

South Carolina Agricultural Producers' Needs and Clemson's Role in Meeting Them: Results of the 2003 Survey



Final Report

Funded by PSA Agrisystems Productivity and Profitability Program, Public Service and Agriculture, Clemson University, Clemson, SC, USA.

TABLE OF CONTENTS

Executive Summary	1
Background	2
Findings	3
Response Rate	3
Type of Operations	4
Characteristics of Operators	5
Characteristics of the Operations	6
Mean Acreage	7
Mean Years in Operation	8
Mean Number of Employees	9
Information Needs	10
Top Ten Information Needs	13
Bottom Ten Information Needs	13
Sources of Information	13
Top Ten Sources of Information	14
Bottom Ten Sources of Information	15
Web Sites Used	18
Top Five Internet Sites Used	18
Bottom Five Internet Sites Used	18
How Wired are South Carolina Producers and Operations?	20
One Web Portal for all Extension Services in the US?	20
Summary of E-Connectedness	20
Preferred Methods of Getting Information	22
Top Five Preferred Methods of Getting Information	22
Bottom Five Preferred Methods of Getting Information	22
Clemson as a Resource for South Carolina Producers	24
Clemson Resources Used During 2002	
Most Used Clemson Resources in 2002	24
Least Used Clemson Resources in 2002	24
Clemson Resources with the Highest Helpfulness Scores	25
Clemson Resources with the Lowest Helpfulness Scores	25
Clemson Resources with the Highest Quality Scores	25
Clemson Resources with the Lowest Quality Scores	25

Table of Contents, *continued*

Information from Clemson That Was Used by South Carolina Producers in 200	26
Most Used Clemson Information in 2002	
Least Used Clemson Information in 2002	27
Quality and Helpfulness of Clemson Information Used by South Carolina Producers	29
Clemson Information with the Highest Helpfulness Scores	29
Clemson Information with the Lowest Helpfulness Scores	30
Clemson Information with the Highest Quality Scores	31
Clemson Information with the Lowest Quality Scores	31
Skills, Knowledge & Attributes of Extension Agents	32
Top Attributes of Extension Agents Needed by South Carolina Producers	32
The Bottom Lines: Evaluating Clemson Extension Education Programs	33
Face-to-Face Extension Education Approaches That Best Meet Operators' Needs	33
Face-to-Face Extension Education Approaches Least Suited to Operators' Needs	33
Areas of Clemson Research that Need to be Initiated or Expanded	34
Other Ways that Clemson Can Help Producers Stay Competitive	34
How Useful is PSA?	34
What is Clemson's Role in Agriculture in South Carolina?	34
Praises for Clemson	36
Criticisms of Clemson	36
Worry for Clemson's Future	36
Clemson's Role	36
Affected by Budget Cuts?	36
Conclusions	37
Recommendations	37
References	38
Credits Page	39

LIST OF FIGURES

Figure 1. Type of Operation by Commodity, n=232.	4
Figure 2. Mean Age of Operator, by Type Operation.	6
Figure 3. Mean Acreage, by Type Operation.	7
Figure 4. Mean Years in Operation, by Type Operation.	8

Table of Contents, *continued*

List of Figures, *continued*

Figure 5. Mean Number of Employees, by Operation Type.	9
Figure 6. Information Needs of SC Agricultural Producers, 2003. Fig 1. of 2.	11
Figure 7. Information Needs of South Carolina Agricultural Producers, 2003. Fig. 2 of 2.	12
Figure 8. Sources of Information. 1 of 4 Charts.	14
Figure 9. Sources of Information. 2 of 4 Charts.	15
Figure 10. Sources of Information. 3 of 4 Charts.	16
Figure 11. Sources of Information. 4 of 4 Charts.	17
Figure 12. Internet Sites Used. 1 of 2 Charts.	18
Figure 13. Internet Sites Used. 2 of 2 Charts.	19
Figure 14. Web Sites and E-mail Accounts Among SC Producers and Operations, 2003.	20
Figure 15. Preferred Method(s) of Obtaining Information. Chart 1 of 2.	22
Figure 16. Preferred Method(s) of Obtaining Information. Chart 2 of 2.	23
Figure 17. Clemson Resources Used During 2002, n=216.	24
Figure 18. Helpfulness and Quality of Clemson Resources. Fig. 1 of 2.	25
Figure 19. Helpfulness and Quality of Clemson Resources. Fig. 2 of 2	25
Figure 20. Information from Clemson Used During 2002. Chart 1 of 3.	26
Figure 21. Information from Clemson Used During 2002. Chart 2 of 3.	27
Figure 22. Information from Clemson Used During 2002. Chart 3 of 3.	28
Figure 23. Quality and Helpfulness of Information from Clemson. Chart 1 of 3.	29
Figure 24. Quality and Helpfulness of Information from Clemson. Chart 2 of 3.	30
Figure 25. Quality and Helpfulness of Information from Clemson. Chart 3 of 3.	31
Figure 26. Attributes of Extension Agents Needed by SC Producers.	32
Figure 27. Evaluation of Face-to-Face Extension Education Programs.	33
Figure 28. Ways Clemson Can Help Producers Stay Competitive.	34
Figure 29. Rating of PSA's Usefulness.	35
Figure 30. Responses to Query re Clemson's Role in Agriculture.	36
Figure 31. Respondents' Rating of Budget's Effect on PSA and Extension, 2003.	36

LIST OF TABLES

Table 1. Correlations Related to Operation Characteristics.	10
Table 2. Correlations Related to E-Connectedness.	22

EXECUTIVE SUMMARY

It has been over a decade since the last survey of producer needs in South Carolina was conducted. In that time, there have been great technological, economic, social, and land use changes in the state, nation, and the world. Accordingly, a new survey of commercial producers was conducted during the summer of 2003.

This survey focused on two issue areas: producers' needs and Clemson's role in meeting them. To those ends, respondents completed inventories of their information needs, sources of information, Internet sites used, preferred methods of getting information, Clemson resources used during the calendar year 2002, information from Clemson used during the calendar year 2002, attributes of Clemson Extension Agents needed by producers, and rankings of face-to-face Extension education approaches. In addition, respondents reported their ownership of personal and business E-mail and Internet accounts. Respondents evaluated the usefulness and quality of Clemson resources and information that they had used during the calendar year 2002. Respondents identified ways that Clemson could help producers stay competitive and Clemson's role in agriculture in South Carolina. Finally, respondents rated the overall usefulness of PSA and Extension in meeting their communication needs, and estimated the degree to which recent budget cuts had affected the quality and quantity of service provided to them by PSA/Extension.

Producers tended to prefer Clemson Extension Service agents, newsletters, bulletins and brochures, fact sheets, weather services reports, trade magazines and pesticide dealers.

E-connectedness was low. Electronically accessible sources of information received relatively low mean scores as sources of information. These findings indicate that Clemson Extension should expand their E-communication programs for agricultural producers.

Clemson resources and information that saw relatively high levels of use during 2002 also tended to be rated higher in quality and helpfulness than those with lower levels of use. The overall usefulness rating for PSA/Extension was 3.78 on a scale of 1 for "Of little use" to 5 for "Very useful." Respondents were evenly divided on the degree to which budget cuts had affected the quality and quantity of Clemson services to them and their operations.

It is recommended that decision makers in PSA/Extension carefully review these findings to help identify which programs and services to expand or refine, which ones to reduce or extinguish, and what research to initiate or expand. PSA/Extension E-connectedness and E-technology outreach for commercial producers should be reviewed with an eye toward enhancement to further assist the state's producers in staying competitive in an increasingly global market.

- It has been more than a decade since the last comprehensive survey was conducted of the Clemson University Cooperative Extension Service regarding its programs and services.

- There have been continuous and great changes that have direct bearing on agriculture.

- While Extension services must carefully steward diminishing resources, Americans' preferences for in-state and American-grown food and food products are documented.

- It is important to know producers' needs, what producers want from Clemson, and the role that producers perceive Clemson to have in the state's agricultural sector.

BACKGROUND

It has been over a decade since a comprehensive survey of the uses of Extension in South Carolina has been conducted (Harris et al., 1992). In that time, there have been great technological, economic, social, and land use changes in the state. These changes include the Internet, advances in precision agriculture, biotechnology, more concentrated agricultural production, fewer family farms, vertical integration of production systems, sprawl and encroachment on agricultural lands, war, and a severe economic downturn. The restructuring and increased globalization of American agriculture have continued to change the industry (Vander Mey and Wimberley, 2001; South Carolina Agricultural Statistics, 2001).

There is discussion about whether and how Extension Services can compete or cooperate with private information providers (Beohlje & King, 1998; King & Beohlje, 2000). Research on how Extension services can best make use of diminishing resources in these times of dizzying, sweeping changes is beginning to appear (Diem, 2002). Extension Services in various parts of the U.S. are taking stock of their capacities vis-a-vis stakeholders' needs (Kelsey & Mariger, 2002; Martenson, 2002). While some of this research is in response to the 1998 Farm Bill mandate that required land-grant universities to collect stakeholder input for use in setting research, education and Extension priorities (Kelsey & Mariger, 2002), much of it also can be seen as a practical response to rapid change, competition from other sources, and reductions in staff and resources in many if not most Extension Service systems.

At the same time, a nationwide survey clearly indicates that Americans first and foremost trust and rely on American agricultural products, prefer to buy locally grown and produced agricultural products whenever possible, and are seriously concerned that future terrorist attacks on the US will be conducted via hits on agriculture and agricultural products (Wimberley et al., 2003). A survey conducted in South Carolina prior to the nationwide survey found that residents want to support family farming in the state, trust and rely most on in-state agriculture and its products, and are concerned about trends such as sprawl, encroachment and the loss of farming as a viable lifestyle in the state (Vander Mey, 2000).

These social forces, technological trends, and harsh economic and political realities force Extension Services to rely on apolitical, dispassionate data about its role in the state's agricultural operations, and to make programmatic and personnel decisions accordingly. It is crucial that Extension understand producers' needs, and what producers want from Extension.

- Discussions, focus groups and teleconferences were held around the state of South Carolina.

- Participants included producers, Extension Agents, Extension Specialists, and Clemson University researchers.

- These meetings resulted in a survey, that was sent to a sample of the state's commercial agricultural producers.

- The response rate was 20.7%.

Based on a series of discussions with producers, Extension Agents, Extension Specialists, and researchers at Clemson University, it was decided that a series of focus groups should be held to find out if a survey regarding South Carolina producers' information and resource needs had changed over the past decade, and the degree to which the producers relied on Clemson for assistance.

Traditional face-to-face focus groups and teleconference focus groups were held around the state of South Carolina from September, 2002 through March, 2003. This culminated in an extensive survey instrument and a focus on the state's large (over \$100,000 per year income from agricultural operations) commercial producers. The survey was released in May, 2003 and surveys were accepted through August, 2003.

FINDINGS

RESPONSE RATE

A letter was sent to 1,192 randomly selected commercial producers in South Carolina in April, 2003. This letter apprised them of the upcoming survey, and encouraged their participation. Of this number, 20 letters were returned as undeliverable. One person who received the letter asked to be removed from the sample. Another person, hearing of the letter but not receiving one, asked to be included in the sample. A total of 1,172 surveys were released. Twenty-four surveys were returned as undeliverable, because the recipient had died, or because the operation has ceased to exist. Thus, there was a total of 1,148 viable potential respondents. Two thank you reminder cards were sent. A total of 238 usable surveys were received and entered into an SPSS (Statistical Package for the Social Sciences) 10.1 data program. The response rate was 20.7%.

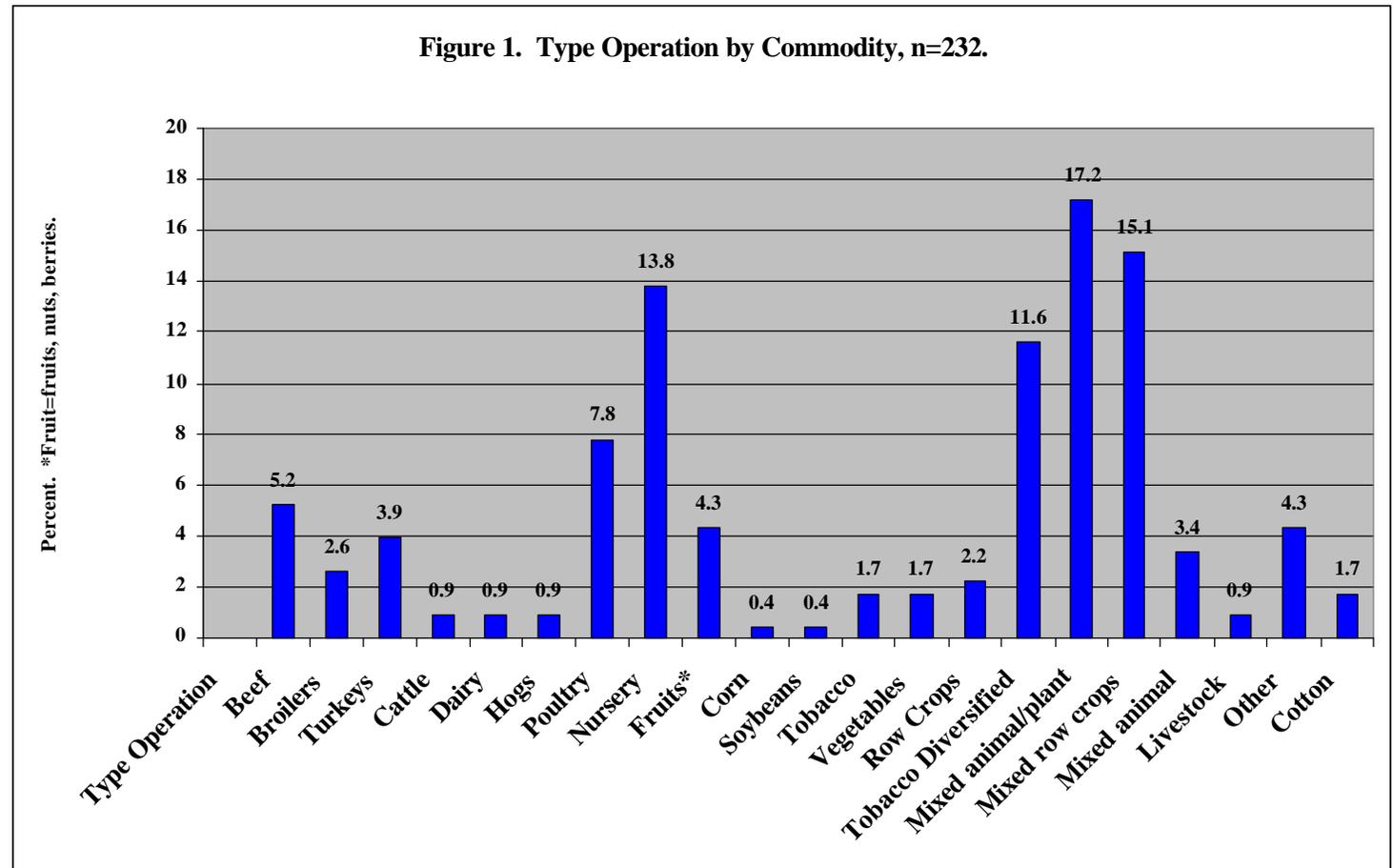
TYPE OF OPERATIONS

• Respondents were asked to write in the commodities produced in their operations.

The operations represented in the current study cover the array of commodities associated with commercial agriculture in South Carolina. Not surprisingly, many of the operations rely on more than one commodity, or combine commodities to create more integrated systems of operations.

• The commodities of the producers who participated in this survey reflect the array of major commodities that hallmark commercial agriculture in South Carolina.

Figure 1. Type Operation by Commodity, n=232.



- Participants in this survey, and their operations, do not represent all farms and agricultural operations in the state.

- This sample represents only that extreme minority of large operations that account for the bulk of the state's agricultural sales.

- The majority of respondents were white, male, around 55 years of age, and had greater than a high school education.

- However, the average age of the survey respondents parallels that of the average age of farm operators in general in the state.

CHARACTERISTICS OF OPERATORS

The majority (79.9%) of the operators were employed full-time with their operations. Most operators (93.7%) owned their operations.

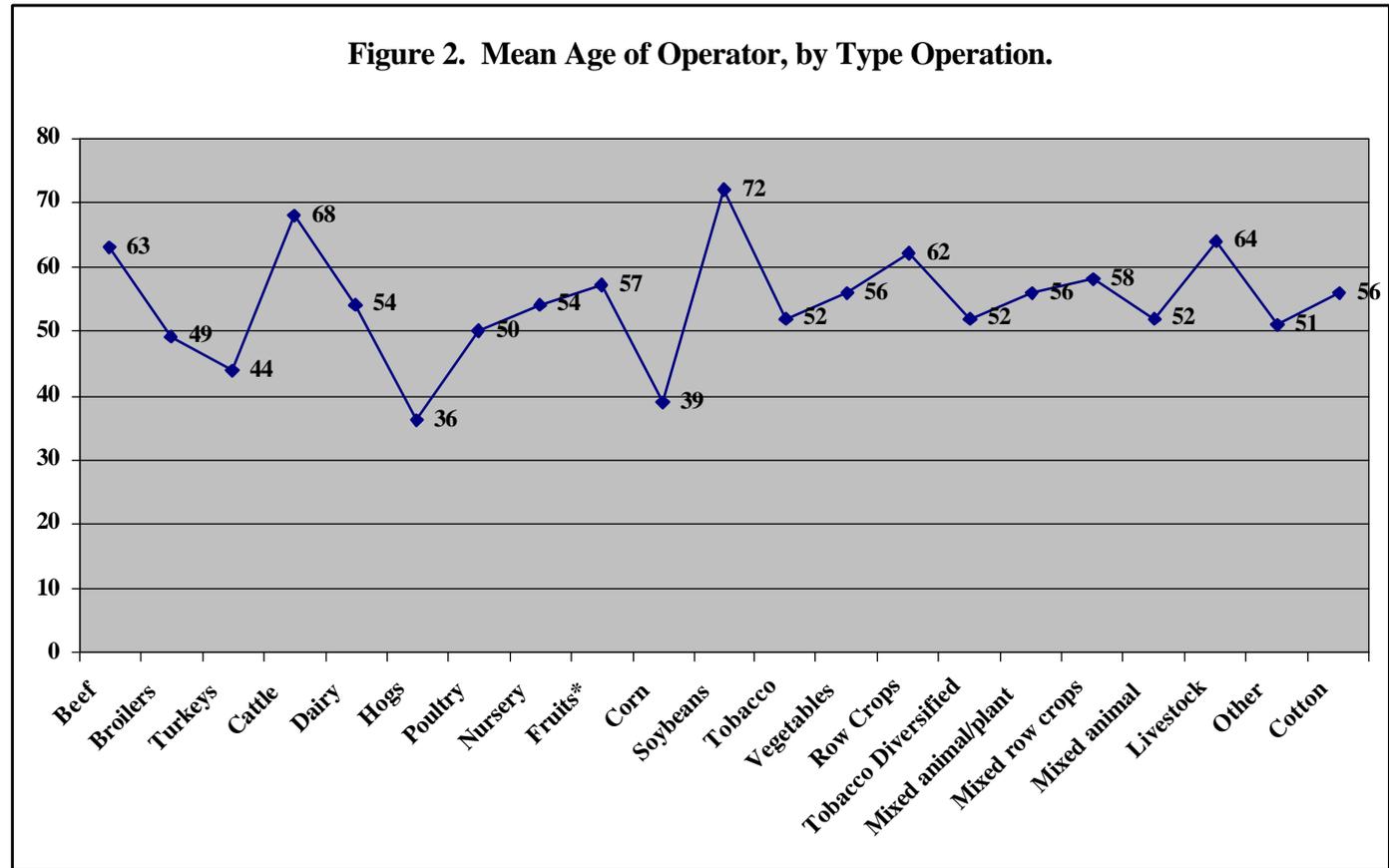
Most of the respondents were male (93.3%) and most were white (97.4%). Age of respondents ranged from 28 to 83 years old, with a mean age of 54.8 years. Few of the respondents had only some high school education (6.8%), and most (59%) had educational attainment that exceeded a high school diploma.

Because this survey focused on large commercial producers, this sample does not represent all of South Carolina's farms and producers. Most farms see \$10,000 or less per year in the market. A minority of farm operations account for the bulk of agricultural sales in the state. On average, South Carolina farms contain 200 acres. The average age of farmers in the state is mid-50s (South Carolina Agricultural Statistical Service, 2001).

This current sample looks more like the population targeted for this study - operators of the minority of farm operations that account for the bulk of the income from farming in South Carolina.

•Based on information provided by the respondents, it appears that operations specializing in hogs, corn, and turkeys tended to be younger, while those specializing in soybeans, cattle, and livestock tended to be older.

•Producers specializing in cotton, dairy, the nursery industry, and mixed animal and plant operations tended to have mean ages that parallel the mean age of producers in the state.



CHARACTERISTICS OF THE OPERATIONS

The majority of the operations (85.5%) were family owned. A small percentage of operations (9.8%) were family owned corporations, while 1.3% were corporately owned, and 3.4% were identified as having “other” ownership (e.g., rented by operator from someone else, state owned).

Forty of the state’s 46 counties are represented in this study. Most of the operations (89.4%) were operating on land in a single county in the state, while 10.6% were being operated in two or more counties.

•Mean acreage owned was 531.4 acres.

•Mean acreage leased from others for use in commercial agricultural operations was 322.8 acres.

•On average, the combined acreage owned or leased from others to use in operations was 855 acres.

•“Other” (e.g., quail hunting operations) had the highest total mean acreage.

•Turkey and corn operations had the lowest mean total acreage.

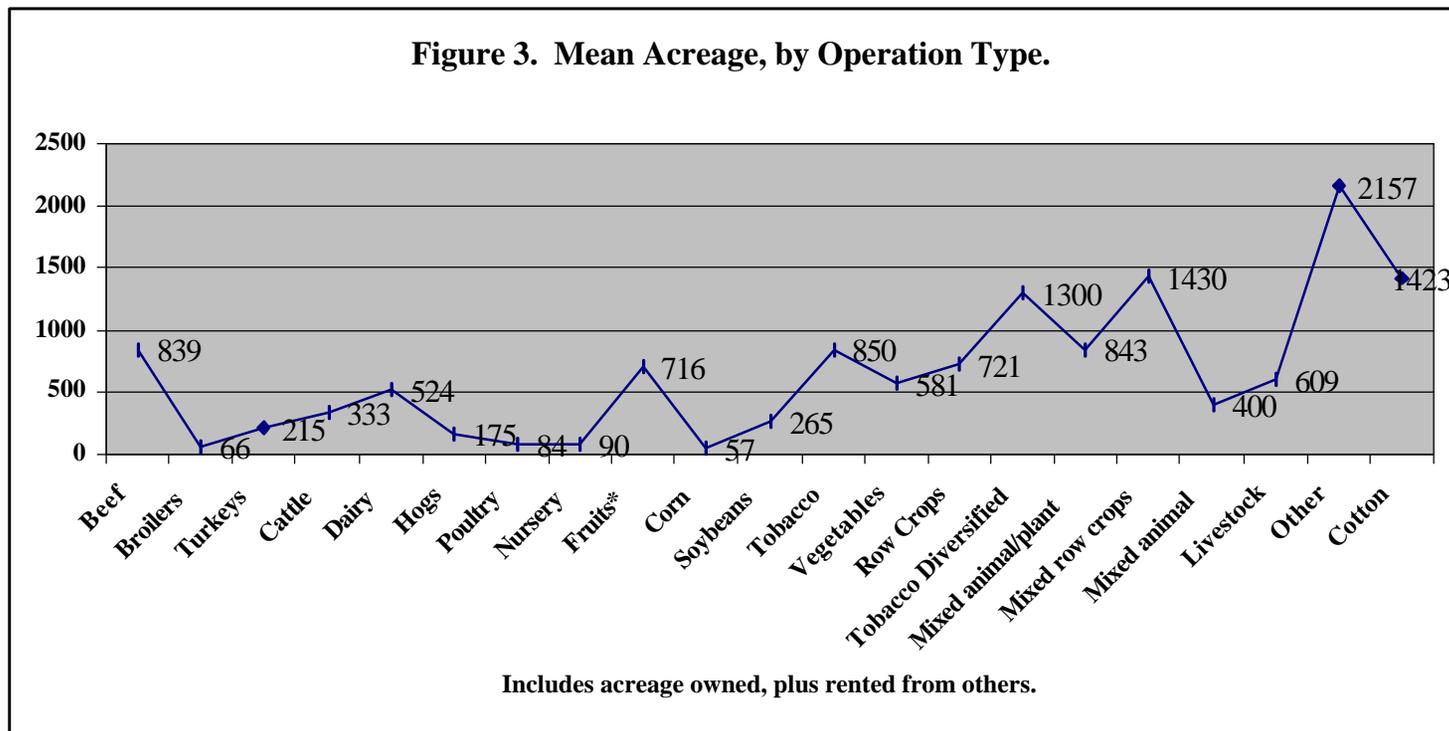
•While some nursery operations had relatively low acreage, others had relatively high acreage due to commercial tree production.

Mean Acreage

Mean owned acreage in agricultural production was 531.4, and mean leased acreage in operation was 322.8.

Ignoring whether acreage for the operation was owned or leased from others, the mean acreage used for the operations in this study was 854.9 or 855 acres.

Figure 3 displays total mean acreage by type of operation. This information is limited to cases where respondents provided information on acreage owned and rented from others, plus operation type.



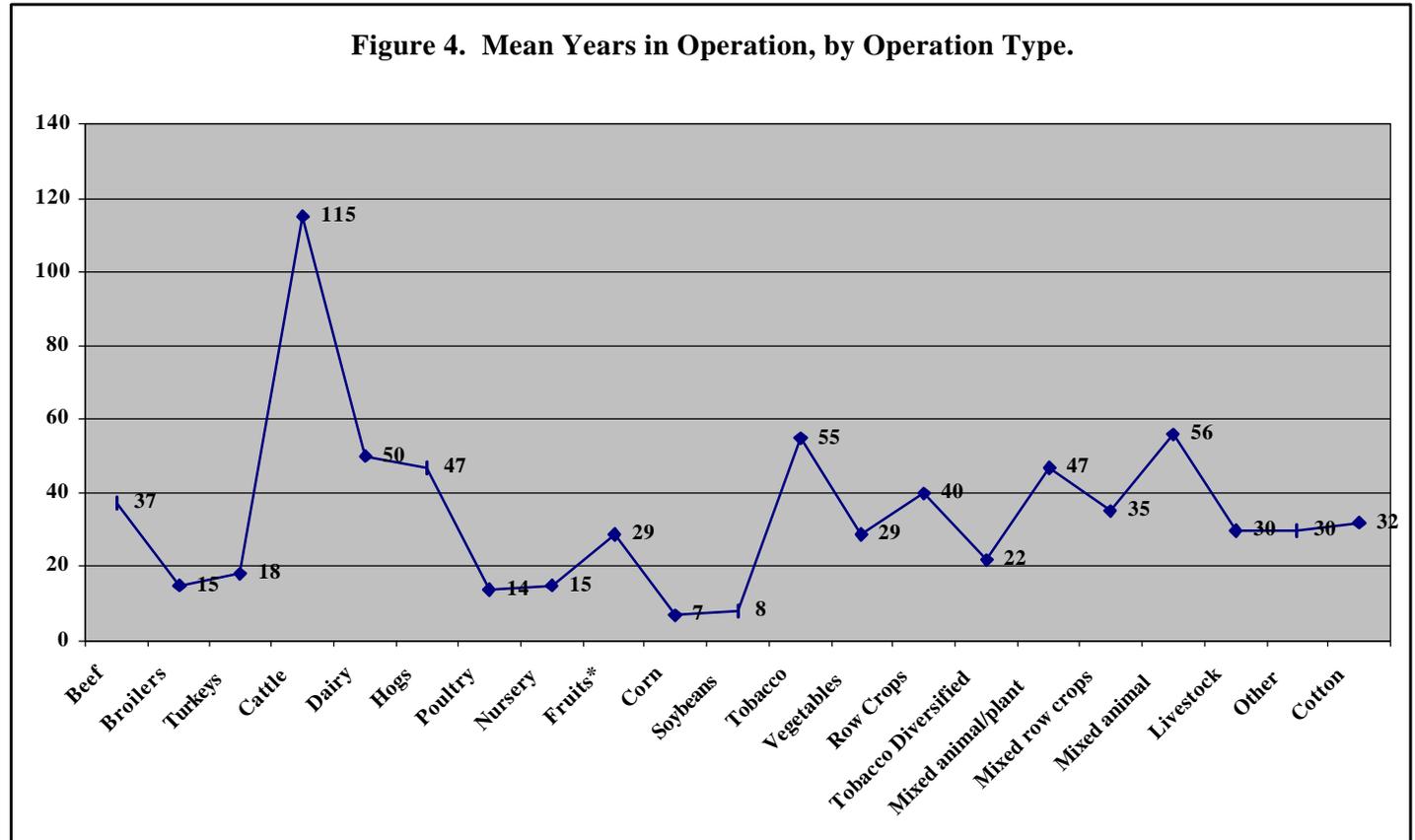
Mean Years in Operation

The mean years of agricultural operation among all of the respondents was 33.47.

As can be seen in Figure 4, there was variation in the average number of years that operations had been in business. This ranged from a high of 115 to a low of seven years. This information is limited to operations in which the operators provided information on the type of operation that they had and the years that the operation had been in business.

•There was a positive and statistically significant relationship (.319) between years in operation and total acreage (Table 1, page 10).

•Likewise, there was a statistically significant correlation (.197) between age of operator and years in operation (see Table 1, page 10).



*Fruits=Fruits, nuts and berries.

- The mean number of employees in any given category (full-time, part-time, year-round, seasonal) was relatively low.

- However, when looking at all the operations in this study, and ignoring whether employees are full-time or part-time, year-round or seasonal, the mean number of employees was 9.

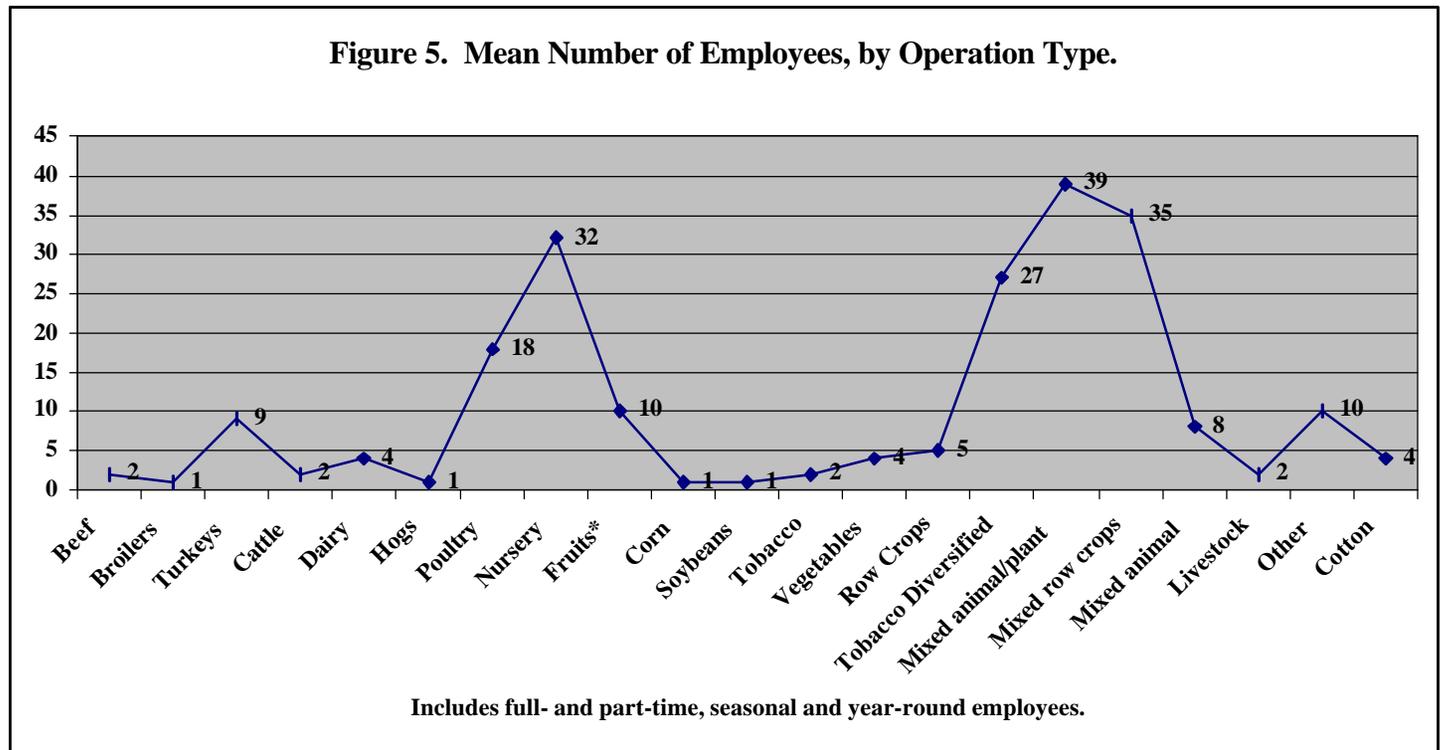
- Mixed animal/plant and nursery operations had the highest mean number of employees, while broilers, hogs, corn, and soybeans had the lowest.

*Fruits=Fruits, nuts and berries.

Mean Number of Employees

Mean numbers for employees of the operations were relatively low, with an average of 2.08 full-time year-round employees, 2.87 full-time seasonal employees, .60 part-time year-round employees, and 3.32 part-time seasonal employees. The overall mean number of employees for the operations, disregarding employment status, was 8.9 or 9 employees.

Figure 5 provides information on total mean number of employees, regardless of status, among operators who provided this information. However, this information is limited to those operators who provided information on the type of operation and the numbers of employees they had full- or part-time, year-round or seasonally.



•Total mean number of employees was significantly and positively correlated with total acreage and not significantly but negatively correlated with age of operator.

•Age of operator and total acreage were positively and significantly correlated.

•Total acreage was positively (weakly) but not significantly correlated with age of operator.

•An array of information needs was inventoried. The list included new production practices, information about biotechnology and improving yields and quality to marketing strategies, government regulations, and employment laws.

Table 1. Correlations Related to Operation Characteristics.

	Years in Operation	Total Employees	Total Acreage	Age of Operator
Years in Operation		.058 (232)	.319** (232)	.197** (217)
Total Employees	.058 (232)		.192** (223)	-.120 (220)
Total Acreage	.319** (232)	.192** (223)		.006 (213)
Age of Operator	.197** (217)	-.120 (220)	.006 (213)	

**p≤.01; Number in ()=number of respondents

INFORMATION NEEDS

Respondents were provided a lengthy list of possible information needs and asked to rate the degree to which each need related to their operations. **Scale: 1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Regularly.** The other option was to mark the need NA for does not apply.

The following two figures (Figures 6 and 7) show the mean responses for each information need inventoried. To fit the figures into the spaces provided, some names of information needs had to be abbreviated.

The information needs inventoried were: New production practices; Best management practices; Fertilization/fertilizers; Pesticide certification; Biotechnology; Methods for enhancing quality; Economic decision tools for land use options; Alternative enterprises; Applicable environmental laws; Labor management; Environmental issues; Alternative agriculture; Occupational safety/health; Using computers for my operation; Urban sprawl/farmland protection; Wildlife management; Potential weather impacts for the next week; Latest governmental regulations/programs; Control of pests and invasive species; Pesticides; Livestock nutrition; GIS/GPS mapping; Methods for enhancing yields; Economic decision tools for demonstrating outcomes of management practices; Market strategies; Budgeting/financial management; Applicable employment laws; Conservation techniques; Organic farming; Immigration issues; Social services for employees/their families; Improved seed varieties; Taxes; Beef quality certification; and, Potential weather impacts for the upcoming season/months.

Figure 6. Information Needs of South Carolina Agricultural Producers, 2003. Figure 1 of 2.

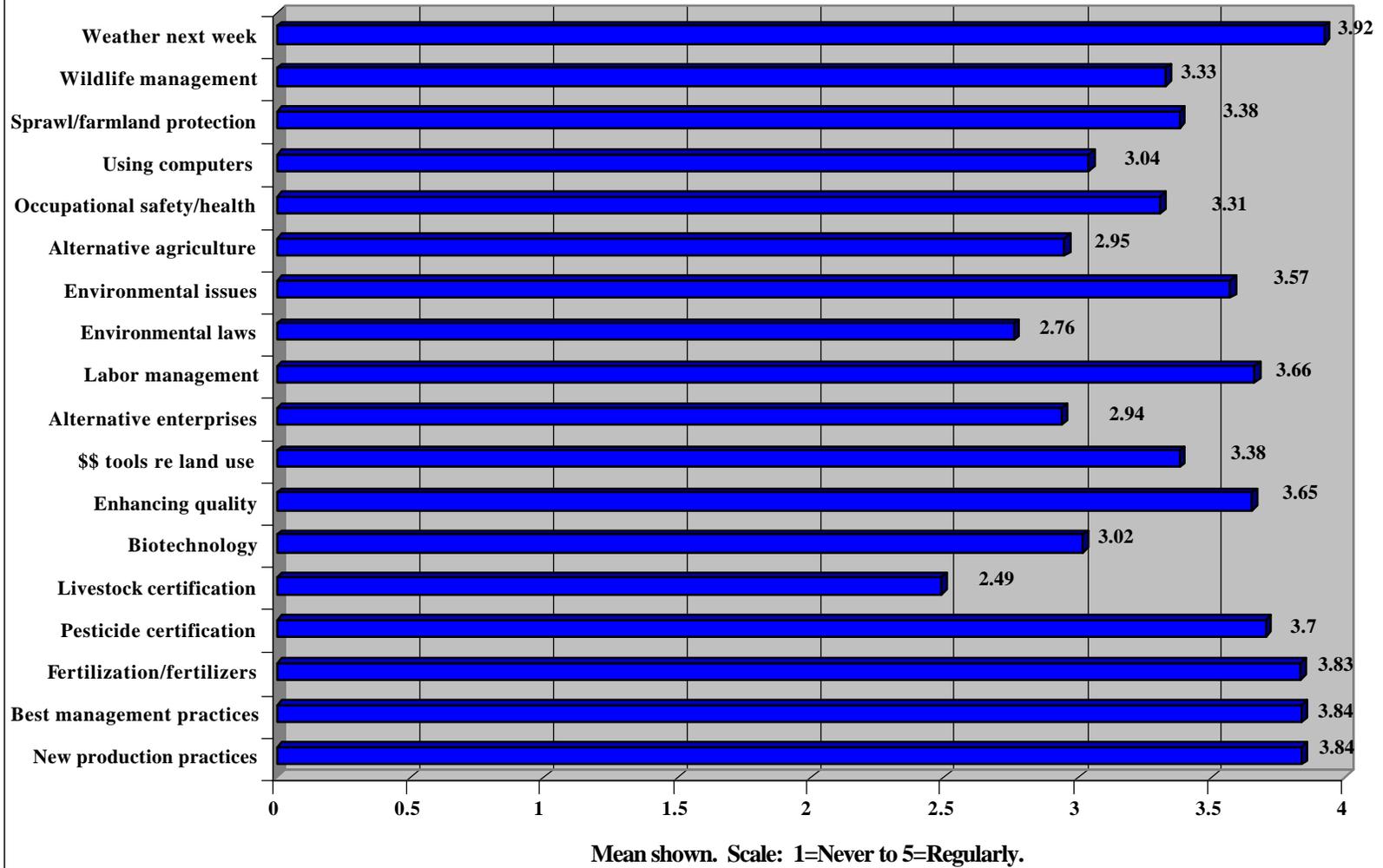
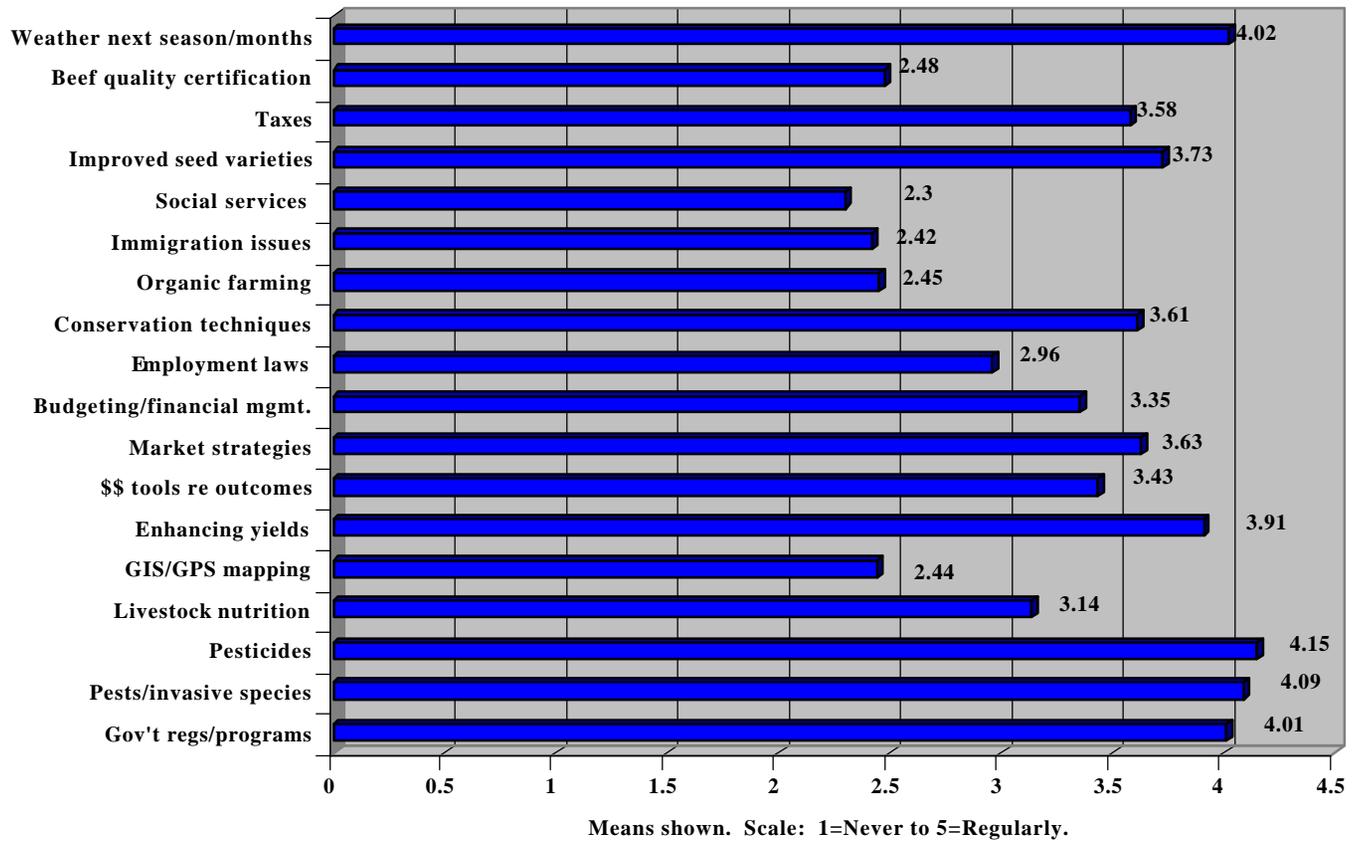


Figure 7. Information Needs of South Carolina Agricultural Producers, 2003. Figure 2 of 2.



Top Ten Information

Needs:

- Pesticides;
- Control of pests and invasive species;
- Weather impacts for upcoming season/ months;
- Latest government regulations/programs;
- Weather impacts for the next week;
- Enhancing Yields;
- Best Management Practices;
- New production practices;
- Fertilization/fertilizers; and,
- Pesticide certification.

Bottom Ten Information Needs:

- Social services for employees and their families;
- Immigration issues;
- GIS/GPS mapping;
- Organic Farming;
- Beef Quality certification;
- Livestock certification;
- Environmental laws;
- Alternative enterprises;
- Alternative agriculture; and,
- Employment laws.

For the main part, producers indicated a need for information regarding pesticides and the control of pests/invasive species, weather forecasts, government regulations and new production and Best Management practices. Producers reported relatively low need for social services for employees and their families, organic or alternative farming and enterprises, beef quality and livestock certification, and GIS/GPS mapping. Information on using computers for operations received a mid-range mean of 3.04.

In open-ended comments, respondents wrote that they need information about equipment repair, new products and equipment, and accurate weather reports. One respondent wrote that a useable Clemson website was needed.

SOURCES OF INFORMATION

Respondents were provided a lengthy list of possible sources of information that they can use for their operations. They were asked to indicate the degree to which each source was used for their operation. The scale provided was: **1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Regularly and NA=Does not apply.**

As with the inventory of information needs, the inventory of sources of information was quite extensive. In order to fit the findings on charts, abbreviations had to be used.

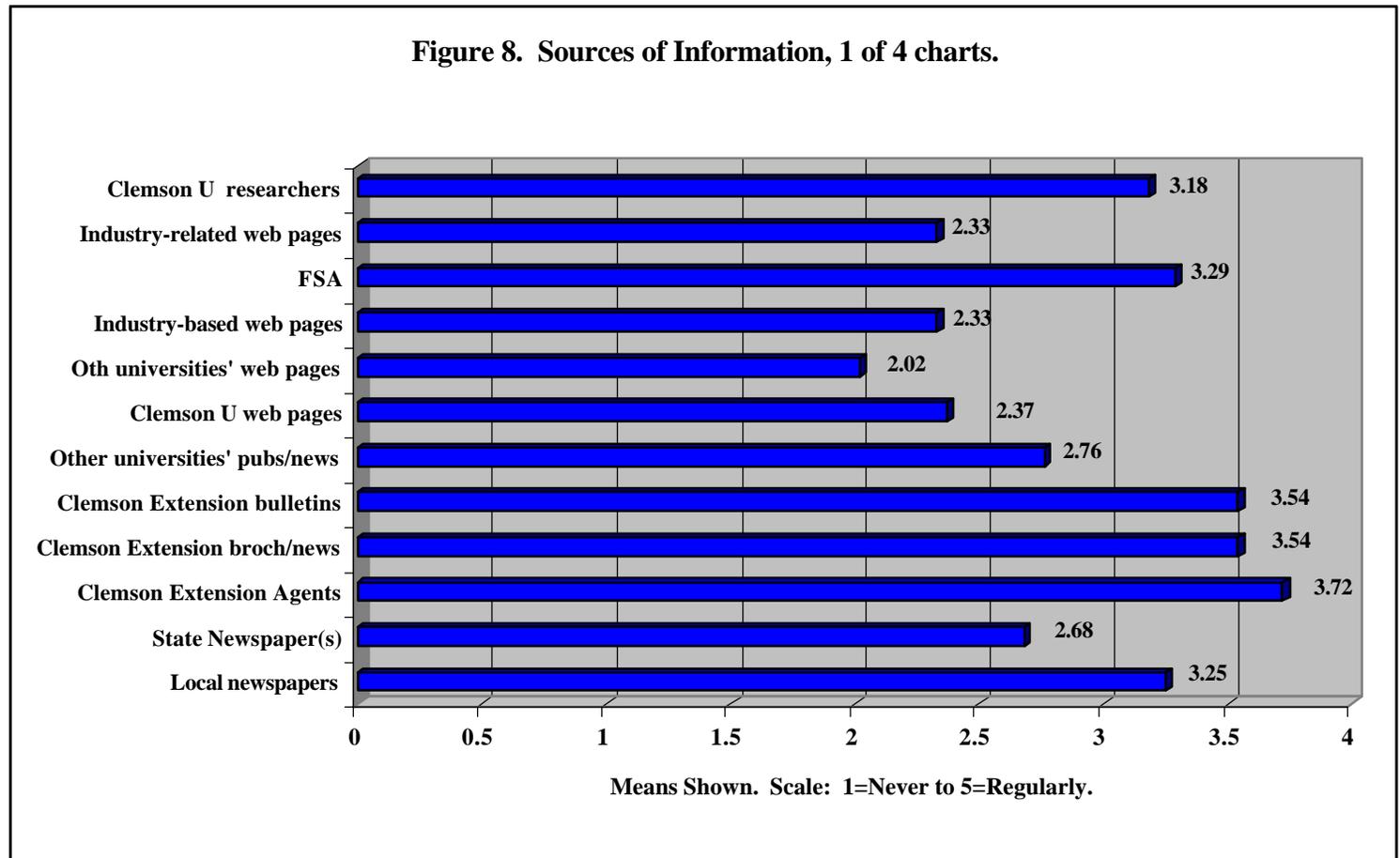
The sources of information inventoried were: Local newspapers; State newspaper; Clemson Extension Agents; Clemson Extension Service bulletins; Clemson Extension Service brochures/newsletters; Other universities' publications and newsletters; Clemson University web pages; Other universities' web pages; Industry-based web pages; Clemson University researchers; FSA; Industry-related web pages; Trade-specific magazines; Trade-specific newsletters; Public Radio; Other radio; "Your Day" radio program; Educational television; Other television programs; "Making it Grow" TV program; Farm Bureau magazines/newsletters; Labels; Industry representatives; Industry salespersons; Private, paid consultant, Pesticide dealer; Certified crop advisor; Extension workshops; Other Clemson workshops; Industry conferences; SC Ag Expo; Clemson-sponsored conferences; The Internet; E-mails; Electronic newsletters; Electronic magazines; Electronic journals; Books; Professional journals; University courses; On-line courses; Courses at local technical schools/colleges; Extension Short courses; National Weather Service Forecast Offices; Seed producers; and, local garden/feed/greenhouse businesses.

The results of this inventory are displayed in Figures 8-11.

•Given the growing numbers and types of information sources today, an extensive inventory was offered for respondents to indicate how often they use each source for their operations.

Top Ten Sources of Information:

- Clemson Extension Agents;
- Clemson Extension bulletins;
- Clemson Extension brochures/newsletters;
- Trade specific magazines;
- Weather Service/ National Forecast Offices;
- FSA;
- Pesticide dealers;
- Local newspapers;
- Clemson University researchers; and,
- Labels.

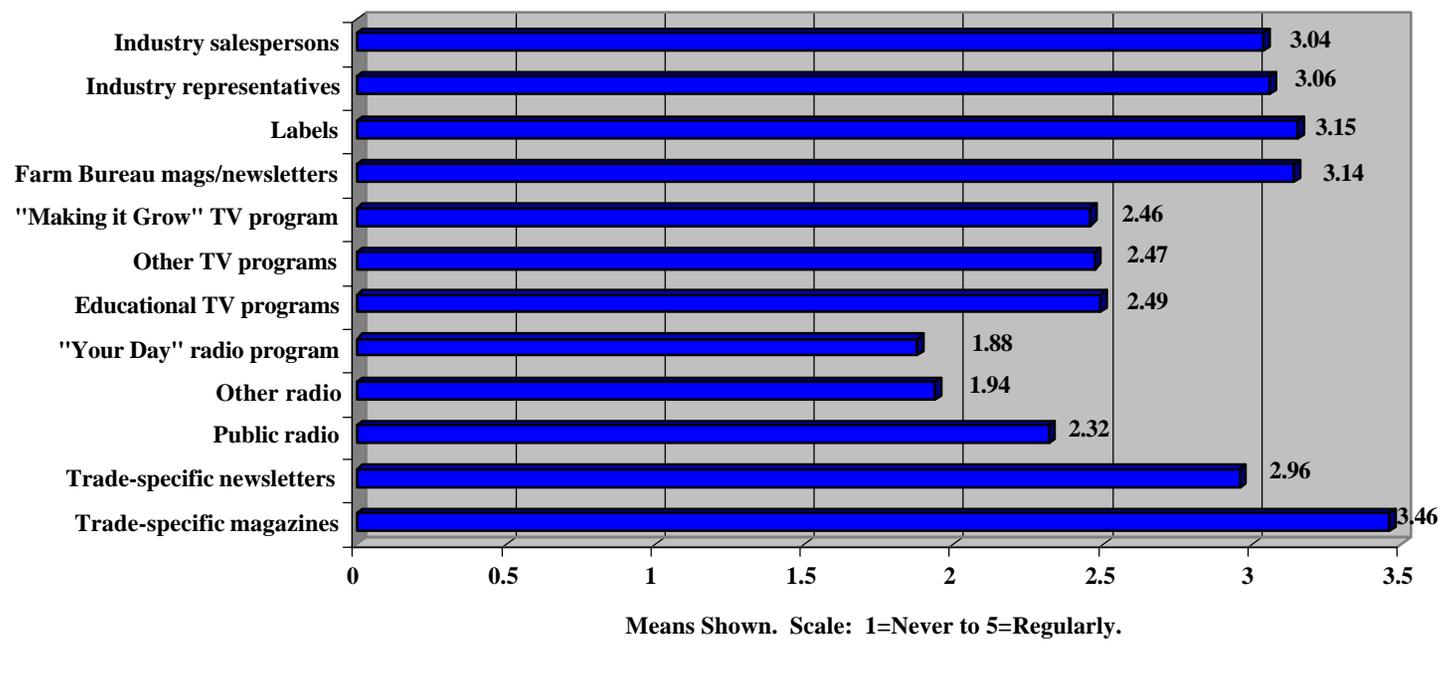


**Bottom
Ten Sources of
Information:**

- On-line courses;
- Electronic maga-
zines;
- Electronic journals;
- Courses at local
technical schools/
colleges;
- “Your Day” radio
program;
- Private, paid
consultant;
- Other radio;
- University courses;
- Electronic newslet-
ters; and,
- Other university
web pages.

•The relatively low mean scores for electronically transmitted information through media such as E-journals and E-newsletters may be a function of producers’ comfort level with more time-honored sources of information.

Figure 9. Sources of Information, 2 of 4 charts.



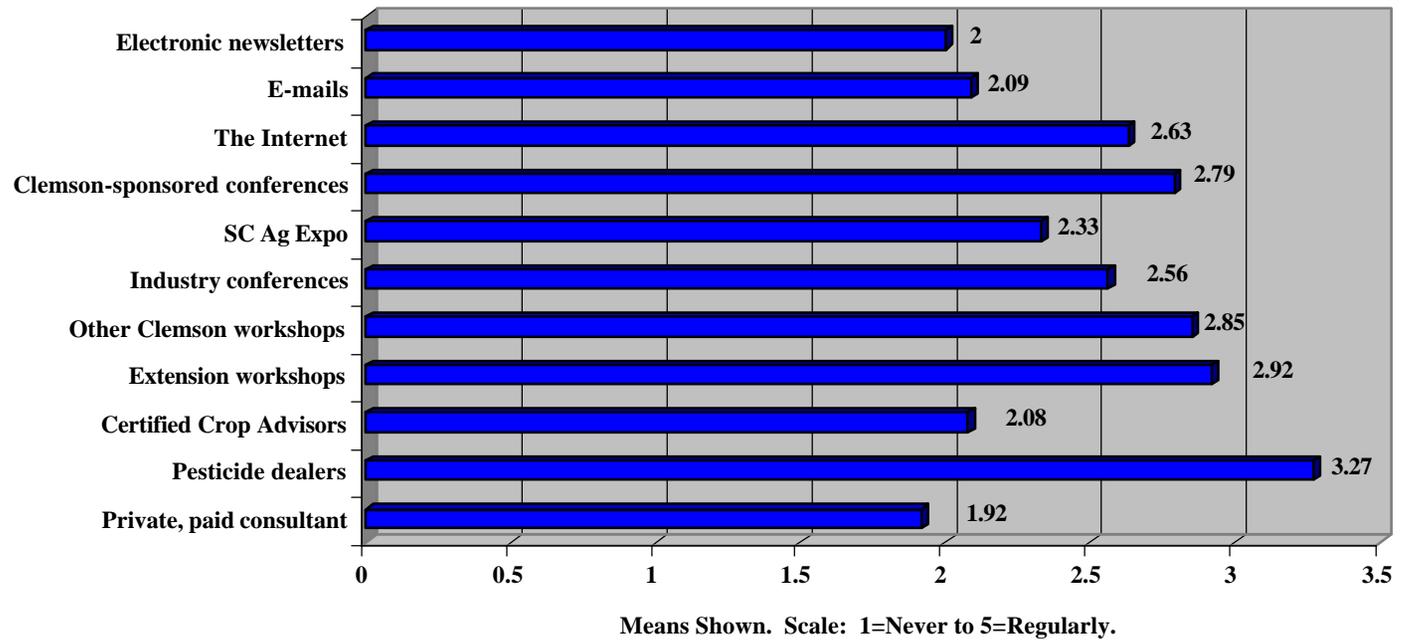
Electronically accessible sources of information, such as on-line courses, magazines, journals, and newsletters received relatively low mean scores as sources of information. This may be a function of producers’ relatively low rate of Internet and e-mail accounts for operations (see page 20 of this report), and/or may be a function of producers’ comfort level with time-honored sources of information such as Extension agents; Extension bulletins, Extension brochures/newsletters, trade magazines, local newspapers, researchers, and labels.

Respondents also did not see high value in having one portal through which all Extension services in the country can be accessed (p. 19) . King and Boehlje (2000) have proposed the virtual Extension Service, e-CES, as a way for Extension to avoid extinction and compete with the increasing number of sources of information. Based on the results of the current study, it may be premature to assume that this strategy will supplant time-honored sources and methods of information. Alternatively, these findings may indicate that Clemson Extension should expand their E-communication programs for agricultural producers.

•Workshops and conferences received higher means scores than did E-newsletters, and E-mails.

•Private, paid consultants and Certified Crop Advisors received relatively low mean scores as sources of information.

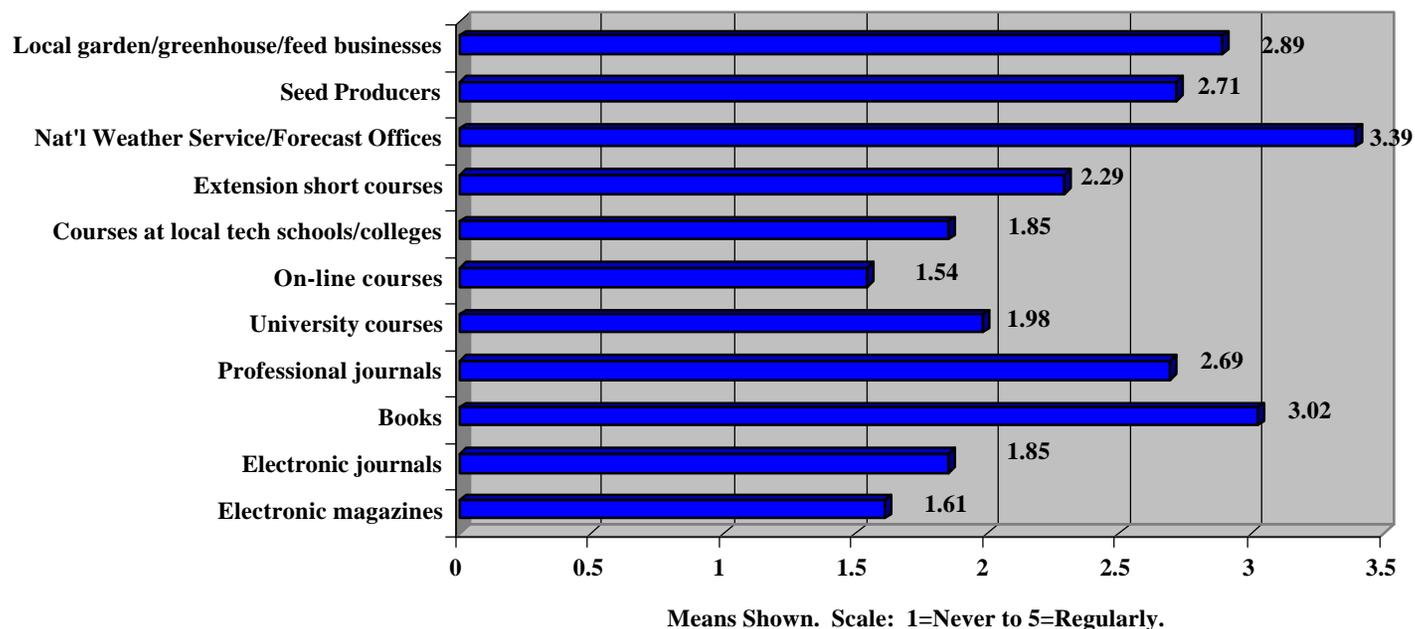
Figure 10. Sources of Information, 3 of 4 charts.



- Books and professional journals received higher mean scores as sources of information in comparison to university courses, courses at local technical schools/colleges, and on-line courses.

- Local garden/greenhouse/feed businesses and seed producers received lower mean scores as sources of information than did industry representatives, industry salespersons, and labels.

Figure 11. Sources of Information, 4 of 4 charts.



Five respondents wrote that they get information from other farmers. One wrote that his operation relied on information from older growers in his area. One wrote that information is received by word of mouth, while another wrote that he picks up information in the local community - in places such as coffee shops and church.

Top Five Internet Sites Used:

- USDA;
 - Clemson University;
 - Progressive Farmer;
 - South Carolina Farm Bureau Federation;
- and,
- Other farm auction, sales and supplies sites.

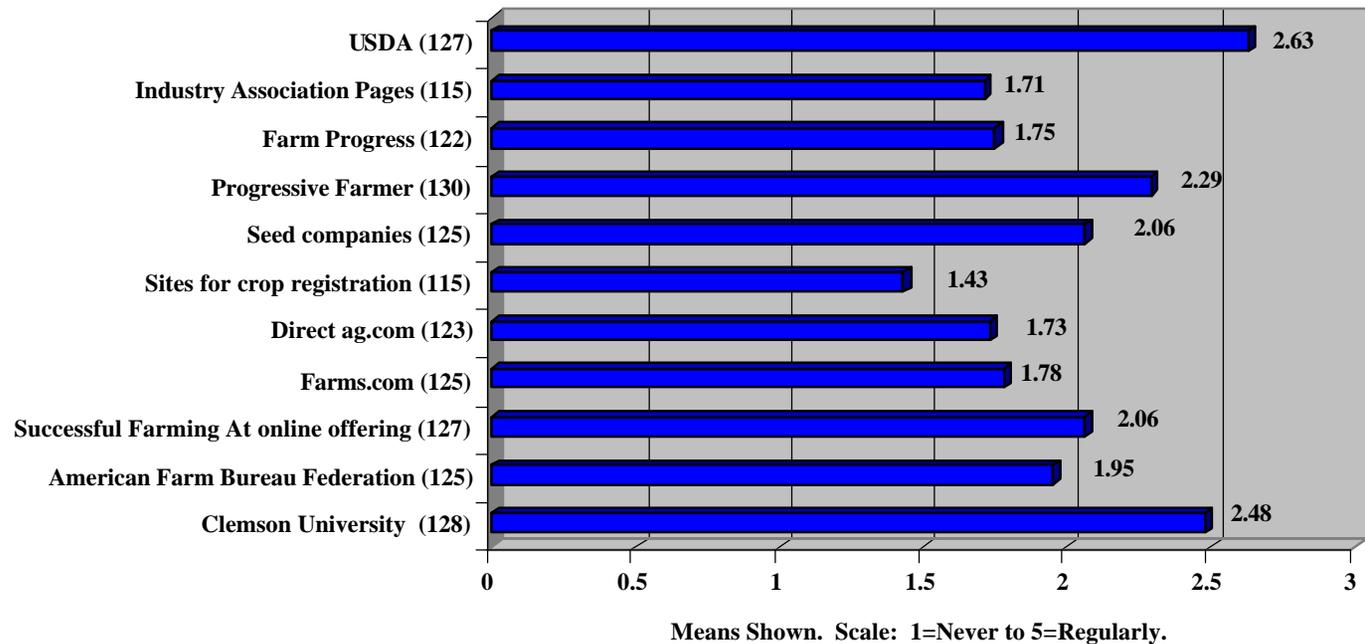
Bottom Five Internet Sites Used:

- ATRA;
- Prime Media;
- NASS;
- Sites for crop registration; and,
- Farmbid.com.

WEB SITE USE

Producers who use the Internet were asked to rate how often they use selected sites for their operations. The scale was: **1=Never; 2=Rarely; 3=Sometimes; 4=Often; and, 5=Regularly.** The other option was to mark NA for “Does not apply.”

Figure 12. Internet Sites Used, 1 of 2 Charts.

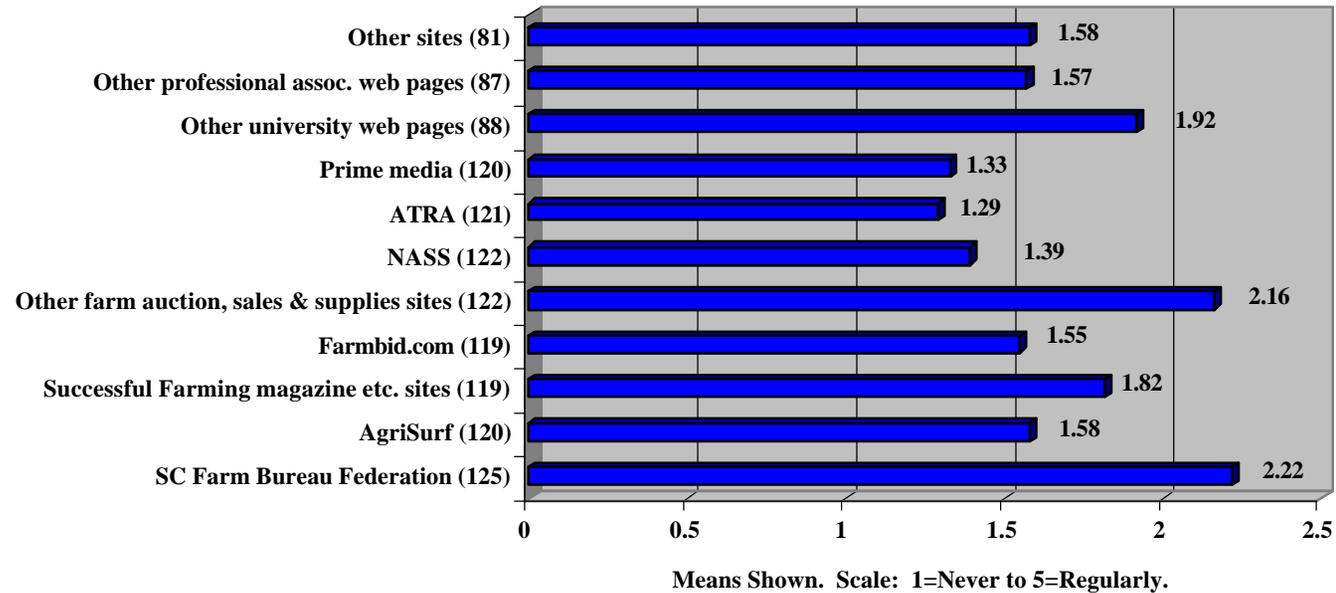


- Web sites were used to obtain information on matters such as equipment availability and prices, equipment parts, ventilation, plant pest problems, commodity reports, weather and ventilation, poultry diseases, and commodity prices.

- Other university web sites used included those of Auburn University, North Carolina State University, Mississippi State University, University of Georgia, and Florida State University.

- Industry association web pages used included those from the Peach Council, Beef Cow Calf Weekly Drivers Alert, American Horticultural Society, and the South Carolina Poultry Federation.

Figure 13. Internet Sites Used, 2 of 2 Charts.



In open-ended fashion, several respondents wrote that they use the Internet to obtain information about equipment availability and prices, equipment parts, ventilation, plant pest problems, commodity reports, weather and ventilation, poultry diseases, and commodity prices.

Other university web sites used included those of Auburn University, North Carolina State University, Mississippi State University, University of Georgia, Florida State University, University of Maryland, Virginia Polytechnic University, Cornell University, Ohio State University, and California Polytechnic. Industry association web pages used included those from the Peach Council, Beef Cow Calf Weekly Drivers Alert, American Horticultural Society, South Carolina Poultry Federation, the broiler network, the Cotton Council, and strawberry news from University of North Carolina.

One Web Portal for all Extension Services Web Sites in the US?

When asked how useful would it be for producers to be able to access information from all Extension Services in the country through one portal (on a scale of 1=Not useful at all to 5=Very useful), the mean response (n=217) was 2.94. That is, respondents were close to the “Don’t know, Not sure” middle selection.

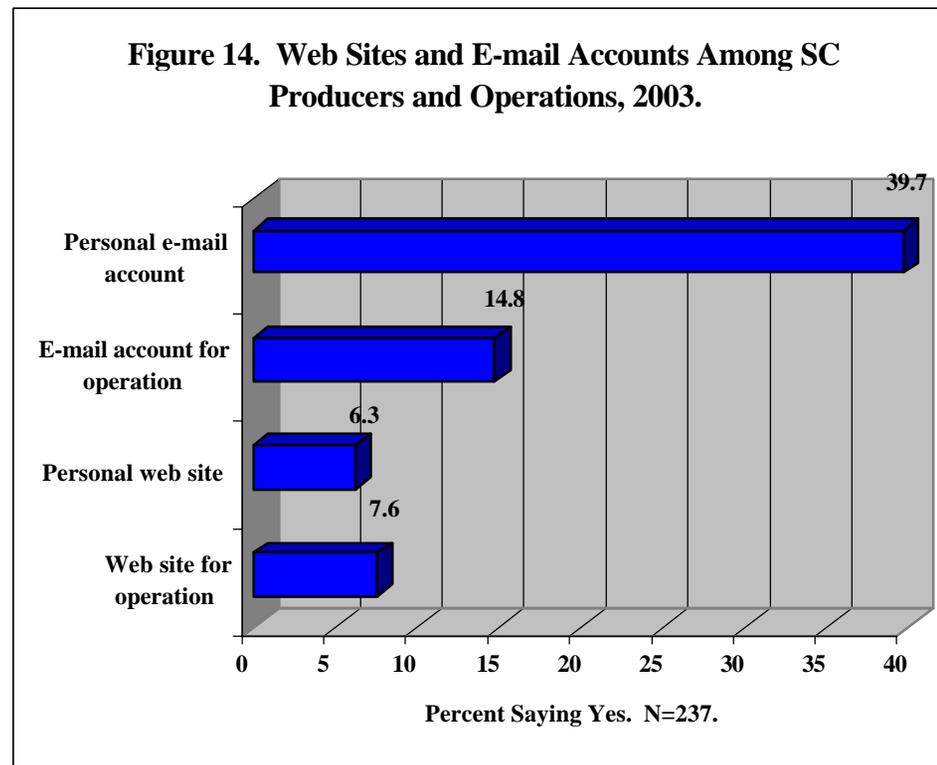
- It may be premature to assume that e-CES will supplant time-honored sources and methods of information.
- Clemson Extension may need to expand its E-communication programs for agricultural producers.

Summary of E-connectedness

- Most respondents were unsure if it would be useful for them to be able to access all Extension Services in the country through one portal.
- Most of the producers did not have a personal web site or web site for their operations.
- There were over twice as many personal E-mail accounts as there were accounts for operations.

HOW WIRED ARE SOUTH CAROLINA PRODUCERS AND OPERATIONS?

Respondents were asked whether they had personal web sites or web sites for their operations, and whether they had E-mail accounts for their operations and themselves. As can be seen in Figure 14, below, most of the South Carolina producers who participated in this survey do not have personal web sites or web sites for their operations. There were over twice as many personal E-mail accounts as there were accounts for producers’ operations.



- Total number of employees of an operation was positively and significantly correlated with the operation having a web site, the operation having a company E-mail account, and the operator having a personal E-mail account.
- Age of operator was negatively and significantly correlated with the operation not having a company E-mail account and the operator not having a personal E-mail account.
- Years in operation was negatively but not significantly correlated with the operation having a web site, the operation having an E-mail account and the operator having a personal E-mail account.
- Total acreage was not correlated with the operation or with the operator being wired.

Table 2. Correlations Related to E-Connectedness.

	Years in Operation	Total Employees	Total Acreage	Age of Operator
Operation has web site	-.017 (231)	.281** (234)	-.045 (225)	-.058 (222)
Operator has personal web site	.006 (231)	.051 (234)	.018 (225)	.054 (222)
Operation has company E-mail account	-.046 (231)	.206** (234)	.039 (225)	-.147* (222)
Operator has personal E-mail account	-.084 (231)	.142* (234)	.008 (225)	-.322** (222)

Bivariate correlations. *p≤.05; **p≤.01; Number in () = number of respondents.

Several respondents wrote that they do not have computers and/or do not use the Internet. Several wrote in that they would like to receive computer training/computer short courses from Clemson.

Nationally, there have been increases in farm computer use and Internet access (NASS, 2001). The most recent nationwide survey indicates that almost half of all U.S. farms have Internet access (NASS, 2003). The percent of producers in this survey with Internet accounts for their operations is lower than the 54% Internet access figure for all farms in their category in the United States (see NASS, 2003).

As with other studies of farm computer use (see, e.g., Wojan, 1999; NASS, 2003), the current study shows a relationship between size of operation and age of operator and Internet access. Whether computer and E-connectedness on the farm can translate into marketable skills off-farm is not yet clear (Wojan, 1999) and may not be important to South Carolina's commercial agricultural producers. However, what is clear is that high volume, high sales agricultural operations in the U.S. increasingly rely on E-connectedness to remain competitive. Information is a powerful source of competitive advantage (Boehlje & King, 1998). Thus, the relatively low rates of E-connectedness among the producers who participated in this survey are worthy of further study.

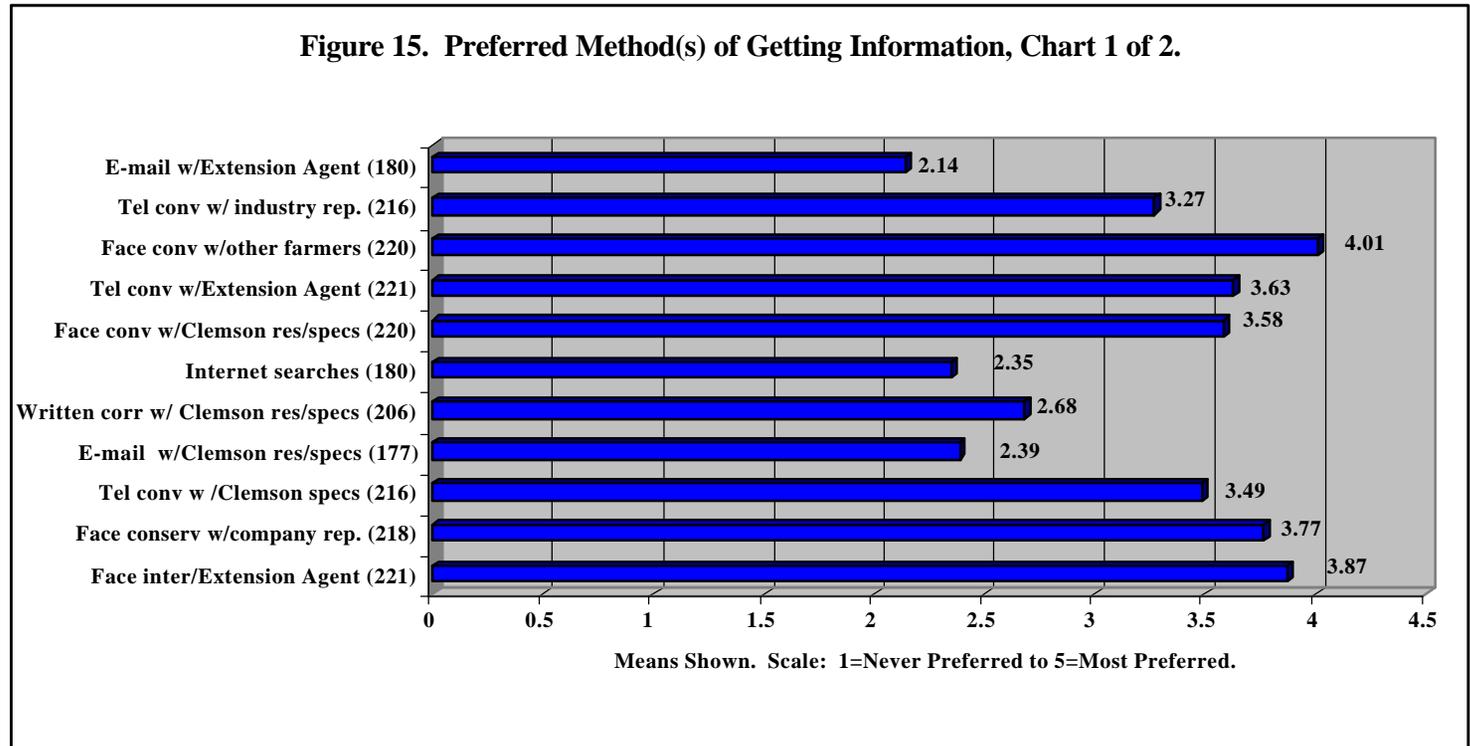
Top Five Preferred Methods of Getting Information:

- Face-to-face conversations with other farmers;
- Face-to-face conversations with Extension Agents;
- Face-to-face conversations with company representatives;
- Field demonstrations; and,
- Telephone conversation with Extension Agent.

PREFERRED METHODS OF GETTING INFORMATION

Respondents were provided a list of ways of obtaining information. For each modality, they were asked to rate it using this scale: **1=Never preferred; 2=Preferred on a limited basis; 3=Infrequently preferred; 4=Often preferred; and, 5=Most preferred.** They were asked to mark a method NA if it did not apply.

The methods inventoried were: Face to face conversations with Extension Agent; Face to face conversation with company representatives; Telephone conversations with Clemson specialists; E-mail exchange with Clemson researchers or specialists; Written correspondence with Clemson ; Internet searches; Face to face conversation with Clemson researchers or specialists; Telephone conversation with Extension agents; Face to face conversations with other farmers; Telephone conversations with industry representatives; E-mail exchanges with Extension agents; E-mail exchanges with industry representatives; Written correspondence with Extension agent; Written correspondence with industry representative; Field demonstrations; Going to my local Extension office; Having Clemson researchers visit my operation; Taking courses at local technical schools/colleges; Meeting with Extension agents at my operation; Taking university courses; Taking on-line courses; and, Extension short courses.

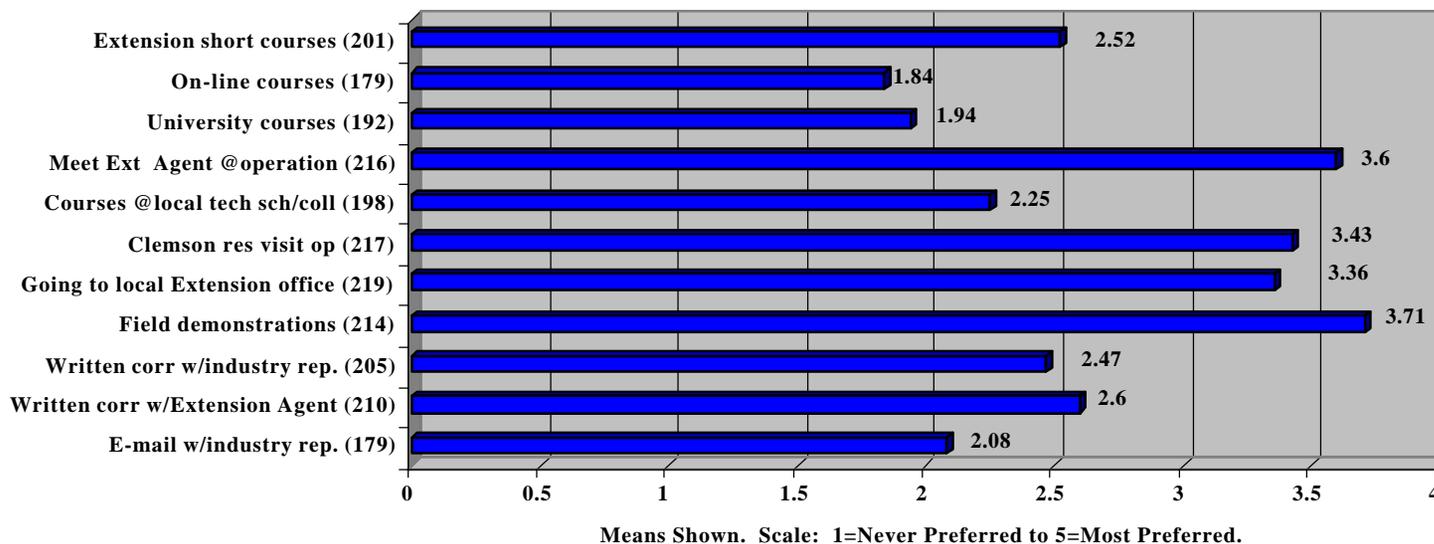


Bottom Five Preferred Methods of Getting Information:

- Taking on-line courses;
- Taking university courses;
- E-mail with industry representative;
- E-mail with Extension Agents; and,
- Internet searches.

•The low priority given to E-sources of information and methods of obtaining information are worthy of further study.

Figure 16. Preferred Method(s) of Getting Information. Chart 2 of 2.



When asked how useful it would be to respondents' operations to have a regularly updated list of experts and Extension Agents in South Carolina whom they could contact as soon as information was needed from them, 19.6% of those responding (n=214) said this would be very useful. Nearly one-fourth (24.3%) said that the list would be useful, 16.4% said the list would be somewhat useful, 23.8% weren't sure, and 15.9% said that the list would not be useful at all.

CLEMSON AS A RESOURCE FOR SOUTH CAROLINA PRODUCERS

Most Used Clemson Resources in 2002:

- Extension Agents;
- Extension Service Brochures;
- Extension Service Bulletins; and,
- Clemson researchers and specialists.

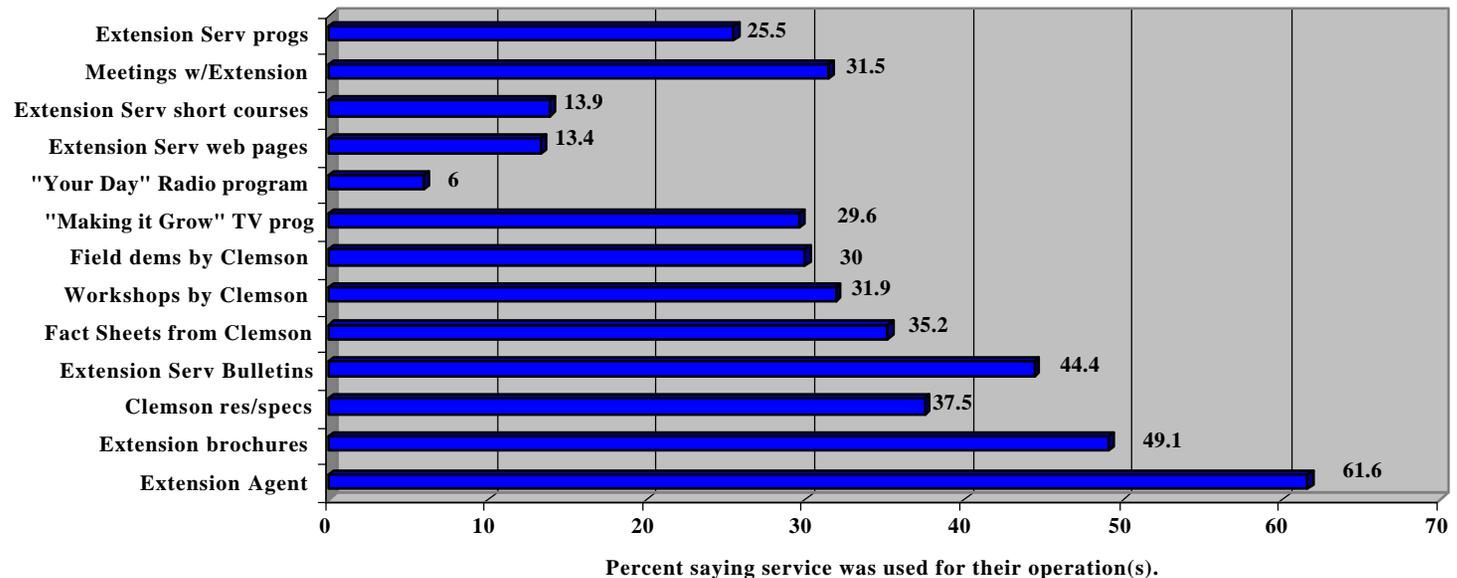
Least Used Clemson Resources in 2002:

- “Your Day” radio program;
- Extension web pages;
- Extension short courses; and,
- “Making it Grow” television show.

A number of questions were used to garner a measure of which of Clemson’s resources are being used by South Carolina’s producers, and what the producers think of the helpfulness and usefulness of these resources viz their operations. Additionally, questions were posed to see what types of information from Clemson were used for the producers’ operations, and what the producers thought of these. Finally, producers were asked what qualities they need in Extension Agents, and what else Clemson can do to help their operations remain competitive.

Respondents were asked to rate the quality of the resources from Clemson on a scale of 1 to 5, with **1=Very poor, unacceptable quality; 2=Low quality; 3=Acceptable but not high quality; 4=Acceptable, basically good quality; and, 5=Very good to high quality**. They were to select “NA” if the item did not pertain to their operation. The scale to rate the helpfulness of the resources was similar, with **1=Not all helpful; 2=Of little help; 3=Moderately helpful; 4=Helpful; and, 5=Very helpful**. Again, “NA” was to be used if the resource did not apply to the respondent/the operation.

Figure 17. Clemson Resources used by SC Producers during 2002, n=216.



Clemson Resources with the Highest Helpfulness Scores:

- Extension Agents
- Clemson researchers/specialists; and,
- Workshops by Extension.

Clemson Resources with the Lowest Helpfulness Scores:

- “Your Day” radio program;
- Extension Service web pages; and,
- “Making it Grow” radio program.

Clemson Resources with the Highest Quality Scores:

- Extension Service Agent;
- Clemson researchers/Specialists; and,
- Workshops by Clemson University.

Clemson Resources with the Lowest Quality Scores:

- “Your Day” radio program;
- Extension Service web pages; and,
- “Making it Grow” television program.

Figure 18. Helpfulness and Quality of Clemson Resources. Figure 1 of 2.

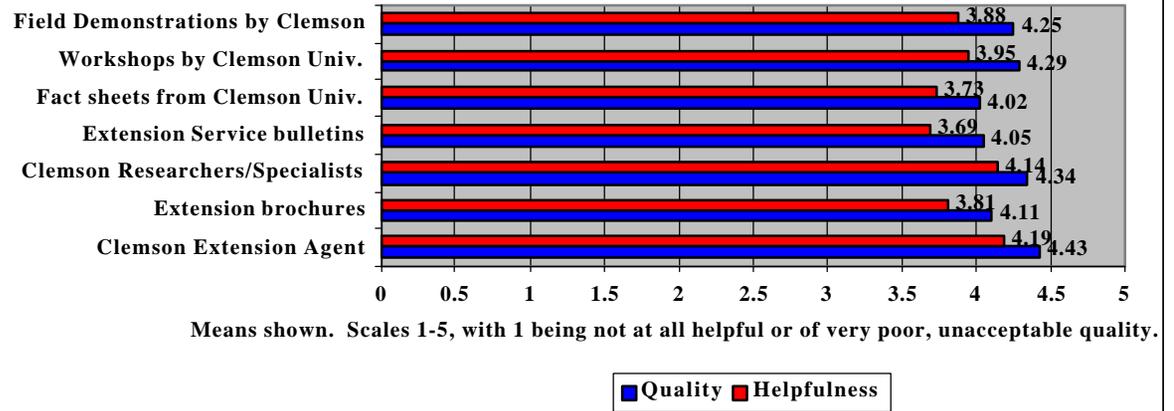
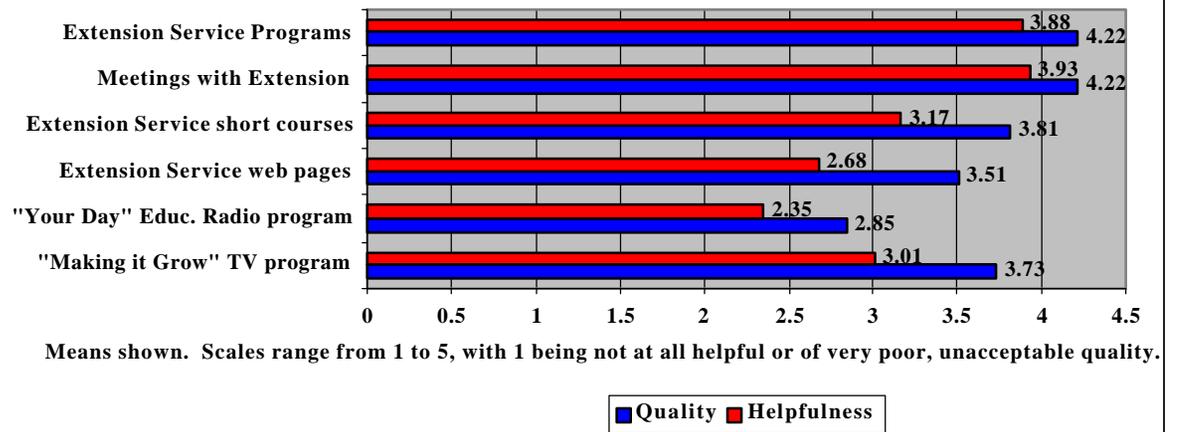


Figure 19. Helpfulness and Quality of Clemson Resources. Figure 2 of 2.

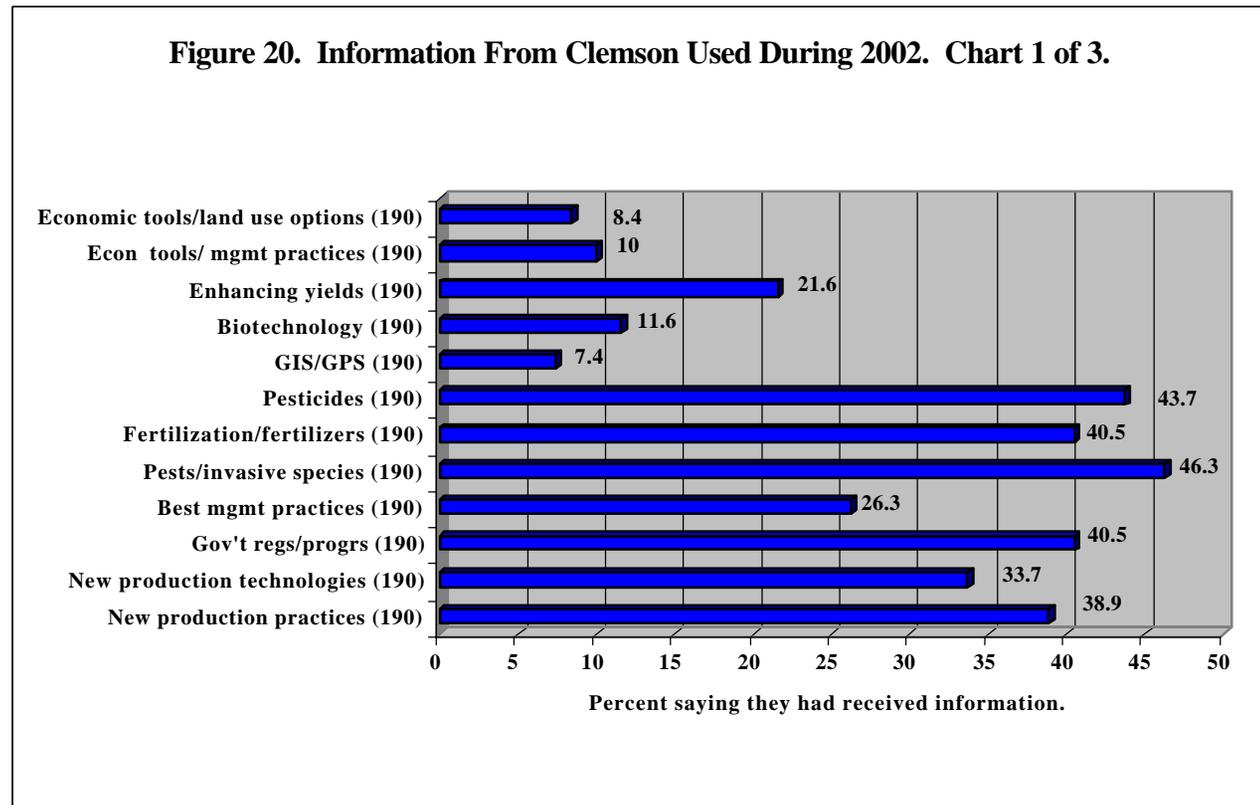


Most Used Clemson Information in 2002:

- Pests/Invasive species;
- Pesticides;
- Fertilization/Fertilizers;
- New production practices;
- New production technologies;
- Conservation techniques;
- Improved seed varieties;
- Best Management Practices;
- Animal nutrition; and,
- Environmental issues.

INFORMATION FROM CLEMSON THAT WAS USED BY SOUTH CAROLINA PRODUCERS IN CALENDAR YEAR 2002

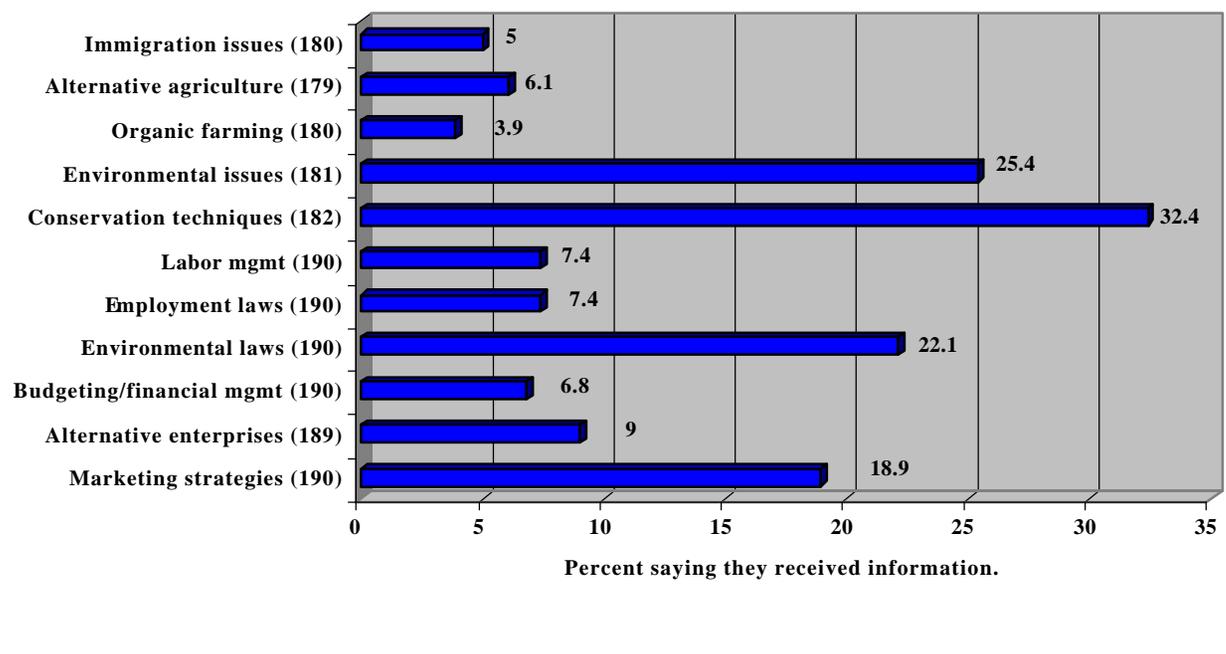
Respondents were asked to indicate whether they had used an extensive array of information available from Clemson. The following charts (Figures 20-22) provide the percentage of use during 2002 among the respondents for each information item inventoried.



Least Used Clemson Information in 2002:

- Social services for employees/their families;
- Organic farming;
- Immigration issues;
- Using computers for operations;
- Alternative agriculture;
- Budgeting/financial management;
- Labor management;
- Employment laws;
- GIS/GPS mapping;
- and,
- Sprawl/farmland protection.

Figure 21. Information from Clemson Used During 2002. Chart 2 of 3.

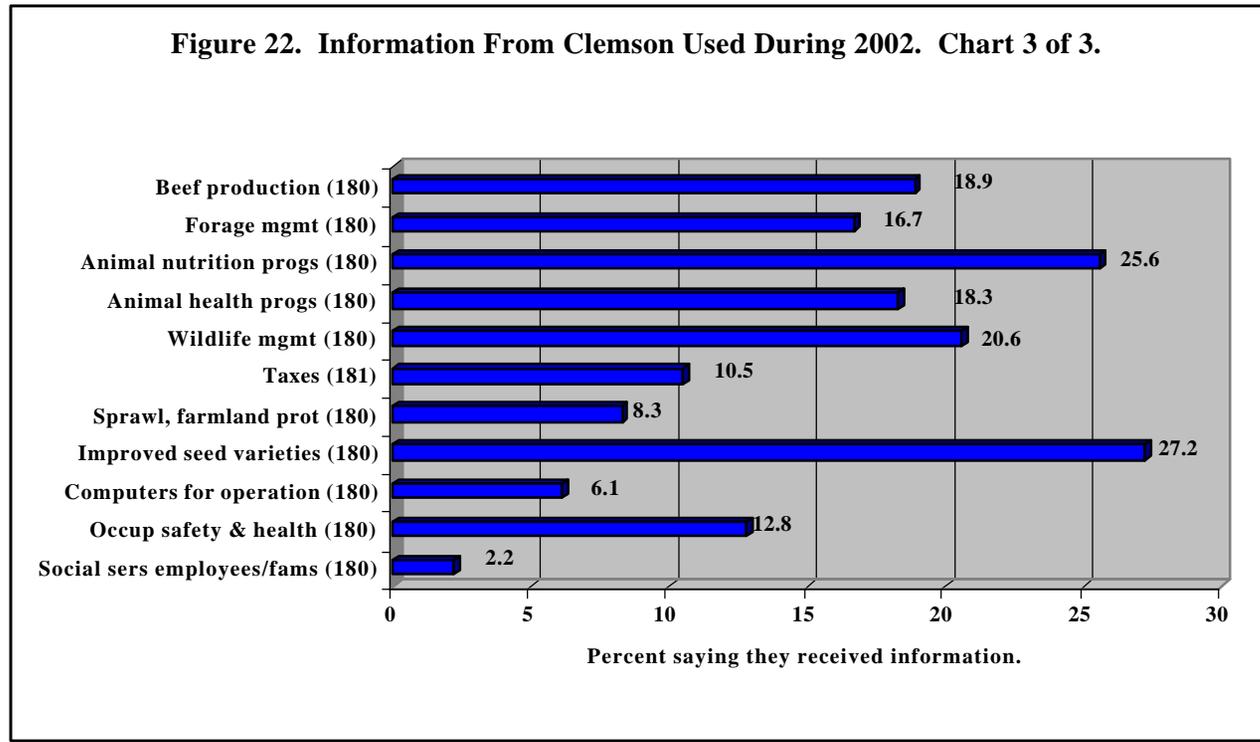


The Clemson information used by South Carolina producers during 2002 that was inventoried was: New production practices; New production technologies; Latest government regulations/programs; Best Management Practices; Control of pests/invasive species; Fertilization/Fertilizers; Pesticides; GIS/GPS mapping; Biotechnology; Methods for enhancing yields; Economic decision tools for demonstrating outcomes of management practices; Economic decision tools for understanding options for land use; Marketing strategies; Alternative enterprises; Budgeting/financial management; Environmental laws; Employment laws; Labor management; Conservation techniques; Environmental issues; Organic farming; Alternative farming; Immigration issues; Social services for employees/their children; Occupational safety and health; Using computers for the operation; Improved seed varieties; Urban sprawl/farmland protection; Taxes; Wildlife management; Animal health programs; Animal nutrition programs; Forage management, and, beef production.

- The most used Clemson information was related to field production, management practices, and specific information such as animal nutrition and environmental issues.

- The least used Clemson information was related to employees and to E-technology and E-connectedness.

- Unless producers are getting information about the changing landscape of farm labor and E-technology and E-connectedness from other reliable sources, there is a need for Clemson Extension to expand its outreach to producers in these areas.



The most used Clemson information during 2002 tended to be information related to field production, management practices, and specific information such as animal nutrition and environmental issues. The least used Clemson information during 2002 tended to be that which related to employees and to E-connectedness such as using computers for operations and using GIS/GPS mapping.

These patterns may reflect reliance on Clemson for more traditionally available information. They also may reflect producers' tendencies to either not seek out information related to the rapidly changing landscape of commercial agriculture production, or to use other sources for this. This information would include that related to immigration as per the changing demographics of farm laborers, electronic information technologies related to securing a competitive edge in agricultural production via reliance on these technologies, and organic and alternative agriculture - which are still typically associated with small scale agriculture production in South Carolina.

Regardless of the reasons for the low use of Clemson information regarding farm labor matters and E-connectedness, unless producers are getting this information from other reliable sources, this speaks to a need for Clemson Extension to expand their outreach to producers in these areas.

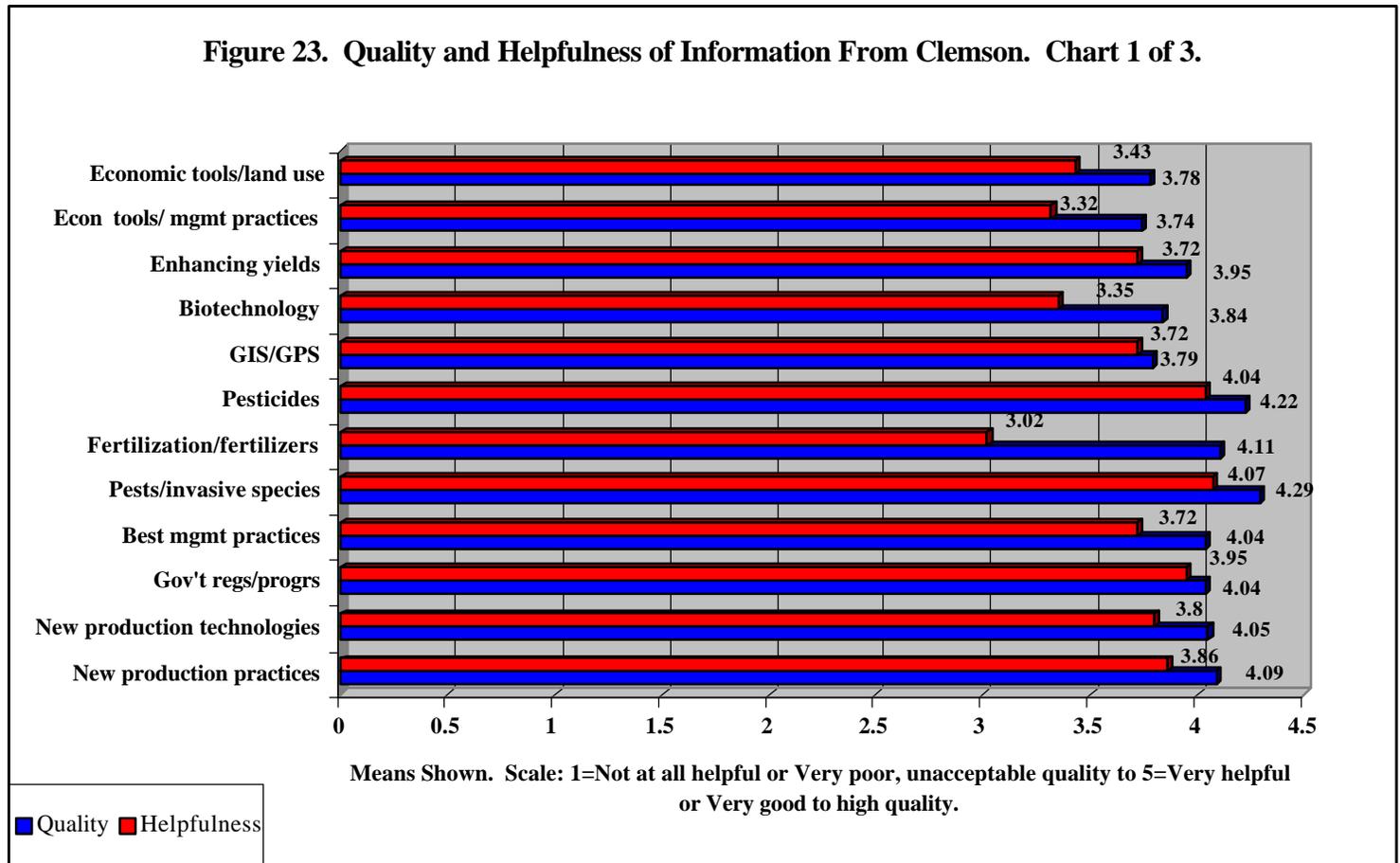
Clemson Information with the Highest Helpfulness Scores:

- Pests/Invasive species;
- Conservation techniques;
- Pesticides;
- Improved seed varieties;
- Government regulations/programs;
- Forage management;
- Environmental issues;
- Beef production;
- New production practices; and,
- Animal nutrition programs.

QUALITY AND HELPFULNESS OF CLEMSON INFORMATION USED BY SOUTH CAROLINA PRODUCERS

As with the section on resources, respondents were asked to rate the quality of information from Clemson on a scale of 1 to 5, with **1=Very poor, unacceptable quality; 2=Low quality; 3=Acceptable but not high quality; 4=Acceptable, basically good quality; and, 5=Very good to high quality**. They were to select “NA” if the item did not pertain to them or to their operation. The scale to rate the helpfulness of the information was similar, with **1=Not all helpful; 2=Of little help; 3=Moderately helpful; 4=Helpful; and, 5=Very helpful**. Again, “NA” was to be used if the resource did not apply to the respondent/the operation.

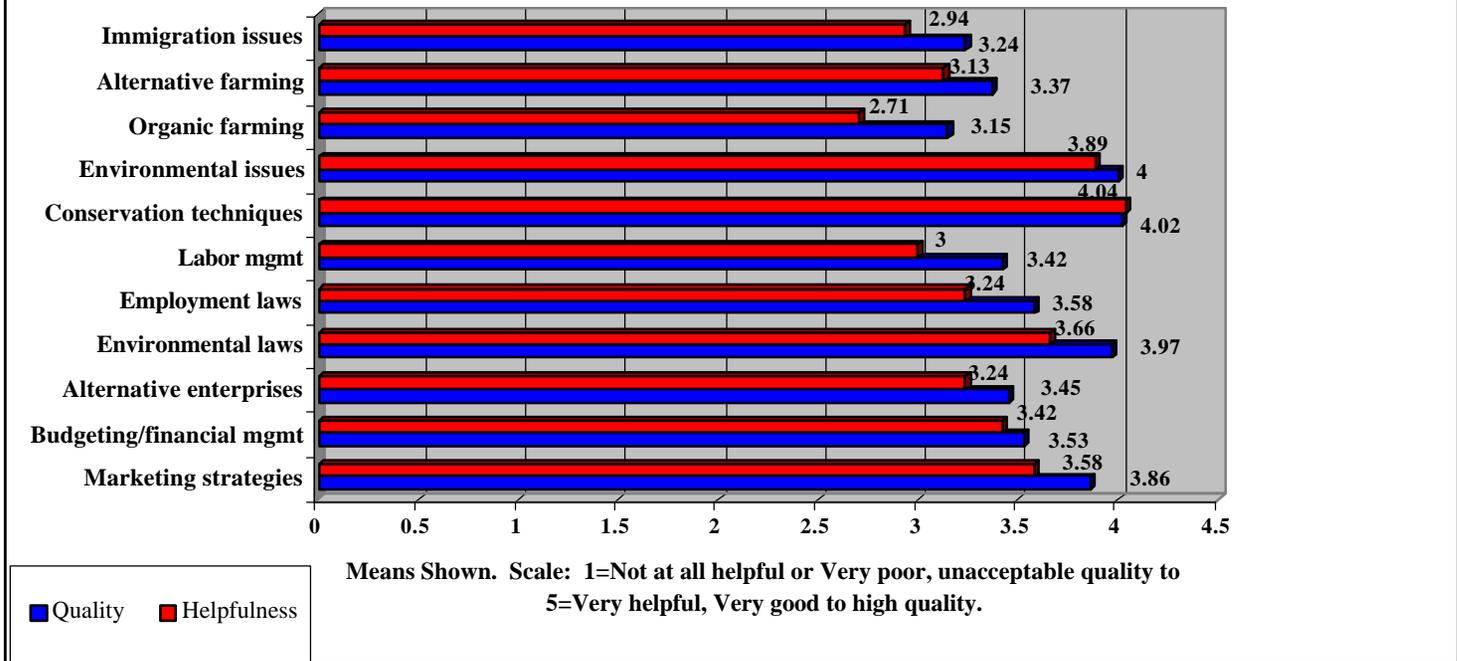
Figure 23. Quality and Helpfulness of Information From Clemson. Chart 1 of 3.



Clemson Information with the Lowest Helpfulness Scores:

- Social services for employees/their families;
- Organic farming;
- Immigration issues;
- Labor management;
- Fertilization/fertilizers;
- Computers for my operation;
- Alternative farming;
- Employment laws;
- Alternative enterprises; and,
- Economic decision tools for demonstrating outcomes of management practices

Figure 24. Quality and Helpfulness of Information From Clemson. Chart 2 of 3.



The Clemson information used by South Carolina producers during 2002 that was scored on helpfulness and quality was: New production practices; New production technologies; Latest government regulations/programs; Best Management Practices; Control of pests/invasive species; Fertilization/Fertilizers; Pesticides; GIS/GPS mapping; Biotechnology; Methods for enhancing yields; Economic decision tools for demonstrating outcomes of management practices; Economic decision tools for understanding options for land use; Marketing strategies; Alternative enterprises; Budgeting/financial management; Environmental laws; Employment laws; Labor management; Conservation techniques; Environmental issues; Organic farming; Alternative farming; Immigration issues; Social services for employees/their children; Occupational safety and health; Using computers for the operation; Improved seed varieties; Urban sprawl/farmland protection; Taxes; Wildlife management; Animal health programs; Animal nutrition programs; Forage management, and, beef production.

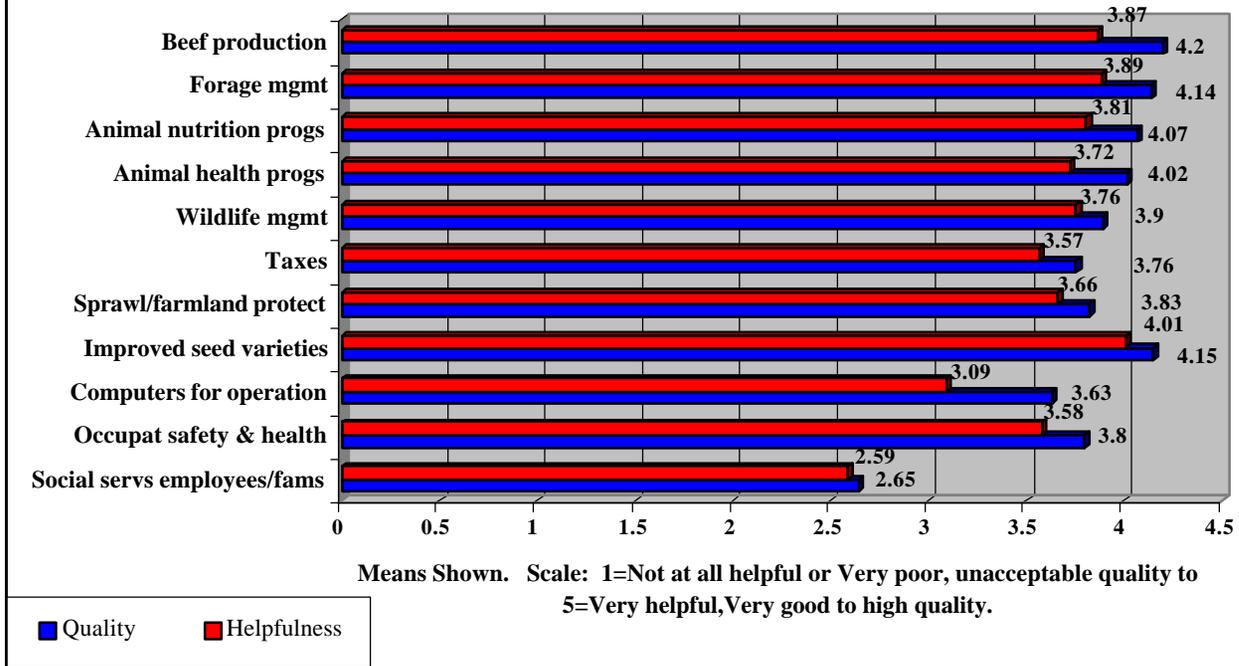
Clemson Information with the Highest Quality Scores:

- Pests/Invasive species;
- Pesticides;
- Improved seed varieties;
- Forage management;
- Fertilization/fertilizers;
- New production practices;
- Animal nutrition;
- New production technologies;
- Best Management Practices; and,
- Government regulations/programs.

•Items used more often by producers tended to receive higher quality and helpfulness scores.

•Quality scores tended to be higher than helpfulness scores.

Figure 25. Quality and Helpfulness of Information from Clemson. Chart 3 of 3.



Clemson Information with the Lowest Quality Scores: •Social services for employees/their families; •Organic farming; •Immigration Issues; •Alternative farming; •Labor management; •Alternative enterprises; •Budgeting/financial management; •Employment laws; •Computers for the operation; and, •Economic decision tools for demonstrating the outcomes of management practices.

As with the scoring of the quality and helpfulness of Clemson resources, respondents tended to give a higher score to the quality of information provided by Clemson, and a lower score to the helpfulness of the information. Likewise, those items with higher use rates tended to receive higher scores on helpfulness and quality.

Top Attributes of Extension Agents Needed by South Carolina Producers:

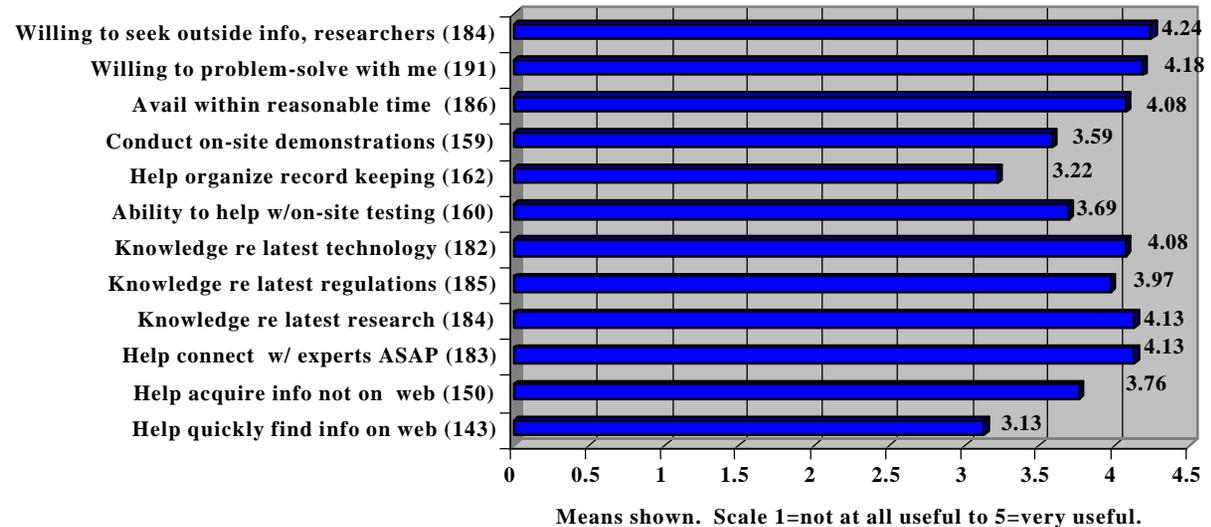
- Willingness to seek out other sources of information, researchers, and other relevant entities when his/her available information is not adequate;
- Willing to problem-solve with me;
- Knowledgeable about the latest technology relevant to my operation;
- Able to connect me with the experts I need as soon as possible; and,
- Available within a reasonable time frame; Knowledgeable about the latest technology relevant to my operation (tie).

SKILLS, KNOWLEDGE AND ATTRIBUTES OF EXTENSION AGENTS USEFUL TO SOUTH CAROLINA OPERATORS

Respondents were asked to rate a list of abilities, knowledge, and attributes pertaining to Extension Agents in terms of what operators need to enhance their operation’s competitiveness. As can be seen Figure 26 (below), the most important attributes were willingness to seek other sources of information, researchers and other relevant entities when his/her available information is not adequate, having the knowledge about the latest technology relevant to the operations, willingness to problem-solve with the producer, and being available within a reasonable time frame when the producer calls his/her office with questions.

Producers wrote that it is important that agents be formally trained, be good listeners, have good communication skills, make farm visits, and realize that they can not be experts on everything.

Figure 26. Attributes of Extension Agents Needed by SC Producers.



THE BOTTOM LINES: EVALUATING CLEMSON EXTENSION EDUCATION APPROACHES, THE USEFULNESS OF PSA/EXTENSION, CLEMSON'S ROLE IN SOUTH CAROLINA AGRICULTURE, AND DEGREE TO WHICH PSA/EXTENSION HAVE BEEN AFFECTED BY BUDGET CUTS

Face-to-Face Extension Education Approaches That Best Meet Operators' Needs:

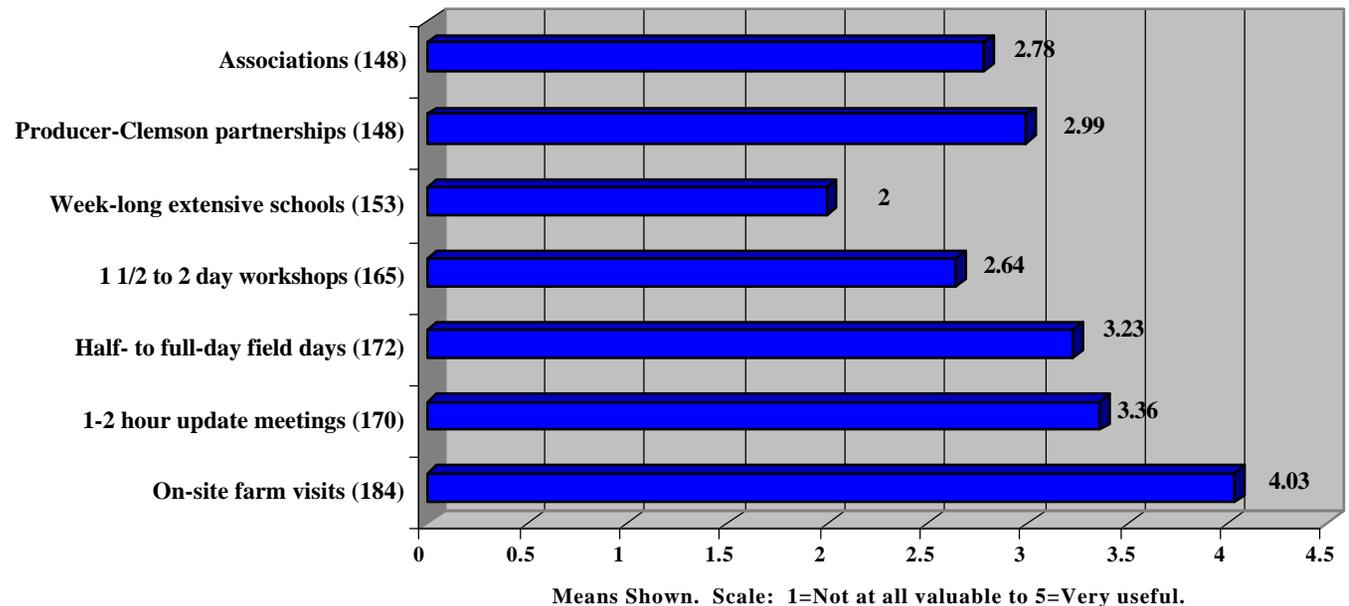
- On-site farm visits;
- 1-2 hour meetings;
- Half- to full-day field days;

Face-to-Face Extension Education Approaches Least Suited to Operators' Needs:

- Week-long extensive schools;
- 1 1/2 to 2-day workshops;
- Associations (such as DHIA; Farm Business Mgmt.).

Respondents were asked to make an overall evaluation by rating PSA/Extension's usefulness, its education approaches, its role in agriculture in South Carolina, the degree to which budget cuts have affected it, and whether they (South Carolina producers) have had any reservations about relying on Clemson's agents, researchers or printed resources. The following pages relay the responses to these concerns.

Figure 27. Evaluation of Face-to-Face Extension Education Approaches.



Areas of Clemson Research that Need to be Initiated or Expanded:

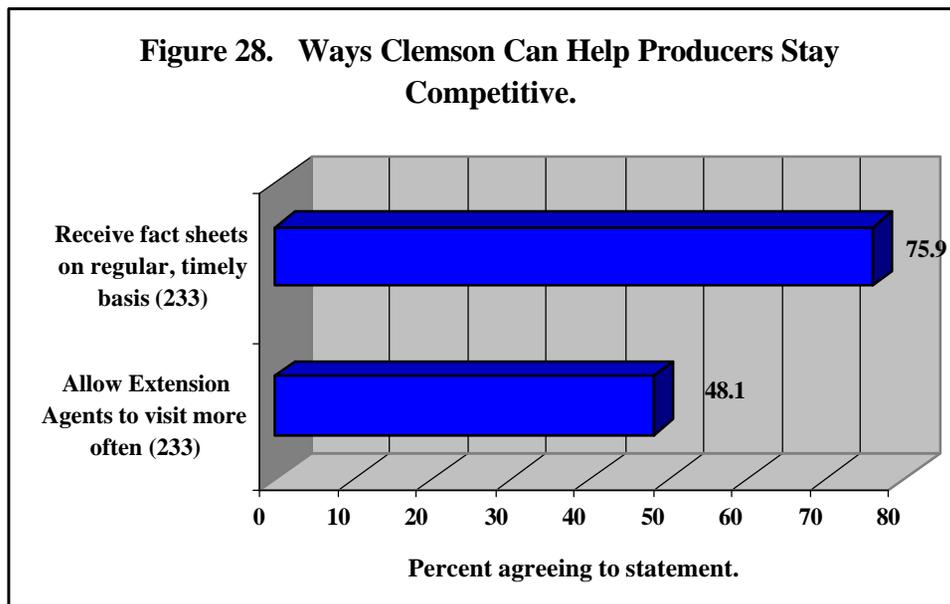
- Yield & grade enhancement for biotechnology;
- Tree production;
- Management and use of waste;
- Marketing for peaches;
- Peach genomics;
- Effects of Round Up and BT on cotton yield;
- Aquaculture;
- Cotton and tobacco;
- Improved soybean varieties;
- Beef and cattle production and markets;
- Diseases on strawberries;
- Fire ant control;
- Dead animal disposal;
- Broiler nutrition, management and marketing;
- Seed variety performance; and,
- New varieties and production practices.

Other Ways Clemson Can Help Producers Stay Competitive:

- Help local nurseries and businesses;
- Connect farmers with K-12;
- Help leadership of youth organizations in agriculture; and,
- Support specialists who work with producers.

By far, producers saw receiving fact sheets on a regular, timely basis as a way that Clemson can help South Carolina producers stay competitive (75.9%; see Figure 28, below). While earlier remarks and ratings indicated a need for farm visits by Extension Agents, just under 50% indicated that more frequent visits by Extension Agents would help them stay competitive.

A summary of open-ended comments appears on the left side of this page. A number of suggestions related to beef and poultry industries and others to improving marketing predominated in the comments.



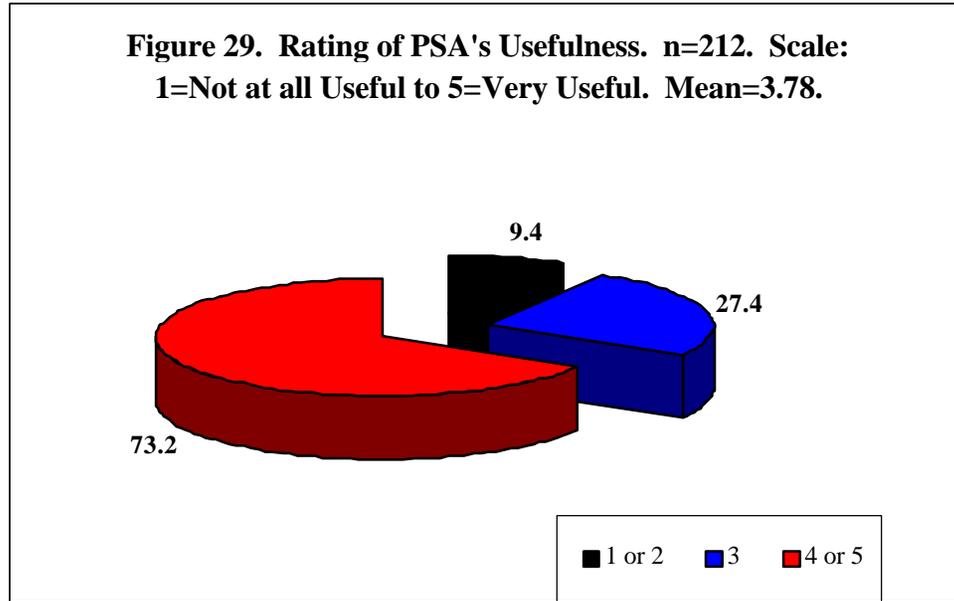
HOW USEFUL IS PSA?

Respondents were asked to rate the usefulness of Clemson’s Public Service Activities and Extension Service in meeting their agricultural production information needs. The scale was 1= “Not at all useful” to 5= “Very useful.” As can be seen in Figure 29 (following page), 73.2% of the respondents gave either a 4 or a 5 out of a possible 5. The mean (n=212) was 3.78.

- Of the 212 respondents who responded to the request that they rate PSA and the Extension Service’s overall usefulness in meeting their needs for agricultural information for their operations, 73.2% gave a rating of 4 or 5 out of a possible high of 5.

- Very few respondents (9.4%) rated PSA/ Extension as not useful in terms of agricultural information.

- Under one-third (27.4%) of the respondents gave PSA/ Extension a mid-range rating of 3 out of a high of 5 and a low of 1.



WHAT IS CLEMSON’S ROLE IN AGRICULTURE IN SOUTH CAROLINA?

Respondents were asked to write in, in open-ended fashion, what they thought Clemson’s role in agriculture is. These responses then were quantified, as can be seen in Figure 30 (following page).

Of the 109 respondents who wrote what they think Clemson’s role in agriculture is, a full one-third (33%) instead used the space provided to write in praises of Clemson’s performance in agriculture. Some referred to Clemson as the best and/or only school for agriculture in the state, while a few others said that Clemson is the best school in the country [for agriculture]. Several said that Clemson has an important role in agriculture and has been very useful over a long period of time. Others wrote that they appreciate Clemson’s helpfulness.

Ten percent of respondents used the space to criticize Clemson. Critics’ comments were to the effect that Clemson does not stay current in agricultural trends and technological changes in agriculture, that too much focus is on gardening and social issues, and that with the decline in agriculture in the state they [the producers] have not found Clemson information useful and have instead been relying on other states’ Extension programs for information and assistance. Others, however, expressed worry over the future of agriculture and agricultural Extension in the state due to state budget cuts and lack of support from the state Legislature.

Of those who specifically addressed their perceptions of Clemson’s role in agriculture in South Carolina, 12%

Praises for Clemson:

- The best/only school for agriculture in the state;
- The best school in the country [for agriculture];
- Very useful over a long period of time;
- Very helpful

Criticisms of Clemson:

- Not current in agricultural trends/ technological changes;
- Too focused on gardening /social issues.

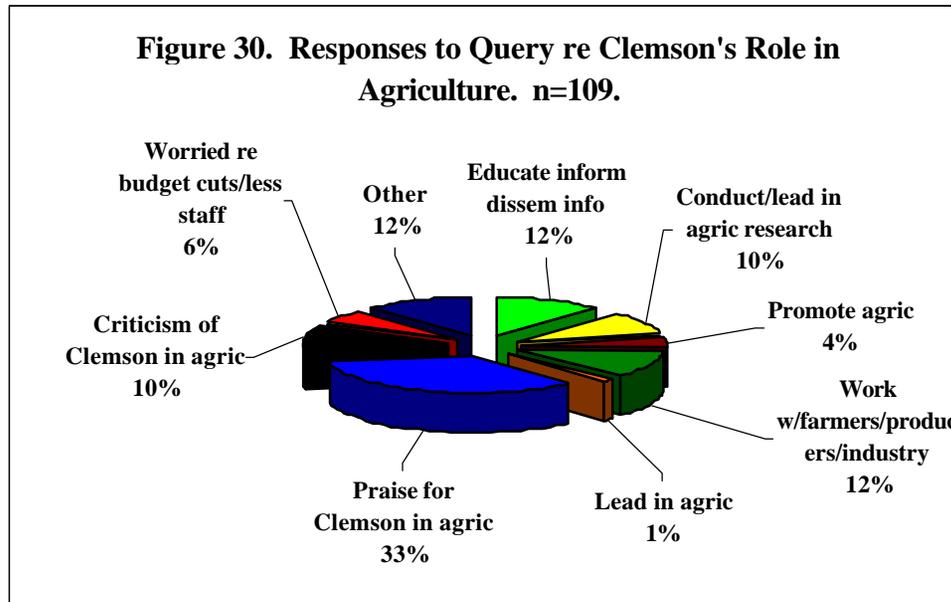
Worry for Clemson's Future:

- Budget cuts;
- Lack of support from Legislature.

Clemson's Role:

- Work with farmers, producers & agricultural industry,
- Educate/ inform;
- Disseminate information;
- Conduct & lead agricultural research;
- Promote agriculture.

wrote that Clemson should work with farmers, producers and the agricultural industry, another 12% said the Clemson should be responsible for educating and informing farmers and producers through the dissemination of agricultural information, 10% said that Clemson should conduct and lead agricultural research, 4% said that Clemson should lead in promoting agriculture in the state and to consumers, and 1% said that Clemson should lead in agriculture.

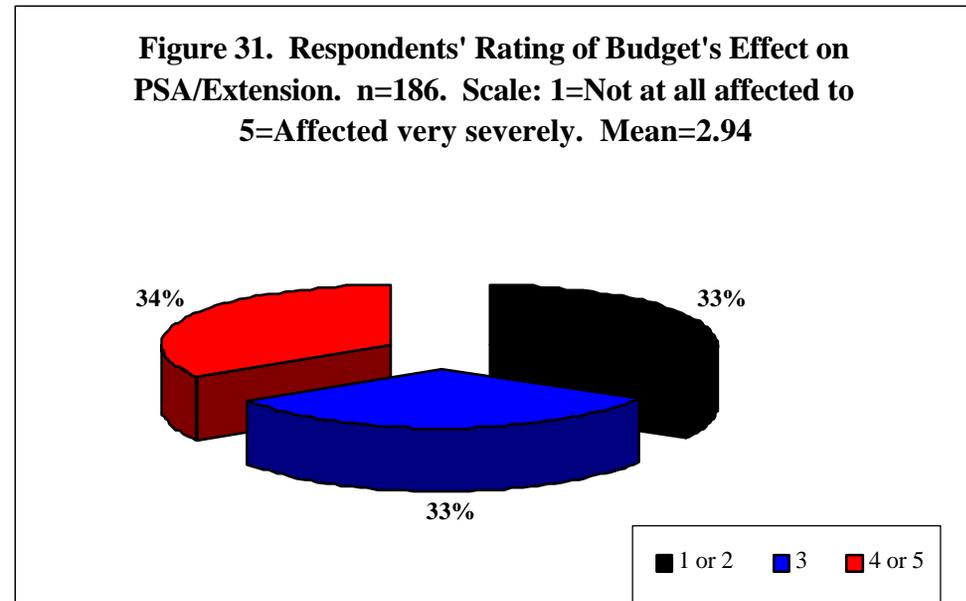


Twelve percent of respondents gave other responses to Clemson's role. These tended to be very specific to their own operations, and did not speak to a statewide role for Clemson in agriculture.

AFFECTED BY BUDGET CUTS?

Respondents were asked to rate the degree to which state budget cuts have affected the quality and quantity of service provided to operators via PSA/Extension. The scale was 1= "Not at all Affected" to 5= "Affected very severely".

The 186 respondents to this question were nearly evenly divided on this issue (Figure 31). The mean for this item was 2.94.



CONCLUSIONS

This survey of South Carolina commercial agricultural producers focused on two issue areas: producers' needs and Clemson's role in meeting them.

Producers indicated a need for information regarding pesticides and the control of pests/invasive species, weather forecasts, government regulations, and new production and Best Management practices. Producers tended to prefer traditionally available sources of information such as Clemson Extension Service agents, newsletters, bulletins and brochures, fact sheets, weather services reports, trade magazines and pesticide dealers.

Ownership of personal and business E-mail and Internet accounts was low. Electronically accessible sources of information received relatively low mean scores as sources of information. Respondents also did not see high value in having one portal through which all Extension services in the country can be accessed. Based on the results of the current study, it may be premature to assume that e-CES will supplant time-honored sources and methods of information. Alternatively, these findings may indicate that Clemson Extension should expand their E-communication programs for agricultural producers. This is in light of research indicating that competitiveness in U.S. agriculture increasingly is a function of E-connectedness and the ability to use E-technology.

Clemson resources and information that saw relatively high levels of use during 2002 also tended to be rated higher in quality and helpfulness than those with lower levels of use. Clemson Extension agents, meetings with Clemson, and information on matters such as pesticides, new production practices, and improved seed varieties received higher mean scores than did the "Your Day" public radio program, the "Making it Grow" television program, and information on organic farming, GIS/GPS mapping, and using computers for operations.

Respondents saw Clemson's role in agriculture as including informing producers, conducting research, and promoting agriculture. The overall usefulness rating for PSA/Extension was 3.78 on a scale of 1 for "Of little use" to 5 for "Very useful." Respondents were evenly divided on the degree to which budget cuts had affected the quality and quantity of Clemson services to them and their operations.

RECOMMENDATIONS

It is recommended that decision makers in PSA/Extension carefully review these findings, noting information that can guide decisions about which programs and services to expand or refine, which programs to reduce, and what research to initiate or expand. In addition, it is strongly recommended that PSA/Extension E-connectedness and E-technology outreach for commercial producers be reviewed with an eye toward enhancement to further assist the state's producers in staying competitive in an increasingly global market.

REFERENCES

- Boehlje, M.D. and D. A. King, 1998. "Extension on the brink: Meeting the Private sector challenge in the information marketplace." Journal of Applied Communication, 82(3). Available: <http://www.agcom.purdue.edu/AgCom/EXTonbrink/>
- Diem, K. G., 2002. "Making program choices when resources are limited: Using a self-assessment tool with stakeholders." Journal of Extension, 40(4): 4 pages. <http://www.joe.org/joe>
- Harris, H. M., Jr., M. D. Hammig, J. W. Jordan, D. B. Smith, and E. H. Kaiser, with B. Givan, T. Hewitt, and D. Newman, 1992. "Use and perceptions of Extension programs by farmers in four southeastern states." Publication Number EER 136, Cooperative Extension Service, Clemson University, Clemson, SC.
- Kelsey, K. D. and S. C. Mariger, 2002. "A case study of stakeholder needs for Extension education." Journal of Extension, 49(2): 11 pages. <http://www.joe.org/joe/2002april/rb2.html>
- King, D.A. and M. D. Boehlje, 2000. "Extension: On the brink of extinction or distinction?" Journal of Extension, 38(5): 5 pages. <http://www.joe.org/joe/2000october/comm1.html>
- Martenson, D., 2002. "Creating the base for Extension priority issues." Journal of Extension, 40(5): 4 pages. <http://www.joe.org/2002october/iwl.shtml>
- NASS, 2001. "New report shows increase in farm computer and Internet access." Washington, DC: USDA, National Agricultural Statistics Service. http://www.usda.gov/nass/events/news/comp_use_announcement.html
- NASS, 2003. "Farm computer usage and ownership." Washington, DC: National Agricultural Statistics Service. <http://usda.mannlib.cornell.edu/reports/nassr/other/computer/fmpc0707.txt>
- South Carolina Agricultural Statistical Service. 2001. 2001 Census of Agriculture, Volume 1, Geographic Area Series, Table 1. County Summary Highlights. <http://www.nass.usda.gov/sc/>
- Vander Mey, B. J. 2000, "Preliminary results of a globalization survey conducted in South Carolina." Paper presented at a research meeting of S-276. Greensboro, NC. Currently under revision as part of a book-length manuscript. Available: vanmey@clemson.edu
- Vander Mey, B. J. and R. C. Wimberley, 2001. "Globalization and agricultural change in the United States: An overview of catalysts and concerns." Paper presented at the annual meetings of the Rural Sociological Society, Albuquerque, New Mexico. Available: vanmey@clemson.edu
- Wimberley, R. C., B. J. Vander Mey, B. L. Wells, G. Ejimakor, C. Bailey, L. Burmeister, C. Harris, M. Lee, E. McLean, J. Molnar, G. Ohlendorf, T. Tomazic, and G. Wheelock., 2003. "Food From Our Changing World: The Globalization of Food and How Americans Feel About It." Southern Perspectives, Entire Issue, Winter. Also available at: <http://srdc.msstate.edu>
- Wojan, T. 1999, "Can computer use on the farm build skills for off-farm jobs?" Rural Conditions and Trends, 10(2): 43-49. <http://www.usda.gov/nass/>

CREDITS PAGE

Preferred citation:

Vander Mey, B. J., H. M. Harris, Jr., A. W. Harris and T. Wilburn, with K. L. Hicks and M. Taylor. 2003. **South Carolina Agricultural Producers' Needs and Clemson's Role in Meeting Them: Results of the 2003 Survey.** Agrisystems Productivity and Profitability, Public Service & Agriculture, Clemson University, Clemson, SC, USA.

Inquiries and comments should be addressed to: Dr. Brenda J. Vander Mey, Department of Sociology, Box 341356, Brackett 132, Clemson University, Clemson, SC 29634-1356. Tel: 864.656.3821; E-mail: vanmey@clemson.edu.

Advisors to this project:

James R. Fischer, formerly, Director, SC Agricultural Experiment Station; currently, Board of Directors, Energy Efficiency & Renewable Energy, US Department of Energy, Washington, DC;
Francis J. Wolak, Chief Operating Officer for Clemson University Cooperative Extension Service;
Steven E. Meadows, Resident Director, Edisto Research & Education Center;
Charles W. Davis, Jr., County Extension Agent, Calhoun County, SC;
Russell Duncan, County Extension Agent - Agriculture, Clarendon County, SC;
Gilbert Miller, Area Vegetable Specialist, Edisto Research & Education Center;
Jesse Eargle (retired), Clemson Extension Regional Director.

Special thanks to:

All producers and Extension Agents who participated in the focus groups that culminated in this survey, attendees at the 2003 South Carolina AgExpo, and all producers who took the time and care to participate in this study are given a hearty thanks. LaShonda Cureton is acknowledged for her assistance with data entry.

Disclaimer Statement:

Any opinions, findings, conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of either the USDA or of Clemson University's Public Service and Agriculture.