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Sources and Channels of Information Used by Beef Cattle Producers in 12 Counties of the Northwest Florida Extension District

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Sources and Channels of Information Used by Beef Cattle Producers in 12 Counties of the Northwest Florida Extension District

Abstract

A study was conducted to examine beef cattle producers currently being served by University of Florida IFAS Extension Agents located in county Extension offices of Northwest Florida. This article focuses on the cattle producers' preferences for sources and channels of information. The data show that five combinations of information sources and channels are used by beef cattle producers. The findings can guide education program efforts in the future to better serve the Extension clientele of Northwest Florida.

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Introduction

A study was conducted to examine beef cattle producers currently being served by University of Florida IFAS Extension Agents located in county Extension offices of Northwest Florida. This article reports on a part of the study that examined the sources and channels of information currently used by beef cattle producers of Northwest Florida.

The choice of delivery methods can have an important influence the impact of Extension programs. The effectiveness of delivering Extension programs can be increased by matching the information sources and channels used by Extension to those preferred segments of the clientele (Israel, 1991).

A source is an individual or an institution that originates a message. A channel is the means by which a message gets from the source to the receiver. Understanding the sources used by clientele and the use of appropriate information channels can facilitate a widespread coverage of the target audience. Researchers also recognize that some people use multiple information channels during the adoption process (Rogers, 2003), but few descriptions of both source and channel patterns are found in recent years.

The findings will be used to provide Extension agents of Northwest Florida with a better understanding of beef cattle producer use and perceptions of current information delivery

methods. They can have an important influence on future education program efforts to better serve the Extension clientele of Northwest Florida.

Purpose

The purpose of the survey was to develop a description of the adoption rate of recommended management practices by Extension clientele and the perceived research and educational needs of these beef cattle producers in the panhandle of Northwest Florida. The main objectives of this article are to report on the sources and channels of information preferred by beef cattle producers who use Extension to gain knowledge to operate their farming operations.

Research Methods

A panel of experts including Extension agents and state specialists evaluated the survey instrument to improve the content validity of the data. Jackson County beef cattle producers who serve as advisory committee members were used to pilot test the questionnaire.

A stratified random sample of beef cattle producers of 12 Northwest Florida counties was selected from the county Extension offices' mailing lists. Of the 1,684 names on the mailing lists, 842 beef cattle producers were selected for the survey. This number was selected with the expectation of obtaining at least 400 responses, yielding a sampling error of +/- 5 percentage points for a yes/no question.

Based on Don Dillman's (2000) work, the data collection procedures for the self-administered mail survey included a pre-survey postcard alerting producers to be on the lookout for the survey, a cover letter from corresponding agents accompanying the actual survey instrument, a reminder post card sent to non-responders, and a second survey and cover letter sent to non-respondents. To encourage a higher response rate, agents from each county provided cover letters on their own letterhead to the producers in their counties. Familiarity with the local agent was expected to provide a higher response rate than would a request by an unknown researcher. Pre-paid postage return envelopes were also provided.

There were 411 surveys returned, but because many of the county mailing lists were not coded to identify producers and non-producers, only 264 of the respondents reported being involved as the owner or manager of a beef cattle operation in 2002. The 264 responses have a sampling error of +/- 6% for the 1,948 beef cattle producers reported in the 2002 Census of Agriculture (National Agricultural Statistical Service, 2004).

More of the respondents had a herd with 20 or more (71%) than the population of producers (39%, per the 2002 Census), which means that there is some nonresponse bias in the data. Because this can cause concern about the applicability of the results to populations beyond the producers included in the study, the data analysis used weights to adjust for nonresponse bias. That is, the responses of producers who had small herds were counted more and those with larger herds counted less to offset the bias.

The data was analyzed using descriptive statistics and canonical correlation. Canonical correlation is a multi-variate method used to identify relationships between a set of predictor variables (information sources) and a set of response variables (information channels) (Levine, 1982). This method can be used to see which particular information sources predict the use of a specific combination of channels *simultaneously* (rather than analyzing a separate model for each channel with multiple regression).

The analysis identifies the combination of sources and channels with the largest canonical correlation first, and then subsequently smaller correlations are estimated which are independent of the previous ones (i.e., orthogonal). Through the process of calculating significant canonical correlations, the set of many-to-many associations between source and channels is revealed. All analyses were conducted using the SAS System for Windows, Version 9, statistical software (SAS Institute, 2002).

Results

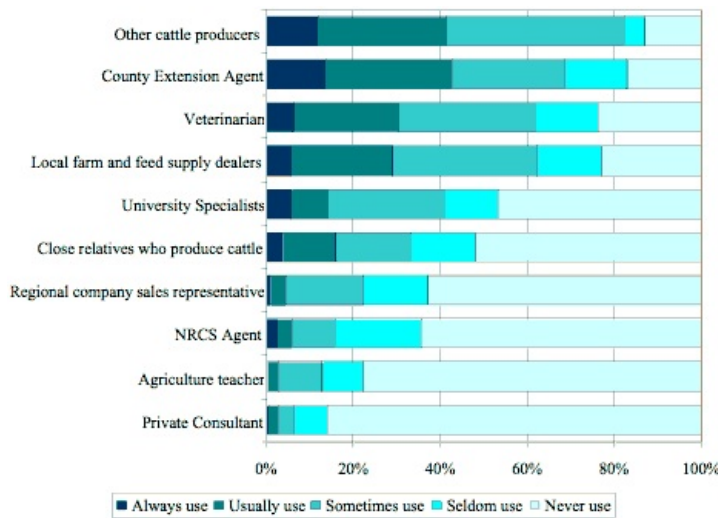
Of the survey respondents who were involved in a beef cattle operation in 2002, 264 identified themselves as the owner, manager, overseer, or operator.

Sources of Information for Beef Cattle Producers

Respondents rated the sources of information they rely on for information on a scale from 0 to 4 (0 - never use, 1- seldom use, 2- sometimes use, 3- usually use, 4 - always use). Many producers indicated that they valued the opinions and ideas of other producers, family members, and neighbors. These sources of information consistently rank very high in this category over the past 50 years (Vergot, 1991). The beef cattle producers value the information provided by county Extension agents, veterinarians, local farm supply dealers, and university specialists. Veterinarians rank high as a source due to the fact that cattle producers rely highly on their expertise for most of the cattle herd health maintenance and diagnosis after animal accidents and death of an animal.

Survey results of the sources of information that the beef cattle producers utilize are displayed in Figure 1. Other cattle producers and county Extension agents percentages were ranked consistently higher than other sources in the "usually use" and "always use" categories and ranked consistently lower in the "never use" category.

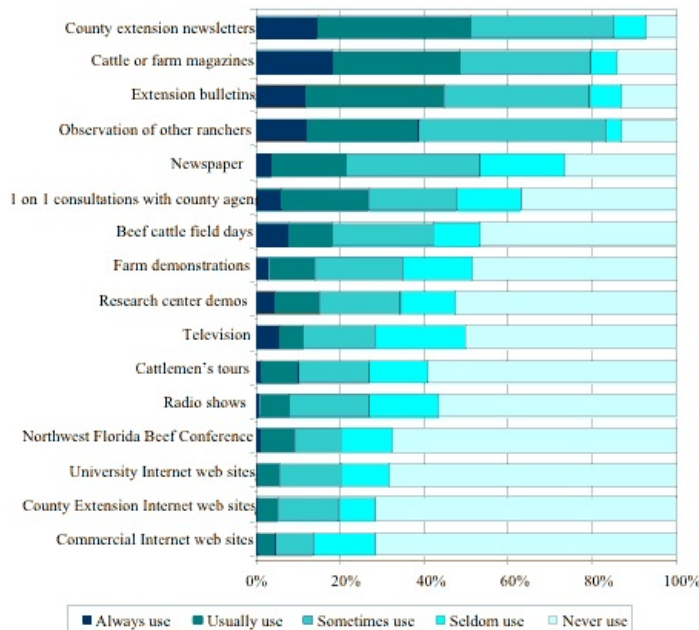
Figure 1.
Preferred Sources of Information by Beef Cattle Producers



Channels of Information Used by Beef Cattle Producers

Printed information such as Extension newsletters was cited as the channel most often used for information; this again is consistent with results from many studies completed over the past 50 years (Vergot, 1991). Producers' preferences of the channels to obtain information on beef cattle production practices or management problems are displayed in Figure 2. County Extension newsletters, cattle farm magazines, and Extension bulletins were ranked consistently higher in the "usually use" and "always use" categories and consistently ranked lower in the "seldom use" and "never use" categories.

Figure 2.
Preferred Channels of Information by Cattle Producers



Patterns of Information Sources and Channels

The canonical correlation analysis shows that cattle produces can be divided into at least five distinct groups that have preferred sources and channels of information, as indicated by the canonical correlations at the bottom of Table 1 (all are significant at the .05 level). The trace and redundancy statistics show the proportion of common variance within the sets of variables and between sets of variables, respectively.

For the combination with the largest canonical coefficient, 23.1% of the variance in information sources is accounted for and 15.9% of the variance in these sources is due to relationships with information channels. Likewise, 32.4% of the variance in information channels is accounted for by the first combination and 22.3% of the variance in the channels is due to relationships with information sources. The five combinations identified in the analysis account for 59.7% of the

variance within information sources and 53.7% of that within information channels. Also, a total of 28.5% of the variance in information sources and 28.7% of the variance in information channels can be attributed to relationships between the two sets.

The first column group of the standardized canonical coefficients has the largest canonical correlation (.829). The standardized canonical coefficients indicate the contributions of each variable to each combination of sources and channels. Note that the standardized canonical coefficients most closely related to a combination of sources and channels are bolded.

With this group of beef cattle producers we can see that the county Extension agents and specialists are the most important, primarily through consultations with the agent. The results also suggest that this group of cattle producers preferred to learn by using the channels of Extension bulletins and fact-sheets, via radio and research center demonstrations. While producers who used Extension agents and specialists most often favored a few information channels, this group also accessed information using all of the channels included in the study (data not shown).

While the first set of relationships represented by the canonical correlation show the "typical" Extension client who uses a wide variety of information channels, the second column of standardized canonical coefficients identifies a group of beef cattle producers who prefer to gain information from other producers in the area with similar cattle operations and from local farm and feed supply dealers. This group also prefers to use the channels of observing what other local ranchers in the area do on their farms and gaining information through commercial Web sites over other types of channels of information.

The third column group of the standardized canonical coefficients, with a weaker proportion of variance, may be from the group of beef cattle producers who, heretofore, have not relied on Extension agents or specialists. This group uses the sources of close relatives who produce cattle, Natural Resource Conservation Service agents, local farm and feed supply dealers, and private consultants. They use the information channels of commercial Web sites, research center demonstrations, and farm demonstrations.

The fourth and fifth columns of the standardized canonical coefficients suggest groups of producers who rely primarily on external experts (those being outsiders). One group goes to regional company sales representatives and university specialists. This group of cattle producers uses the channels of university Web sites and the Northwest Florida Beef Conference and Trade Show. This group also uses the channels of newspaper articles, commercial Web sites, and beef cattle or forage field days. The second group gets information from state specialists, vocational agriculture teachers, and regional company sales representatives. This group of cattle producers uses the channels of university and county-based Web sites, as well as cattlemen's tours and radio shows.

Table 1.

Canonical Correlation results for Information Sources (X variables) and Channels (Y variables)

Sources of Information	Standardized Canonical Coefficients				
	Extension agents & specialists	Area producers & suppliers	Family and others	External experts (not local)	External experts & ag tch
Other cattle producers in the area	.121	.775	-.590	.169	-.189
Close relatives who produce cattle	.098	-.095	.497	-.361	.218
Veterinarian	.191	-.076	-.196	-.449	.127
Local farm & feed supply dealers	-.022	.297	.307	-.434	.187
Regional company sales representative	.068	.151	.153	.539	.407
County Extension Agent	.491	-.364	-.386	-.421	-.542

University Specialists	.359	-.082	-.181	.461	.792
Natural Resource Cons. Service Agent	.232	.152	.551	.214	-.350
Vocational Agriculture Teacher	.052	.030	.071	-.017	.532
Private Consultant	.022	.001	.320	-.178	-.302
<i>Trace</i>	.231	.134	.084	.084	.063
<i>Redundancy</i>	.159	.072	.020	.023	.011
Channels of Information	Consults	Observe & comm. Web	Comm. Web & demos	Univ. Web & trade shows	Univ. Web & other
Extension bulletins/Fact sheets	.187	-.063	-.345	-.182	-.069
County Extension newsletters	.061	-.294	-.133	.102	-.082
Individual consult with county agent	.389	.009	.226	-.231	-.422
County Extension internet Web site	.131	-.347	.124	-.803	.400
University Web sites	.035	-.025	-.402	.654	.796
Commercial Web sites	.053	.396	.965	.291	-.583
NW FL Beef Conference & Trade Show	.052	.075	-.217	.629	-.305
Cattlemen's tours	.101	-.025	-.119	.253	.368
Beef cattle or forage field days (at the Research Center)	.117	-.163	-.696	.285	-.052
Research center demonstrations	.170	-.240	.598	-.285	.251
Farm demonstrations	-.019	.208	.389	-.381	-.264
Cattle or farm magazines	-.052	-.071	-.190	.065	-.199
Television programs	-.012	.067	.048	-.129	-.210

Newspaper articles	.056	.138	.200	.348	.205
Radio shows	.181	-.161	.052	-.020	.335
Observation of other local ranchers	.139	.886	-.341	-.273	.081
<i>Trace</i>	.324	.056	.042	.046	.068
<i>Redundancy</i>	.223	.030	.011	.011	.011
Canonical correlation	.829	.734	.517	.488	.410
Squared canonical correlation	.687	.539	.267	.238	.168

Conclusions and Implications

County Extension Agents were rated fairly highly overall as a source of information; however, 32% of the survey respondents indicated that they seldom or never utilize their local county Extension agent, even though the producers selected for this study came from county Extension mailing lists. Individual consultations were the best method of channeling information to the top users of Extension agent information. The canonical correlation results show that this reflects the typical Extension client, who relies on a variety of information channels to learn about, test, and confirm information about operating the cattle ranch. The results also identified four other patterns of information sources and channels used by producers. These represent important segments of the total audience for Extension agents.

Based on the findings above, the Northwest Florida livestock Extension agents should consider:

- Delivering information to beef cattle producers using individual consultations of farm visits, telephone contact, and office visits. It is also important to use the channels of Extension bulletins, fact sheets, radio shows, and research center demonstrations.
- Providing training, if possible in cooperation with other sources of information considered important by beef cattle producers, based on information provided by the livestock Extension agent in the area.
- Using multiple channels to approach the same topic. Web sites are a complementary information channel and are a channel used by potential Extension clientele. The choice of the channel in which information is offered can have a tremendous impact on the success of that learning activity.
- Updating information on all channels at the same time. Targeting different types of learners with each type of channel.
- Using technologies or practices that yield highly visible results. Seeing what the neighbor has achieved, how it was achieved, and how they can achieve similar benefits is one of the strongest forces for motivating people to make desirable changes (SeEVERS, Graham, Gamon, & Conklin, 1997).
- Using mass media to target very relevant topics in order to create awareness for Extension clientele who do not call upon the expertise of the Extension agent. Mass media are especially useful with clientele operations that are large and widely spread (Nehiley, 2001).

Suggestions for Further Research

Additional research in this area could be performed to determine if farmers growing or producing different commodities have similar uses of channels and sources. Other efforts could look more in depth at particular sources and channels of information used by farmers.

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