

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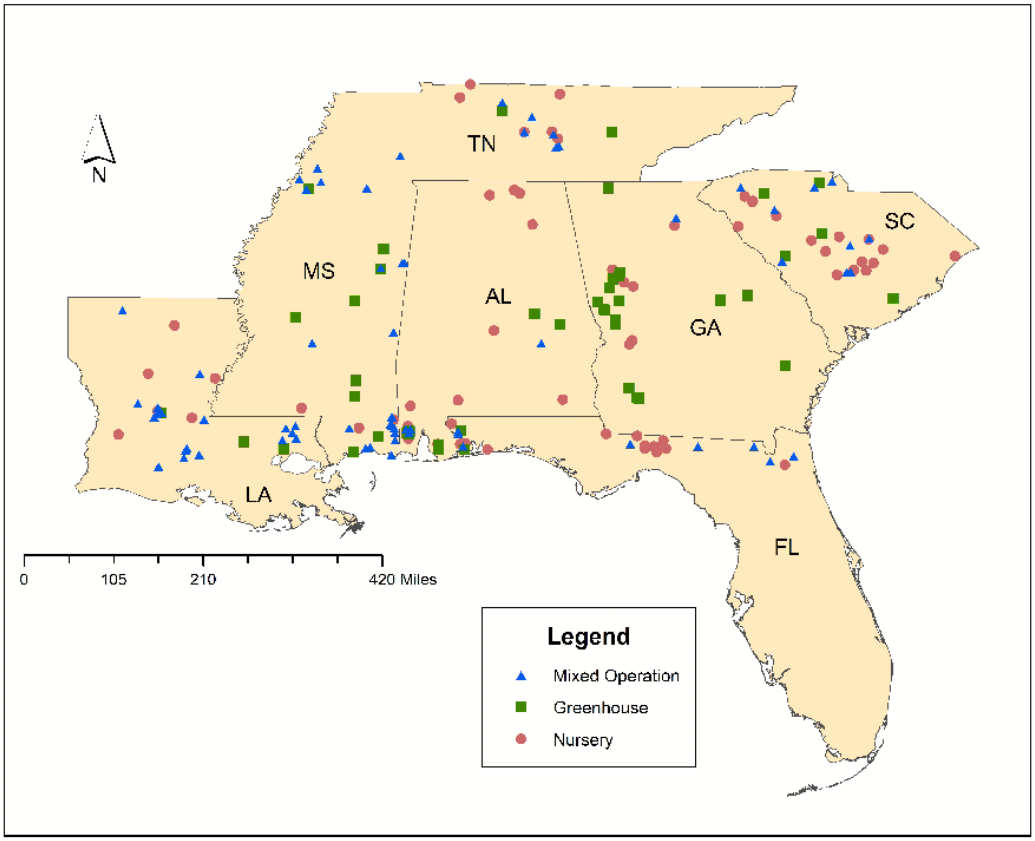

Figure 1. Map showing the locations of the participating wholesale nursery and greenhouse operations in the Southeast.