Economics and Marketing

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An Analysis of Consumer Preference for Sustainably Produced Bedding and Potted Flowering Plants

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Index words: consumer study, floriculture, sustainability

Significance to the Industry Retailers, wholesalers, and consumer demand have begun to pressure the United States (U.S.) Green industry to become more sustainable. It is also believed that the demand for organic and sustainable flower products is increasing in the U.S. as a result of an emerging market segment focused on health and fitness, the environment, personal development, sustainable living, and social justice, known as Lifestyles of Health and Sustainability (LOHAS). The LOHAS market represents 30% of all U.S. households and is spending $230 billion annually on socially and environmentally responsible products. In 2005, the $16 million organic flower market was the fastest growing sector of the nonfood organic market in the U.S.

Nature of Work The objective of this research was to examine whether differences exist in consumer preferences for sustainably produced bedding and potted flowering plants and to identify factors influencing consumer's willingness to pay a premium for sustainably produced floriculture crops. *Experiment 1.* On 12 and 13 May 2008, sustainably and conventionally produced geranium (*Pelargonium ×hortorum*), marigold (*Tagetes erecta*), vinca (*Catharanthus roseus*), petunia (*Petunia ×hybrida* hort. Vilm.-Andr.) and New Guinea impatiens (*Impatiens hawkeri* Bull.) were delivered to retail garden centers and greenhouses located in Lafayette, Fort Wayne, Jeffersonville, Hope, and Zionsville, IN. At each location, the conventional and sustainable plants were displayed adjacently with signage placed near the sustainable plants. Signage included a poster explaining sustainable floriculture and its production practices. Each plant had a survey attached to the pot and consumers were provided with a 10% coupon to the garden center for filling out the survey. In total, 1000 surveys were available for consumers to fill out. Sixty-four surveys were returned. *Experiment 2.* On 07 Dec. 2008 the National Poinsettia Cultivar Trials consumer open house was held at Purdue University (West Lafayette, IN). Attendees were asked to participate in an anonymous survey to determine consumer interest in purchasing sustainably produced poinsettias. Individuals were asked hypothetical questions about their willingness to purchase or pay for the different plant types as well as sustainable or environmentally friendly products. One-hundred twelve surveys were returned.
Both surveys included questions that asked about consumer's attitudes towards sustainability, environmentally friendly practices, consumer's willingness to pay, and demographics. Using SPSS 17.0, an independent sample t-test was conducted to

analyze the difference in means for all of the plant types, including conventionally, sustainably, organically, and locally produced, plants grown with organic fertilizer, in energy efficient greenhouses, and in biodegradable pots.

All demographic characteristics were statistically significant showing differences in age, gender, race, education, ethnicity, and income. At least one-third of bedding plant consumers (31.3%) were between 31 to 40 where as just under half of the potted plant consumers (48.2%) were 30 years old and younger (Table 1). There were differences in gender and education based on potted and bedding plant customers. Potted plant consumers were almost equally split between male (40.7%) and female (59.3%) consumers, which were different from bedding plant consumers whose respondents were almost all (93.8%) female. Under half (40.6%) of bedding plant consumers had attended some college and the rest of respondents were either college graduates (25%), had a master's degree (23.4%), or had a doctoral degree (11%). Over a third (39.3%) of potted plant consumers were high school graduates and one quarter (25%) of potted plant consumers attended some college. Just under half (45.3%) of bedding plant consumers had an income range of $75,000 to $99,999 and over a third (32.7%) of potted plant consumer were in the income range of $0 to $19,999 (Table 1).

Attitudes about sustainability and environmentally friendly practices. Each plant consumer group had different perceptions about sustainability. Most (89%) of the bedding plant consumers had not heard of the term "sustainability" where as the majority (81%) of the potted plant consumers had heard of the term. The small percentage (11%) of bedding plant consumers that heard of the term stated it meant "chemical free", "earth friendly" and "harmless to the environment." Potted plant consumers also had various definitions of the term "sustainability" including: "environmentally friendly practices using the least amount of energy," "survival", and "the ability to produce a high quality product with environmental practices and remain profitable." Both consumer groups agreed the best reason to purchase a sustainably produced plant was the reduction of chemical exposure to their homes. However, bedding plant consumers also thought it would make them feel better about reducing their environmental footprint whereas potted plant consumers thought plant material produced sustainably would infer higher quality.

Mean ratings were used to determine consumer's attitudes about environmentally friendly practices between bedding and potted plant consumers. Based on a scale of 1 to 7 (1= strongly disagree, 7 = strongly agree), bedding plant consumers showed more interest (μ=5.72) in paying more for a plant grown using environmentally friendly practices than potted plant consumers (μ=4.83) (Table 2). Bedding plant consumers (μ=5.84) were also willing to pay more for a plant packaged using environmentally friendly materials than potted plant consumers (μ=4.81). Potted plant consumers (μ=5.07) had a moderate interest for other environmentally friendly lawn and garden products than bedding plant consumers (μ=4.20) (Table 2). Neither bedding plant nor potted plant consumers thought that the current green movement was a fad (2.88; 2.23) Table 2).

We asked both consumer groups questions about their willingness to pay for sustainable, conventional, local, and organic plant material based on a seven point likert scale (1=lowest interest, 7=highest interest). Bedding plant consumers had a higher interest in purchasing a conventionally produced plant (μ=6.33) but had a moderate interest in purchasing a sustainably produced bedding plant (μ=5.11) (Table 3). Potted plant consumers had a moderate interest in purchasing locally produced plants (μ=5.83) but a neutral interest in purchasing conventionally produced plant (μ=3.69) (Table 3). Bedding plant consumers showed a higher interest (μ=6.33) than potted plant consumers (μ=3.69) for conventionally produced plants (Table 3). Bedding plant consumers also displayed a slightly higher interest (μ=5.81) than potted plant consumers (μ=5.13) for plants grown with organic fertilizers (Table 3). Potted plant consumers showed they were slightly more interested (μ=5.63) in purchasing plants grown in energy efficient greenhouses than bedding plant consumers (μ=5.17) (Table 3). Just under half (42%) of all consumers were interested in purchasing a conventional plant and just over half (54%) were willing to purchase a plant grown with organic fertilizer. Neither the bedding plant nor the potted plant consumers were willing to pay an increase of more than 15% for any of the plant types (data not shown).

Discussion and Conclusions In this study, consumers stated that sustainability is important to them. Although there were positive attitudes about sustainability and environmentally friendly practices, more information is needed to accurately analyze consumer behavior. Although bedding plant consumers did not know much about sustainability, they had a higher interest in purchasing conventionally produced plants, plants grown in organic fertilizer, organically produced and sustainably produced plants. Potted plant consumers were more interested in purchasing locally produced plants. This may be due to where the survey was administered for each plant type customer (store verse university setting). Therefore, the bedding plant consumers may be more characteristic of the national lawn and garden consumer population. Another factor that played a role in these results is positioning. To properly compare bedding plant and potted plant consumers, both surveys should be done in a retail environment. It may also be beneficial if the sample sizes were larger. While none of the consumers were willing to pay more than a 15% increase for any plant, bedding plant consumers were more interested than potted plant consumers in paying an increase for each of the plant types.

Overall, most of the differences shown in this study may be traced to the amount of consumer knowledge on sustainability. Consumers may have not seen promotional material and information for these types of plants. Consumers also may not understand the terminology used by the Green industry. Based on these findings, consumers need more information via educational assistance and support to help guide their decisions about sustainable plants.

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Table 1. Potted and Bedding Plant Respondent Demographics

		Potted Plant	Bedding Plant	Chi Square
Gender	Male	40.7%	6.3%	23.7615*
	Female	59.3%	93.8%	
Age	20 or under	19.1%	0%	
	20-30	29.1%	12.5%	
	31-40	4.5%	31.3%	
	41-50	10.9%	15.6%	42.229*
	51-60	16.4%	28.1%	
	61-70	13.6%	9.4%	
	71-80	5.5%	3.1%	
	81 and over	0.9%	0%	
Education	Some HS	8.9%	0%	
	HS Grad	39.3%	0%	
	Some College	25%	40.6%	
	College Grad	16.1%	25%	
	Masters Degree	8%	23.4%	54.687*
	Doctoral Degree	0%	11%	
	Did Not Respond	2.7%	0%	
Income	$0-$19,999	32.7%	0%	
	$20,000-$34,999	7.9%	0%	
	$35,000-$49,999	9.9%	0%	67.89*
	$50,000-$74,999	15.8%	17.2%	
	$75,000-$99,999	13.9%	45.3%	
	$100,000 or more	19.8%	37.5%	
Ethnicity	African American	1.9%	0%	
	Asian	2.8%	0%	4.191**
	Caucasian	93.5%	100%	
	Other	1.9%	0%	

*indicates significant at p=0.01, ** indicates significant at p=0.05

Table 2. Respondent's attitudes towards consumer friendly practices based on a 1 (1= strongly disagree) to 7 (7=strongly agree) likert scale.

Variable	Plant Type	Mean	Standard Deviation	T	Sig. (2-tailed)
Are you willing to pay more for plants grown using environmentally friendly practices*	Potted Bedding	4.83 5.72	1.632 .951	-4.548	.000
Are you willing to pay more for plants packaged using environmentally friendly materials*	Potted Bedding	4.81 5.84	1.627 1.417	-4.237	.000
Are you willing to pay more for other environmentally friendly materials*	Potted Bedding	5.07 4.20	1.501 1.605	3.572	.000
I think the green movement is a fad.*	Potted Bedding	2.23 2.88	1.602 1.453	-2.647	.009

*significant at the .01 level, ** significant at the .05 level

Table 3. Respondent's attitudes towards willingness to pay for sustainable, conventional, local, and organic plant material based on a seven point likert scale (1=lowest interest, 7=highest interest "based on a likert scale.

Variable	Plant Type	Mean	Standard Deviation	T	Sig. (2-tailed)
Conventional plants	Potted Bedding	3.69 6.33	1.621 .592	-15.304	.000
Sustainable plants	Potted Bedding	5.07 5.11	1.607 1.438	-.151	.880
Organic plants	Potted Bedding	5.15 5.42	1.786 1.445	-1.053	.294
Local plants	Potted Bedding	5.83 5.80	1.496 1.347	.127	.899
Plants grown with organic fertilizers*	Potted Bedding	5.13 5.81	1.603 1.271	-2.925	.004
Plants grown in energy efficient greenhouses	Potted Bedding	5.63 5.17	1.489 1.254	2.058	.041
Plants grown in biodegradable pots	Potted Bedding	5.73 5.41	1.465 1.400	1.417	.158

*significant at the .01 level, ** significant at the .05 level

The State of the Green Industry: National Nursery Survey Results

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Significance to Industry: Over the past two decades, there have been shifts in the structure, conduct, and performance of the U.S. nursery and greenhouse industry. Surveys have examined the present business climate, but little has been done to understand what types of changes are taking place and whether or not these changes are regional in nature. Understanding the types of structural changes taking place allows nursery and greenhouse managers to better evaluate their business decisions as compared to industry trends.

Nature of Work: The 2009 *National Nursery Survey,* which gathered information for calendar year 2008, represented the fifth such effort by the *Green Industry Research Consortium*. Basic descriptive results of the previous surveys were reported by Brooker (1990, 1995, 2000, 2003). The objective of these surveys was to document changes in production and management practices of the U.S. nursery and greenhouse industry over time in individual states and regions, and to provide information useful to growers, allied industry professionals, extension personnel and researchers. Information collected in this survey included annual sales, fulltime and part-time employment, plant types produced, native plants, product forms, market distribution channels, interstate and international trade flows of finished products and propagation materials, selling methods, advertising forms, irrigation water sources and application methods, integrated pest management practices, year of business establishment, computerized business functions, and factors affecting business growth and pricing.

Results and Discussion: A total of 17,019 nursery firms were surveyed by both mail and internet methods. The survey sampled 44.8 percent of the U.S. nursery population overall, but this percentage ranged widely among individual states, from 100 percent for Arizona to 26 percent in Maine. Valid responses were received from 3,044 firms, including 2,732 from the mail survey and 312 from the email survey, representing an overall response rate of 17.9 percent. These tabulations do not include questionnaires that were returned blank, or duplicate responses received from the same firms. States with the highest number of respondents were Florida (556), California (296), Pennsylvania (275), North Carolina (151), New York (147), Ohio (141), Texas (114), and Tennessee (101). A few states had less than 10 respondents (AZ, MT, ND, NW, UT, and WV). Response rates were greater than 25 percent for the states of Wisconsin (35.8%), Montana (29.6%), Delaware (28.0%), Minnesota (26.2%), and Ohio (25.2%), but were less than 10 percent for New Hampshire, Oklahoma and West Virginia. Response rates for the mail survey (19.3%) were higher than for the internet

(email) survey (10.8%). Overall, 85 percent of respondents reported the key information on annual sales. Total National expanded sales were estimated at $27.1 billion dollars for 2008. The top 10 producing states were California ($6,681.8 million), Florida ($3,520.9 million), Texas ($1,350.4 million), Pennsylvania ($1,235.0 million), Georgia ($1,013.5 million), New York ($927.7 million), New Jersey ($916.7 million), Louisiana ($ 872.0 million), Ohio ($859.7 million), and Illinois ($830.6 million).
A copy of the full report can be obtained at http://www.greenindustryresearch.org

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Color and Taste: Consumer Perceptions of Flavor

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Significance to Industry: Recent concerns about food safety as well as decreasing food budgets have spawned a revival in home gardening. Consumers who might have been attracted to ornamental bedding plants are now taking an interest in edible plants, especially herbs and vegetables. It is important that the nursery industry recognize this trend and capitalize on the benefits of introducing edible bedding plants to existing product lines.

Nature of Work: Several studies have been conducted on consumer preferences, especially in regards to color and flavor perceptions (1, 5). These studies include sensory evaluation of relating specifically to colored bell peppers (*Capsicum annuum* L.) (2, 4). Colored bell peppers are usually more expensive in the market than green bell peppers, although they are produced identically. Growing colored bell pepper cultivars in the home garden may enhance the consumer's gardening experience, as well as providing additional savings in the household food budget. The objective of this study was to evaluate the visual acceptability, perceived flavor acceptability, as well as actual flavor preference of colored bell peppers. Seven cultivars of bell peppers were grown in a high tunnel at the Beaumont Horticultural Unit in Perry County, Mississippi. The high tunnel was 30' x 96' and contained only bell peppers. Commercial production standards were utilized including drip irrigation and plastic mulch. Six cultivars were used in the sensory evaluation portion of the project (Table 1.): 'Colossal', 'Aladdin XR3', 'Valencia', 'Tequila', 'Super Heavy Weight', and 'Sirius'.

Two consumer based sensory panels (n=120, n=60 per panel) were conducted to evaluate the acceptability of different varieties and colors of bell peppers. Participants were recruited by e-mails sent with information regarding panel details, and by asking people passing by the vicinity of the test (word of mouth) if they were interested in participating in the test. Bell peppers were washed thoroughly, dried and sorted for both visual appearance and consumer acceptability testing. Random three digit numbers were assigned to identify the samples. Sample order was randomized to account for sampling order bias. Water and unsalted crackers were provided, and panelists were asked to expectorate and rinse their mouths between each sample. For the visual appearance test, each panelist was presented with a tray containing 6 labeled whole peppers. Panelists were asked to evaluate each whole pepper based on appearance,

and how acceptable that they thought the flavor of the sample would be based on appearance of the whole bell pepper. Each panelist was then asked to evaluate 6 coded samples of bell pepper strips (approximately ½ x 1 in) for appearance, aroma, texture, flavor, and overall acceptability. A nine point hedonic scale, where 1 = dislike extremely, 5 =neither like nor dislike, and 9 =like extremely (3), was used to score the response for both visual appearance and consumer acceptance test.

A randomized complete block design with 3 replications was used to determine if differences existed ($P<0.05$) among the sensory acceptability of bell peppers. Fisher's Protected Least Significant Difference (LSD) test was utilized to separate main effect treatment means ($P<0.05$) when significant differences occurred among treatments (SAS Version 9.2, Cary, NC).

Results and Discussion: The cultivar 'Colossal' was the most preferred pepper based on visual appearance alone. 'Colossal' is a standard commercial cultivar which sets green fruit which eventually turns to red. This color combination is the most familiar to many consumers. However, 'Valencia'**,** a green to orange cultivar was also liked by the panelists. Panelists' perceived flavor acceptability, based on visual appearance alone, closely correlated to appearance acceptability (Table 2.).

Before tasting the pepper samples, panelists were presented with bell pepper strips independently of seeing the whole peppers. Interestingly, ratings given for visual appearance of the strips did not follow the same order as ratings for the whole peppers (Table 3.). 'Valencia' was found to be significantly more visually acceptable than the other cultivars rated at 7.7 ($p>0.05$). In terms of aroma, 'Tequila' ranked significantly higher (6.8) than the other cultivars. 'Tequila' did not rank highly in terms of appearance and perceived flavor acceptability. This could be a result of its unusual fruit color, ranging from lilac to a mottled multicolored appearance. Flavor acceptability among cultivars ranged from 6.0 to 6.7 with no significant standouts. The texture of 'Valencia' (7.4) was most preferred, however, not statistically different from 'Colossal' (7.3). 'Valencia' and 'Colossal' also received high rankings for overall acceptability when all traits were combined. The least preferred cultivar was 'Sirius' followed closely by 'Super Heavy Weight'. Both of these cultivars have yellow fruit near maturity. As consumers become increasingly aware of the variety of cultivars of bell peppers available and the benefits of home gardening, colored bell peppers could become a mainstay in the product lines of bedding plant producers.

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Table 1. Color descriptors for 6 bell pepper cultivars grown at the Beaumont Horticultural Unit in 2010.

Cultivar	Color Descriptors
Colossal	green to red
Aladdin XR3	green to yellow
Valencia	green to orange
Tequila	lilac to multicolored
Super Heavy Weight	green to yellow
Sirius	yellow

Table 2. Mean hedonic scores[1] for appearance and perceived flavor acceptability of whole bell peppers (N=120)[1].

Cultivar	Visual Acceptability	Perceived Acceptability of Flavor Based on Appearance
Colossal	7.2[a]	7.2[a]
Aladdin XR3	6.1[c]	6.1[c]
Valencia	6.8[ab]	6.7[b]
Tequila	6.3[c]	6.1[c]
Super Heavy Weight	6.4[bc]	6.3[c]
Sirius	6.4[bc]	6.4[bc]
SEM	0.15	0.15

[1]Consumer acceptability was based on a 9-point scale (1=dislike extremely, 5=neither like nor dislike, and 9=like extremely).
[abc] Means with the same letter within each row are not significantly different (p>0.05).

Table 3. Mean hedonic scores[1] for the consumer acceptability of appearance, aroma, flavor, texture, and overall acceptability of colored bell peppers (n=120).[1]

Cultivar	Appearance	Aroma	Flavor	Texture	Overall Acceptability
Colossal	7.4[b]	6.0[c]	6.7[ab]	7.3[ab]	6.9[ab]
Aladdin XR3	7.2[bc]	6.2[bc]	6.5[abc]	6.6[cd]	6.5[bc]
Valencia	7.7[a]	6.4[b]	6.8[a]	7.4[a]	7.0[a]
Tequila	6.4[e]	6.8[a]	6.2[cd]	7.0[bc]	6.4[cd]
Super Heavy Weight	7.0[cd]	6.0[c]	6.3[bcd]	6.6[cd]	6.3[cd]
Sirius	6.8[d]	5.9[c]	6.0[d]	6.3[d]	6.1[d]
SEM	0.12	0.12	0.16	0.14	0.14

[1]Consumer acceptability was based on a 9-point scale (1=dislike extremely, 5=neither like nor dislike, and 9=like extremely).

[a-b-c-d-e] Means with the same letter within each row are not significantly different ($p>0.05$).

Rural Retail Lawn & Garden Market Benchmarks

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Index Words:benchmarks, retail, garden center, structure, performance, activities

Significance to Industry: Identification of key statistics and benchmarks of current rural retail lawn and garden markets can be used to develop guidelines for those interested in starting, maintaining, or growing a retail lawn and garden market in a rural economic environment. The data points or benchmarks collected included type and number of retail markets operated, physical size of retail market facilities, variety of equipment in the market, use of technology in the sales area, the number of laborers/employees, promotional activities employed, days and hours of operation, items sold, and activities or events included in marketing.

Nature of Work: The recession of 2007 – 2009 had many casualties among rural businesses, notwithstanding the retail lawn and garden markets or garden centers. However, there is now an interest gaining momentum for re-opening some of the closed and/or sold markets as well as starting new lawn and garden markets in previously untested locations. There are guidelines available for consideration from sources such as Barton (2002) and Stanley (2002), but these publications focus on more urban or suburban markets. Requests for information with a more rural focus and appeal suggested a survey or questionnaire of the recession survivors as to the structure-conduct-performance of their individual businesses, to get an average (or range of) benchmark values that could be shared with those entrepreneurs considering entering the retail marketing for lawn and garden supplies and plant materials (NAICS 44522).

Results and Discussion: Using the USDA definition of "rural" as the guide for collecting survey results, 97 lawn and garden owner/managers in 76 Georgia counties were questioned as to their own operations; of these 89 individuals provided complete details. Following are the observations compiled from the face-to-face surveys:

<u>Structures and Facilities</u>

- 64% have a permanent retail structure (barn, shed, garage, etc.)
- 30% utilize a temporary structure (hoop house, high tunnel) at a retail market
- 5% utilized permanent structures (greenhouse, shade/lathe house) at a retail market
- 2% utilized a semi-trailer or container-truck as a retail market

- 11% had no inside or enclosed sales area
- 28% had less than 200 square feet of inside sales area
- 22% had between 200 and 1,000 square feet of sales area
- 13% had between 1,000 and 2,000 square feet of enclosed sales area

- 33% used an outside sales area of less than 200 square feet
- 26% had between 200 and 1,000 square feet of outside sales area
- 12% utilized between 1,000 and 2,000 square feet of outside sales area

- ✓ 28% of the businesses had 10 or fewer parking spaces
- ✓ 37% had between 10 and 20 parking spaces
- ✓ 35% had parking spaces for more than 20 vehicles

Retail Horticulture Experience

- 22% of the operators had 10 years or less lawn and garden retailing experience
- 26% had between 11 and 20 years of retailing experience
- 22% had between 21 and 30 years of marketing experience
- 10% had between 30 and 50 years of retail experience
- 20% are working with at least 50 years of experience with retail lawn and garden retailing experience

Employees or Workforce

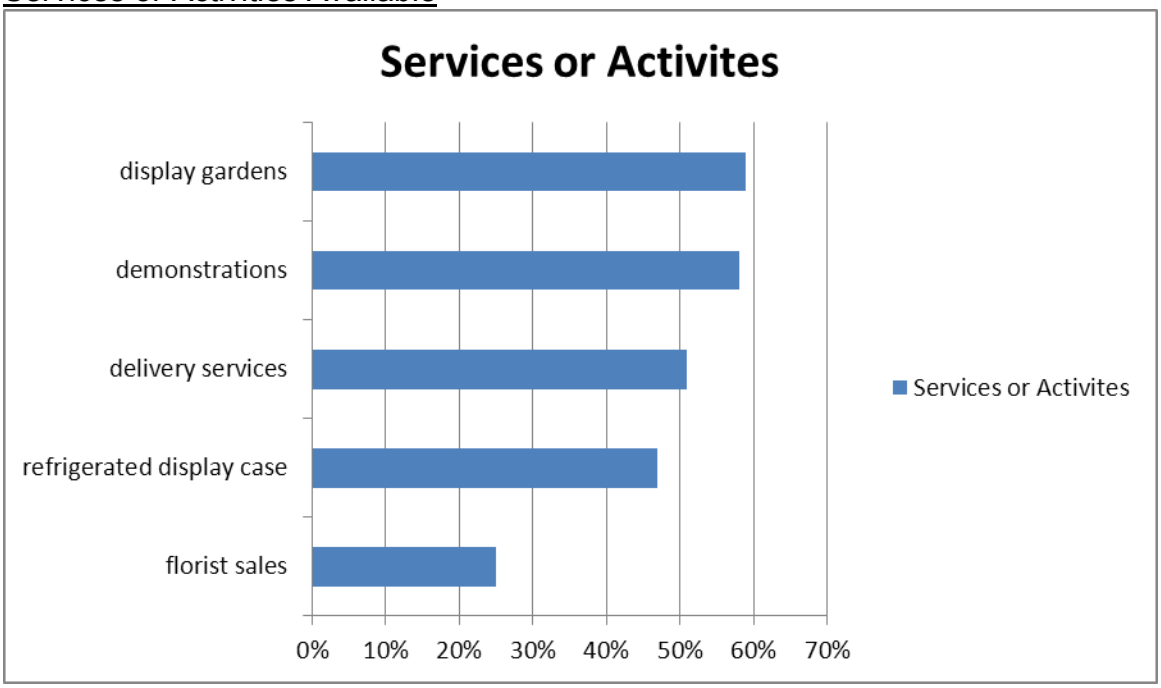
- 13% of the markets did not have any salaried, full-time employees
- 23% had one full-time employee
- 22% had two full-time employees
- 17% had three or more full-time employees

- 25% utilized only seasonal/part-time/temporary workers
- 75% had no (zero) part-time employees
- 3% had only one part-time employee
- 3% used two part-time employees
- 9% had three part-time employees
- 6% had four part-time employees
- 3% used five or more part-time employees

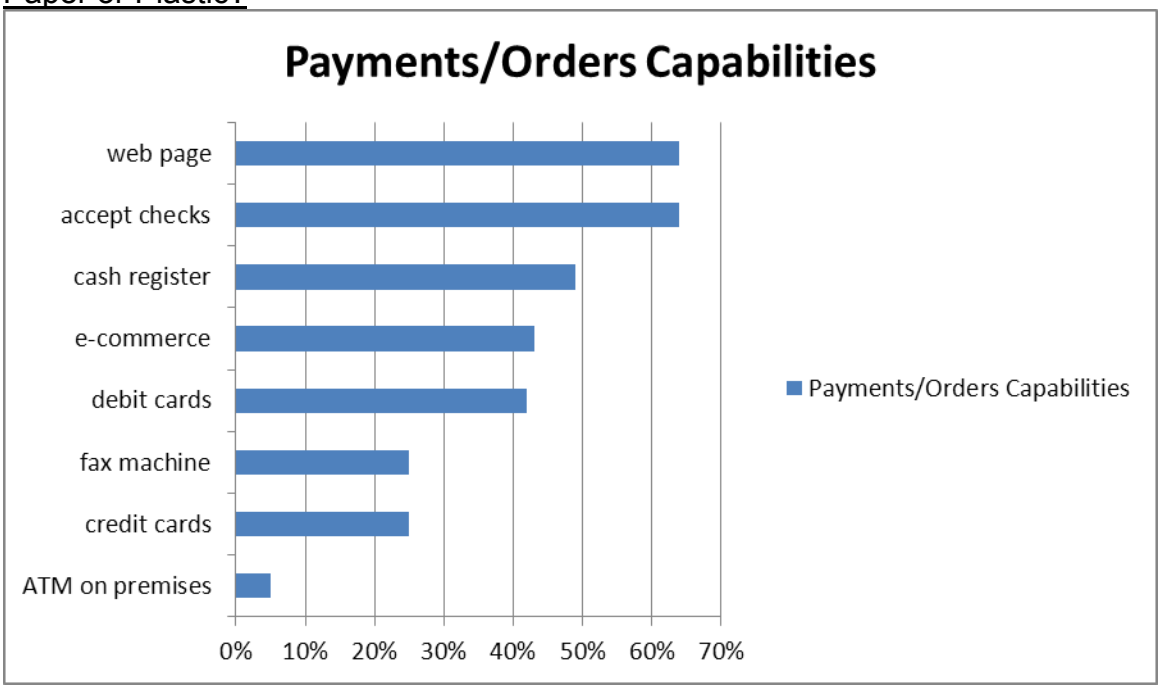
Days and Hours of Operation

- ✓ 86% of the markets are open year-round
- ✓ When open, 88% are open at least some of the time on Sundays and holidays
- ✓ 75% had posted hours of 10-6; 20% had no posted hours of operation; and 5% had 7-7 during daylight savings time, and 9-5 during the winter months

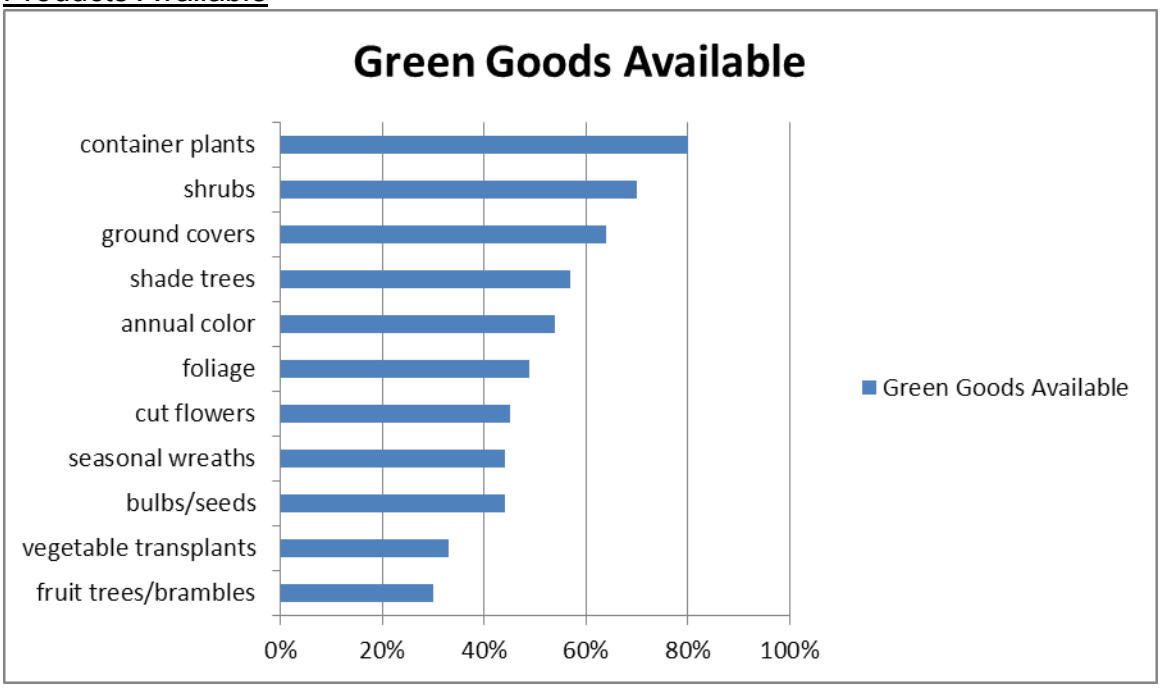
Services or Activities Available



Paper or Plastic?



Products Available



Green Goods and/or Hard Goods

- All of the businesses offered green goods (plant materials)
- Only 15% offered hard goods (statuary, bird baths/feeders, stepping stones, etc.)
- 38% offered landscape design services, including DIY ideas
- 25% offered delivery and landscape installation services, including irrigation.

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Economic Challenges Facing Nursery Growers in Warren County, Tennessee

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Significance to Industry: The green industry is an important sub-sector of agriculture with grower cash receipt of $16.9 billion in 2006 (Jerardo, 2007). A study by Hall et al. (2006) shows that the industry contributes approximately 2 million jobs. Growers, landscaping design and maintenance and retail generate about $148 billion in economic impacts for the U.S. economy. There are about 700 certified nurseries in Tennessee with approximately 53,000 acres in production of which 70% is in Warren and surrounding counties (Tennessee Landscape and Nursery Association).

Nature of Work: The goal of this paper is to identify and assess some of the key challenges facing nursery growers in Warren County. The data was collected in October 2010 at a training workshop for twenty two field nursery growers in Warren County, Tennessee using a short survey. Questions asked in the survey covered ranking the importance of various challenges they face; type of marketing channels used; share of sales within and outside the state; profitability trend; number of years in business; size of their operations and the extent to which they use internet in their business.

Results and Discussion: Producers are asked to rank challenges they face. About 64% put economic downturn as a number one challenge followed by marketing and lack of skilled personnel. Fifty-five percent of producers had farm size of less than 50 acres while the balance (45%) operated greater than 50 acres. In terms of internet use in their business a very high proportion (82%) responded that they use it substantially. Products are sold to whole sellers and retailers with about 50% being sold to whole sellers. On profitability, 68.2% reported decline; 18.2% are enjoying continued profitability and 13.6% experienced no change in profitability. The very high decline in profitability reflects the impact of the economic downturn which is characterized by high unemployment and lack of income resulting in declining consumer purchases. It is also found that about 74% of sales are done with businesses outside the state and only 36% within the state. The prevalence of a significant proportion of the producers experiencing declining profitability is not surprising since the economic downturn is both local and national in scope. Suffice it to note that decline in housing starts also has negative impact on demand for nursery products. In terms of future plans, once the economic downturn passes, 45% responded that they will produce new products and 32% stated they will expand their operations. Only 10% indicated that they will improve

existing operations. The above findings can provide input for undertaking a larger study covering other counties and more growers.

Literature Cited

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