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Evaluation of information transfer between beef producers and Extension Agents in West Virginia

Travis J. Cullen
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Evaluation of Information Transfer between Beef Producers
and Extension Agents in West Virginia

Travis J. Cullen

Thesis submitted to the
Davis College of Agriculture, Natural Resources and Design
at West Virginia University
in partial fulfillment of the requirements
for the degree of

Master of Science
in
Agricultural and Extension Education

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Keywords: Extension, Beef Producers, West Virginia, Extension Agents, Information Transfer

ABSTRACT

Evaluation of Information Transfer between Beef Producers And Extension Agents in West Virginia

Travis J. Cullen

The purpose of this study was to determine how information passes between beef producers and Extension Agents in West Virginia in the areas of teaching methods and program advertisement. A descriptive research design was used to collect the data for this study. The target population was all beef producers and the Agriculture and Natural Resource Extension Agents in West Virginia. The study found that beef producers and Extension Agents tend to be in agreement on both the methods of advertising and teaching. However, the programs beef producers desire differs from those the West Virginia University Extension Service offers.

DEDICATION

This thesis is dedicated to the important people in my life who have always been supportive of everything I have done:

Papaw and Mamaw

Dad and Cindy

ACKNOWLEDGEMENTS

Writing a thesis takes a lot of time, work, and help from many people, I would like to thank those who have helped me achieve this goal.

To Dr. Debby Boone, you have the patience of a saint. While working on my Master's degree you have answered thousands of questions about everything. Thank you for always taking the time out of your busy day to answer those questions, and having the confidence in me to reach this goal.

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To Alice Compton, you are the heart of the Ag Ed Department, where would I be without you? This project would have never been completed if it weren't for your contributions and efforts. Thank you for all your help.

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The many people throughout my life that have influenced who I am today, I could never begin to list or name. I have been blessed by each and every one of you and I am who I am today because of you all.

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CHAPTER I

Introduction

The West Virginia beef industry ranks 38th in the nation (National Agricultural Statistics Service, 2007) with nearly 12,000 farms operating in all 55 counties (*Census of Agriculture*, 2007). In beef production, like any other agricultural operation, questions arise. In today's society those questions may be answered using several resources which include a neighbor, a veterinarian, or a farm store employee. However there is one other resource that has been available for over a hundred years, the local West Virginia University Extension Agent.

In 1914 the US Congress passed the Smith-Lever Act which established the Cooperative Extension Service (CES) (Seevers, Graham & Conklin, 2007). The CES is in a cooperative of three partners: the National Institute of Food and Agriculture (NIFA), state government and state land grant universities, and county governments (National Institute of Food and Agriculture, 2009). CES's mission is "...to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture, uses of solar energy with respect to agriculture, home economics, and rural energy, and to encourage the application of the same" (Smith-Lever Act, 2002, sec. 1).

West Virginia University Extension Agents are available to assist people with topics ranging from families and health to 4-H and agriculture. With technology increasing, Extension Agents continue to adopt new methods of marketing their programs. In a study by Neehouse (2005) West Virginia University Extension Agents ranked using the Internet to transfer information third after newsletters and newspapers. Richardson & Mustian (1988) cautioned that Extension should avoid moving too rapidly

into newer impersonal forms of communications to meet informational needs of its agricultural audiences. Though agents are using newer forms of technology to get their information out to the community, it is important to not overlook those clients that may not have the newest forms of technology to receive that information. A study at Michigan State University found that only 10% of the farmers in their study received information from the Internet (Suvedi, Lapinski & Campo, 2000).

West Virginia's Beef Industry is very diverse from cow/calf operations to seedstock farms. In the 2007 *Census of Agriculture* there were approximately 12,000 farms with approximately 400,000 beef cattle while the average age of the West Virginia farmer was 58.1 years of age. With West Virginia's beef industry so diverse, how are Extension Agents reaching out and adapting their programs to the individual beef operations? Do Extension Agents offer programs for both small and large scale operations? By understanding what the beef producers' preferences are in the way of programs, teaching methods, and information transfer, Extension Agents will better adapt their programs, communication methods, and in return increase the average attendance for programs relating to West Virginia's beef industry.

Purpose and Objectives

The purpose of this study was to determine whether information from the West Virginia University Extension Service being disseminated to the West Virginia beef producers through appropriate programming and advertising. The primary objective of this study was to determine whether Extension Agents are offering programs beef producers want in their counties. The research focused on program advertising, teaching methods, and program offerings.

Research Questions

The objectives of study were reflected in the following research questions:

1. What methods are West Virginia University Extension Agents using to inform beef producers about upcoming programs and new technologies relating to the beef industry?
2. How do beef producers prefer to hear about Extension programs?
3. What methods do West Virginia University Extension Agents use to teach their programs?
4. What are the methods by which West Virginia beef producers prefer to learn?
5. What beef production programs are West Virginia University Extension Agents offering in the state?
6. What programs would the beef producers like to see West Virginia University Extension Service offer in their counties?
7. Are West Virginia University Extension Agents effectively communicating with their county beef producers?

Limitations of Study

The study was limited to beef producers that have participated in the following: Weston & South Branch Livestock Market Sales, Southern Bull Test, Beef Quality Assurance Program, members of the West Virginia Cattleman's Association, and State Livestock Roundup.

CHAPTER II

Review of Literature

The Cooperative Extension Service (CES) is made up of the United States Department of Agriculture (USDA), land-grant universities, and county administrative units (Seevers, Graham & Conklin, 2007). From the beginning the goal of the CES has been to use technology and information to assist people and improve their quality of life (Houghton, Arrington, & Bradshaw, 1994).

Advertisement for Programs

Warner (1996) found that when asked if people had ever heard of the CES, only 45% said they had; this was an increase of 40% from 1982. When people were asked if they were aware of Extension agriculture programs or 4-H programs, 4-H had the greatest response of 69%, where only half the respondents were aware of agriculture programs. Farmers have also viewed Extension agriculture research and programs skeptically (Gerber, 1992). A study by Habeeb, Birkenholz, and Weston (1987) reported that persons who are more innovative tend to be less satisfied with Extension's information, specialists, and agriculture education programs. Before a program can become successful, people must be made aware of the program itself. Extension programs can be marketed using a four step plan. Step one, conduct audience inventories, step two define your goals and specify your objectives, step three is to decide on the nature of your message, and finally step four is to decide on the appropriate media (Nehiley, 2001). Burrows (2008) found it was highly effective to promote Extension programs by setting up a booth at the local farmers market. The booth provided a high profile, but didn't require a lot of expense. Rexroad (2002) found that most people become aware of other

programs through attendance at other Extension programs, followed by referrals from friends and through reading newspapers.

Teaching Methods Used During Programs

An Extension Agent's job is to provide information for their clients about the newest and latest agricultural practices. A study by Peters (1998) found four key factors that lead to adoption, including credibility, mutual trust, farm demonstrations, and communications. Though the agents must use these factors, the actual rate of adoption varies; although there are several methods which can be used in teaching adults. It is essential to use the right teaching methods, Riesenbergs & Gor (1989) found that teaching methods should vary depending upon the age of the farmer, size of operation, and the educational status of the farmer. Younger farmers, as well as those with a college education, prefer to use computers to learn. Richardson and Mustian (1988) found that newsletters, followed by farm visits and meetings were the most popular teaching methods among farmers in North Carolina. Chizari, Karbasioun, & Linder (1998) found that demonstrations were the most effective way to teach adults, where the least favorable methods were lecture and presentations. Nelson (2008) also found that demonstrations were the most preferred method of teaching for dairy producers in Pennsylvania. Factors that often affect the learning process of the clientele are the lack of facilities or teaching equipment (Chizari et al, 1998). Gamon, Harrold and Creswell (1994) looked at the rates of acceptance of new practices and found there were no differences between farmers who do and do not attend programs.

West Virginia Beef Producers and Technology

Over the last decade the way farmers can obtain information has changed rapidly. A study conducted by Iddings and Apps (1990) focused on how farmers felt about using

computers. Their study found that farmers felt they were too old to learn the skills to use a computer. On the contrary, Findlay, Zabawa, Morris, & Oben (1993) found that farmers were willing to learn more about computers, if training was available. A study conducted by Batte (2004) focused on the rate farmers have adopted the use of computers. Batte also found that the rate of adoption varied among the following demographics: age, gross sales, and education. Farmers under the age of 50 (54%) were more likely to use a computer, where farmers over 50 (22%) were less likely to have computers on their farms. It was also found that 72 percent of farms with a gross sale of \$500,000 or more used computers in their operations, where 24 percent of farms with sales under \$250,000 (21.4%) used computers on their farms. Education also had an influence on computer adoption. Sixty-seven percent of farmers with post high school education were computer users (Batte, 2004).

The West Virginia beef industry is worth an estimated 1.6 million dollars, made up of more than 400,000 cattle on 12,000 farms operating in all fifty-five counties (National Agricultural Statistic Service, 2008). West Virginia's average size farm is about 157 acres, down nine percent from 172 acres in 2002. While the average farmer's age in West Virginia is 59 years of age, using the computer as a primary source may be out of the question (*Census of Agriculture*, 2007).

Summary

Studies relating to the overall themes of the research questions proposed for this study vary in age. Research on beef producer's preferences on delivery methods has been conducted over several years, while research relating to how Extension Agents prefer to transfer their information has been conducted is more recent. No studies were found that link beef producer's preferences to Extension Agent's preferences.

CHAPTER III

Methodology

Purpose and Objectives

The purpose of this study was to determine whether information from the West Virginia University Extension Service being disseminated to the West Virginia beef producers through appropriate programming and advertising. The primary objective of this study was to determine whether the Extension Agents are offering the programs beef producers want in their counties. The research focused on program advertising, teaching methods, and program offerings.

Research Questions

The objectives of study were reflected in the following research questions:

1. What methods are West Virginia University Extension Agents using to inform beef producers about upcoming programs and new technologies relating to the beef industry?
2. How do beef producers prefer to hear about Extension programs?
3. What methods do West Virginia University Extension Agents use to teach their programs?
4. What are the methods by which West Virginia beef producers prefer to learn?
5. What beef production programs are West Virginia University Extension Agents offering in the state?
6. What programs would the beef producers like to see West Virginia University Extension Service offer in their counties?
7. Are West Virginia University Extension Agents effectively communicating with their county beef producers?

Research Design

A descriptive research design was chosen to evaluate the research questions for the study. According to Ary, Jacobs, Razavieh, Sorensen (2006), surveys allow the researcher to measure the attitudes and opinions of the respondents to collect information from a sample of the target population. Surveys allow the population to be reached regardless of location.

With survey research there are five errors that need to be controlled. To avoid frame error for the beef producers a list was created from six participant lists: the Southern Bull Test, Beef Quality Assurance Program, members of the West Virginia Cattleman's Association mailing list, participants in the South Branch and Weston livestock markets, and State Livestock Roundup participants. The beef producer list was then cleared of all duplicates. To control frame error for the Extension Agents, the official list was obtained from the West Virginia University West Virginia University Extension Service. To avoid sample error producers were randomly selected using SPSS statistical software; and a census was taken of all agents responsible for Agriculture and Natural Resources, or in charge for single agent counties.

Selection error was avoided by randomly selecting additional beef participants. These participants were added to the participant list if a duplicate was found. To control measurement error the instruments were tested for reliability and validity.

To avoid non-response error, a comparison was conducted to find the differences between early and late respondents using the Pearson Chi-Square. The variables included herd size, years of operation, and age. The Chi-Square showed no significant differences between the variables, therefore generalizations for both beef producers and Extension Agents could be made for the total population.

Population

The target population for this study was Extension Agents responsible for Agriculture and Natural Resources programming and those Extension Agents in single agent charge single agent counties. A census was conducted of 53 agents responsible for Agriculture & Natural Resources programming for the 55 counties.

The second target population for this study was all beef producers in West Virginia. Due to the lack of availability of an official list of beef producers for state of West Virginia, the accessible population was selected from a compiled list of participants in the Southern Bull Test, Beef Quality Assurance Program, members on the West Virginia Cattleman's Association mailing list, participants in the South Branch and Weston livestock markets, and State Livestock Roundup (N = 4600). The Krejcie and Morgan guidelines (1960) were used to determine the sample size of the beef producers (n = 365).

Instrumentation

Two different instruments were used in this study; one was designed for beef producers and one for WVU Extension Agents in West Virginia. The surveys were adapted from two instruments created by Nelson (2008) and used with Extension Agents and dairy producers in Pennsylvania. Because the attitudes were to be determined and the size of the population, the most appropriate type of survey was the survey of intangibles. This type of survey allows for public opinions without coming into contact with the participants.

The Extension Agent instrument was broken into three parts. The first part consisted of Likert-type questions designed to determine the agents' performance, advertising and teaching methods, and the type of beef programs they offer. The

questions had six responses available. The responses included strongly agree, moderately agree, agree, disagree, moderately disagree, and strongly disagree. The neutral response was purposely omitted as recommended by Ary et al., (2006) to ensure that an opinion was given for each question to determine attitudes. The second section consisted of a set of open-ended questions used to determine Extension Agent's perception of the demographics of the beef producers in their area and beef producers' use of the West Virginia University Extension Service. The final section of the instrument was for comments.

The beef producers' instrument was also broken into three parts. Like the Extension agent instrument the first part consisted of Likert-type questions. These questions were designed to evaluate their county's Extension Agent, how they receive information from their agent and producers preferences for how they receive information, as well as what programs, topics, and teaching methods they prefer be used. These questions had six or seven responses including strongly agree, moderately agree, agree, disagree, moderately disagree, strongly disagree, and not applicable. Again the neutral response was omitted to ensure an opinion. The second section consisted of open-ended type questions used to determine the producers use the West Virginia University Extension Service and their farm's demographics. The final section of the instrument was for comments.

Validity of the Instrument

The instruments were presented to a panel of faculty members in the Agricultural and Extension Education department and Extension Specialists at West Virginia University to establish its content and face validity. Each individual on the panel had

extensive teaching or Extension experience. The panel determined that the instruments had content and face validity.

Reliability of the Instrument

The reliability of the Extension Agents' instrument was determined using the final data set. Because the data consisted of nominal and ordinal scale responses, the Spearman Brown split half statistic was used to establish the instrument's reliability. The reliability was found to be exemplary with the coefficient of 0.95 (Robinson, Shaver, & Wrightsman, 1991). The instrument was established as a reliable measure.

The reliability of the beef producers' instrument was determined using the final data set. Because the data consisted of nominal and ordinal scale responses, the Spearman Brown split half statistic was used to establish the instrument's reliability. Reliability was found to be exemplary with a coefficient of 0.86 (Robinson, Shaver, & Wrightsman, 1991). The instrument was established as a reliable measure.

Data Collection

Dillman's Tailored Design Method (2007) was adopted for this study. A packet was mailed on January 11, 2010 with the following: a cover letter explaining the purpose of study, the instrument, and a pre-paid self-addressed envelope. Participants were given a deadline of January 25, 2010 to return the questionnaire. A second mailing was sent to all non-respondents on January 29, 2010. This packet consisted of a second cover letter, a second instrument, and a pre-paid self-addressed envelope. These individuals were given a second deadline of February 12, 2010.

Data Analysis

The data were entered into an Excel spreadsheet. The data were then transferred to SPSS for analysis, and the significance level was set *a priori* at $\leq .05$ for all statistical

tests. Frequency tables were generated for both instruments. A difference of means *t*-test was then used to compare means for beef producers and Extension Agents.

CHAPTER VI

Findings

Purpose and Objectives

The purpose of this study was to determine whether information from the West Virginia University Extension Service is being disseminated to the West Virginia beef producers through appropriate programming and advertising. The primary objective of this study was to determine whether the Extension Agents are offering the programs beef producers want in their counties. The research focused on program advertising, teaching methods, and program offerings.

Research Questions

The objectives of study were reflected in the following research questions:

1. What methods are West Virginia University Extension Agents using to inform beef producers about upcoming programs and new technologies relating to the beef industry?
2. How do beef producers prefer to hear about Extension programs?
3. What methods do West Virginia University Extension Agents use to teach their programs?
4. What are the methods by which West Virginia beef producers prefer to learn?
5. What beef production programs are West Virginia University Extension Agents offering in the state?
6. What programs would the beef producers like to see West Virginia University Extension Service offer in their counties?
7. Are West Virginia University Extension Agents effectively communicating with their county beef producers?

Findings

The first target population for this study consisted of beef producers in West Virginia. The sample population of 365 was randomly selected. Ten were returned as undeliverable, five were returned as deceased, and eight producers had sold out, or went out of business making the sample population 342. Out of the 342 questionnaires 142 (42%) were returned.

The second target population for this study consisted of an Extension Agent from each county in West Virginia County. The sample population was a census of all agents responsible for Agriculture and Natural Resources, or agents in charge of single agent counties (N = 51). Five counties in West Virginia reported they do not offer beef programs making the total sample size of Extension Agents offering beef programs 46. Of the 46 questionnaires, 40 (87%) were returned.

Beef Producers

Beef producers were asked to evaluate their West Virginia University (WVU) Extension Agent's beef cattle knowledge and programs related to beef production. One hundred fourteen participants (90.4%) were in agreement that their WVU Extension Agent offers programs in beef production. Fifty-seven (45.2%) strongly agreed, 45 (35.7%) agreed, and 12 (9.5%) moderately agreed their WVU Extension Agent offered beef related programs. Six respondents (4.8%) disagreed, three (2.4%) moderately disagreed, and two (1.6%) strongly disagreed to having beef programs offered by their WVU Extension Agent. One participant (.8%) selected not applicable (see Table 1).

One hundred four participants (84.8%) agreed in some way that their WVU Extension Agents were able to answer their beef related questions. Forty-five participants (36%) strongly agreed, 44 (35.2%) agreed, and 17 (13.6%) moderately

agreed. Seventeen participants (13.6%) responded that their WVU Extension Agents could not answer their beef related questions, with 10 participants (8.0%) who disagreed, four (3.2%) moderately disagreed, and three (3.4%) strongly disagreed. Two participants (1.6%) responded not applicable (see Table 1).

West Virginia beef producers were asked if their WVU Extension Agents returned their phone calls in a timely manner. Forty-eight respondents (38.1%) strongly agreed, 31 (24.6%) agreed, and 23 (28.3%) moderately agreed with the statement. Three respondents (2.4%) were in some sort of disagreement. Two respondents (1.6%) disagreed and one (.8%) moderately disagreed that their WVU Extension Agents did not return their calls in a timely manner. Twenty-one (16.7%) participants selected not applicable (see Table 1).

When asked if their WVU Extension Agents returned email in timely manner, 68 (66.7%) responded not applicable with 42 of respondents stating they did not have email. Thirty-two (31.4%) respondents were in some form of agreement with 15 (14.7%) strongly agreeing, 12 (11.8%) respondents agreeing, and five respondents moderately agreeing. Two (2.0%) respondents disagreed that their WVU Extension Agents returned their email in a timely manner (see Table 1).

When asked if West Virginia beef producers attended Extension beef programs in their county, 96 (76.8%) participants were in some form of agreement. Forty-two (33.6%) of the participants agreed, 39 (31.2%) of the participants strongly agreed, and 15 (12.0%) participants moderately agreed. Sixteen (12.8%) were in some form of disagreement about attending Extension beef programs in their county. Eleven (8.8%)

participants disagreed, four (3.2%) moderately disagreed, and one (0.8%) participant strongly agreed. Thirteen (10.4%) participants selected not applicable (see Table 1).

West Virginia Beef producers were asked if Extension programs provided adequate information which would influence them to change their practices. Forty-eight (37.5%) respondents agreed, 39 (31.2%) respondents strongly agreed, and 15 (12.0%) moderately agreed. Eleven (8.6%) respondents were in some form of disagreement that Extension programs provided adequate information which would influence them to change their practices. Six (4.7%) respondents disagreed, three (2.3%) respondents strongly disagreed, and two (1.6%) respondents moderately disagreed. Seven (5.5%) respondents selected not applicable (see Table 1).

When asked if their local Extension agent is knowledgeable about beef production, 43 (33.9%) producers strongly agreed, 40 (31.5%) producers agreed, and 19 (15.0%) producers moderately agreed. Twenty (15.7%) producers were in some form of disagreement and felt their Extension agent was not knowledgeable about beef production. Twelve (9.4%) producers disagreed, five (3.9%) producers strongly disagreed, and three (2.4%) producers moderately disagreed. Five (3.9%) producers selected not applicable (see Table 1).

Table 1

Evaluation of Local Extension Agent and WVU Extension Programs

	Not applicable		Strongly Disagree		Moderately Disagree		Disagree		Agree		Moderately Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Offers programs in beef production	1	.8	2	1.6	3	2.4	6	4.8	45	35.7	12	9.5	57	45.2
Able to answer beef production questions	2	1.6	3	2.4	4	3.2	10	8.0	44	35.2	17	13.6	45	36.0
Returns telephone calls in a timely manner	21	16.7	0	.0	1	.8	2	1.6	31	24.6	23	18.3	48	38.1
Returns emails in a timely manner	68	66.7	0	.0	0	.0	2	2.0	12	11.8	5	4.9	15	14.7
I attend Extension beef programs in my county	13	10.4	1	.8	4	3.2	11	8.8	42	33.6	15	12.0	39	31.2
Extension programs provide adequate information	7	5.5	3	2.3	2	1.6	6	4.7	48	37.5	30	23.4	32	25.0
Local Extension agent is knowledgeable about beef production	5	3.9	5	3.9	3	2.4	12	9.4	40	31.5	19	15.0	43	33.9

West Virginia beef producers were asked how they preferred to receive information about upcoming Extension programs. The top five methods of advertisement beef producers preferred were: mail with 124 (98.4%) respondents; newsletters with 118 (96.7%) respondents; flyers with 96 (87.3%) respondents; personal visits with 96 (86.5%) respondents; and newspapers with 96 (84.2%) respondents. Respondents also showed interest in phone (70.6%), email (66.7%), Internet (66.7%), television (68.9%), and radio (64.8%). Three respondents indicated other selections writing in farm visits, this would be the same as personal visits (see Table 2).

West Virginia beef producers were also asked how they received information about upcoming Extension programs. The top five methods of advertisement by which beef producers receive information were: mail with 109 (97.3%) respondents; newsletters with 89 (84.8%) respondents; word of mouth with 84 (82.4%) respondents; newspapers with 79 (77.5%) respondents; flyers with 74 (77.9%) respondents; and personal visits with 54 (58.7%) respondents. Respondents also indicated they received information about upcoming programs by phone (56.5%) and email (50.0%). Three respondents (100.0%) indicated other selections writing in farm visits, this would be the same as personal visits (see Table 2).

Table 2

West Virginia Beef Producers Preferences to Receive Advertisements about Extension Programs

	Prefer				Receive			
	Disagree		Agree		Disagree		Agree	
	N	%	N	%	N	%	N	%
Email	30	33.3	60	66.7	41	50.0	41	50.0
Mail	2	1.6	124	98.4	3	2.7	109	97.3
Phone	32	29.4	77	70.6	40	43.5	52	56.5
Word of mouth	27	24.1	85	75.9	18	17.6	84	82.4
Newspapers	18	15.8	96	84.2	23	22.5	79	77.5
Newsletters	4	3.3	118	96.7	16	15.2	89	84.8
Radio	37	35.2	68	64.8	45	50.6	44	49.4
Internet	31	33.3	62	66.7	49	57.6	36	42.4
Television	32	31.1	71	68.9	49	55.1	40	44.9
Flyers	14	12.7	96	87.3	21	22.1	74	77.9
Personal visits	15	13.5	96	86.5	38	41.3	54	58.7
Other	0	0.0	3	100.0	0	0.0	3	100.0

West Virginia beef producers were asked what teaching methods they prefer when attending Extension programs. The top three teaching methods were: demonstrations preferred by 128 (100%) producers, lectures were preferred method of 123 (97.7%) producers, and 54 (94.2%) producers preferred individual consultation. The next three preferred teaching methods were: discussion indicated by 117 (93.6%)

producers; while, 105 (92.9%) producers choose fact sheet method; and 108 (91.6%) producers selected showing DVDs/Videos. Followed by 92 (82.1%) producers who preferred use of books; 71 (70.3%) producers indicated they preferred the teaching or demonstration of computer software; and 59 (59.6%) producers indicated they prefer Internet as a teaching method (see Table 3).

Table 3

Teaching Methods Beef Producers Prefer to Learn

	Strongly Disagree		Moderately Disagree		Disagree		Agree		Moderately Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%	N	%
Demonstration	0	.0	0	.0	0	.0	32	25.0	17	13.3	79	61.7
Lecture	2	1.6	4	3.2	2	1.6	65	52.0	22	17.6	30	24.0
Discussion	0	.0	2	1.6	1	.8	49	38.9	30	23.8	44	34.9
Internet	9	9.1	2	2.0	29	29.3	42	42.4	8	8.1	9	9.1
Fact Sheets	3	2.7	1	.9	4	3.5	50	44.2	23	20.4	32	28.3
Showing video-DVD	4	3.4	1	.8	5	4.2	39	33.1	32	27.1	37	31.4
teaching &/or demonstrating computer software	6	5.9	5	5.0	19	18.8	44	43.6	16	15.8	11	10.9
Books	4	3.6	2	1.8	14	12.5	58	51.8	23	20.5	11	9.8
Individual consultation	0	.0	0	.0	7	5.8	48	39.7	19	15.7	47	38.8

West Virginia beef producers were asked what West Virginia Extension beef programs they were interested. The top four programs were: herd health management as

indicated by 128 (99.2%) producers, nutrition reported by 122 (98.4%) producers, while 121 (97.6) producers indicated interest in replacement heifer management; and 119 (97.6%) producers showed interest in forage production & management. This was followed by 115 (96.6%) producers who indicated interest in Beef Quality Assurance (BQA) programs; 121 (96.1%) producers reported interest in marketing programs; 114 (95.9%) producers were interested in record keeping; and 114 (95.8%) producers also would prefer programs in facility design. One hundred seventeen (95.1%) producers showed interest in reproduction-fertility management programs; 111 (94.9%) producers indicated an interest in genetic evaluation; 107 (88.5%) producers indicated interest in the Bull Test; and 108 (81.5%) producers had an interest in the Livestock Risk Protection (LRP) program (see Table 4).

West Virginia beef producers were ask to indicate how many beef programs they attend per year. Fifty-four (40.9%) producers indicated they attended one-two programs per year, 38 (28.8%) producers said they attended three-four programs per year, and 11 (8.3%) said they attend five or more programs a year. Twenty-nine (22.0%) producers said they did not attend beef Extension programs (see Table 5).

Table 4

West Virginia Beef Producers Interest in West Virginia Extension Programs

	Strongly Disagree		Moderately Disagree		Disagree		Agree		Moderately Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%	N	%
Beef Quality Assurance	1	.8	0	.0	3	2.5	40	33.6	17	14.3	58	48.7
Livestock Risk Protection	1	.8	4	3.4	5	4.2	49	41.5	21	17.8	38	32.2
Replacement heifer mgt.	0	.0	1	.8	2	1.6	44	35.5	26	21.0	51	41.1
Herd health management	0	.0	1	.8	0	.0	31	24.0	21	16.3	76	58.9
Reproduction-fertility mgt.	0	.0	1	.8	5	4.1	32	26.0	24	19.5	61	49.6
Facilities design	0	.0	1	.8	4	3.4	48	40.3	24	20.2	42	35.3
Marketing	0	.0	2	1.6	3	2.4	38	30.2	17	13.5	66	52.4
Record keeping	2	1.7	1	.8	2	1.7	46	38.7	31	26.1	37	31.1
Nutrition	0	.0	2	1.6	0	.0	34	27.4	25	20.2	63	50.8
Forage production & Mgt.	0	.0	0	.0	3	2.5	30	24.6	23	18.9	66	54.1
Genetic evaluation	0	.0	0	.0	6	5.1	39	33.3	27	23.1	45	38.5
Bull Test	1	.8	3	2.5	10	8.3	38	31.4	25	20.7	44	36.4

Table 5

Number of Beef Extension Programs Attended Per Year as Reported by Producers

	N	%
0	29	22.0
1-2	54	40.9
3-4	38	28.8
5 or more	11	8.3

West Virginia beef producers were asked to indicate what percentage of beef programs reflect their attendance at Extension programming. Sixty-three (48.5%) respondents selected 0-25%, 25 (19.2%) producers selected 25-50 percent, 25 (19.2%) producers selected 51-75 percent and 17 (13.1%) producers indicated beef programs account for 76 percent or more of their Extension programming (see Table 6).

Table 6

Percentage of Extension Programming that are Beef Programs

	N	%
0-25	63	48.5
26-50	25	19.2
51-75	17	13.1
76 or more	25	19.2

West Virginia Beef producers were asked about the size of their herds. Thirty-six (27.1%) producers indicated their herds were between 1-20 head of cattle; 32 (24.1%) producers indicated their herds were between 21-40 head of cattle. Twenty-seven (20.3%) producers indicated their herd size was between 41-60 head of cattle; 19 (14.3%)

producers indicated their herds were made up of over 100 cattle. Thirteen (9.8%) producers said their herds were between 61-80 head; and six (4.5%) producers said their herds were between 81-100 head (see Table 7).

Table 7

Head of Cattle per Farm

	N	%
1-20	36	27.1
21-40	32	24.1
41-60	27	20.3
61-80	13	9.8
81- 100	6	4.5
101 or more	19	14.3

West Virginia beef producers were asked to indicate what type of beef operation they run. One hundred seven (79.9%) producers indicated they operated a commercial cow/calf operation selling feeder cattle; 20 (14.9%) producers indicated they operated a stocker operation and sold as yearlings; 19 (14.2%) producers said they operated a seedstock operation, meaning registered purebred cattle; and 14 (10.4%) producers indicated they operated a commercial cow-calf operation, retaining ownership through slaughter. Seven (5.2%) producers indicated they had other operations including: butcher for self, club calf production, cow/calf breeding, purebred Angus selling bulls and heifers; and six (4.5%) producers said they had a feedlot operation (see Table 8).

Table 8

Types of Beef Cattle Operations

	N	%
Commercial cow-calf selling feeder cattle	107	79.9
Commercial cow-calf retaining ownership through slaughter	14	10.4
Seedstock	19	14.2
Stocker operations as yearlings	20	14.9
Feedlot	6	4.5
Other	7	5.2

West Virginia beef producers were asked to indicate their age range. Sixty-four (49.2%) producers indicated they were 60 years or older; 27 (20.8%) producers were 50-59 years of age, 22 (16.9%) producers indicated they were between 40-49 years of age; 10 (7.7%) producers said they were between 30-39 years old while four (3.1%) producers indicated they were between 20-29 years old; and three (2.3%) producers said they were younger than 20 (see Table 9).

When asked how many years their operation had been in business, 92 (70.2%) producers indicated they had been in business for over 25 years. Eleven (8.4%) producers had been in business for 21-25 years; 11 (8.4%) producers had been in business 16-20 years; eight (6.1%) producers had been in business for 11-15 years; six (4.6%) producers indicated 6-10 years; and three producers said they had been in business 1-5 years (see Table 10).

Table 9

Beef Producers Age Range

	N	%
Younger than 20 years	3	2.3
20-29	4	3.1
30-39	10	7.7
40-49	22	16.9
50-59	27	20.8
60 or older	64	49.2

Table 10

Years of Operation

	N	%
1-5 years	3	2.3
6-10 years	6	4.6
11-15 years	8	6.1
16-20 years	11	8.4
21-25 years	11	8.4
26 or more	92	70.2

West Virginia beef producers were asked to indicate how their local Extension Agent handles beef programming. Sixty (45.8%) producers said their Extension Agent has responsibility for their county only and 30 (22.9%) producers said their Extension

Agent has responsibility for two or more counties. Forty-one (31.3%) producers were not sure (see Table 11).

Table 11

Local Extension Agent, who Handles Beef Programming

	N	%
Has responsibility for my county only	60	45.8
Has responsibility for two or more counties	30	22.9
I am not sure	41	31.3

West Virginia beef producers were asked to rank six sources in which they might go to for beef related questions. The responses were then recoded to create a summed score for each source. The scores were then used to rank the information sources. According to West Virginia beef producers the Extension Agent is the most popular source to use when information is needed, followed by: veterinarians, neighbors, Extension Specialist, farm store employees, and other (see Table 12). The other sources included: family members, the Internet, books, ag teachers, and publications, etc.

The data were analyzed to determine the most popular choice by beef producers of where they would go to get answers to their questions. The most popular sources were, WVU Extension Agents, followed by veterinarians, Extension Specialist, neighbors, farm store employees, and then other sources (see Table 12).

Table 12

How do Beef Producers get Answers to Their Beef Questions?

	Mean	Std Deviation	Sum
WVU Extension Agent	4.72	1.40	415
Veterinarian	4.64	1.25	357
Neighbor	4.03	1.44	294
Extension Specialist	4.15	1.50	282
Farm Store Employee	3.51	1.38	228
Other	5.07	1.44	142

Extension Agents

Extension Agents were asked to evaluate themselves and their Extension programs related to beef production. Thirty-one (83.8%) agents were in some level of agreement that they offered Extension programs related to beef production. Twenty-three (62.1%) agents strongly agreed, four (10.8) agents moderately agreed, and four (10.8%) agents agreed they offered Extension programs relating to beef. Six (16.2%) agents were in some level of disagreement that they offered Extension programs related to beef production. Five (13.5%) agents strongly disagreed, and one (2.7%) agent moderately disagreed that they offer Extension programs related to beef production (see Table 13).

West Virginia University Extension Agents were asked if they could answer most questions about beef production and 31 (86.1%) agents were in some form of agreement. Thirteen (36.1%) agents strongly agreed, 10 (27.8%) agents moderately agreed, and eight (22.2%) agents agreed that they could answer most questions related to beef production. Five (14%) agents were in some form of disagreement that they could answer most beef

questions. Two (5.6%) agents strongly disagreed, two (5.6%) agents moderately disagreed, and one (2.8%) agent disagreed in being able to answer most questions about beef production (see Table 13).

When asked if West Virginia University Extension Agents return beef producers phone calls in a timely manner, 37 (100%) were in some form of agreement. Twenty-seven (73.0%) strongly agreed, five (13.5%) agents moderately agreed, and five (13.5%) agents agreed that they return beef producers phone calls in a timely manner (see Table 13).

West Virginia University Extension Agents were asked if they returned beef producers' emails in a timely manner, Thirty-eight (100%) Extension Agents were in some form of agreement. Twenty-eight (80.0%) agents strongly agreed, four (11.4%) agents agreed, and three (8.6%) agents moderately agreed in returning beef producer's emails in a timely manner (see Table 13).

When ask if beef production programs offered in their counties were well attended, 28 (82.3%) agents were in some form of agreement. Ten (29.4%) agents strongly agreed, 10 (29.4%) agents moderately agreed, and eight (23.5%) agents agreed that beef production programs were well attended. Six (17.6%) agents were in some form of disagreement, three (8.8%) agents strongly disagree, two (5.9%) agents disagree, and one (2.9%) agent moderately disagree that their beef production programs were well attended (see Table 13).

West Virginia University Extension Agents were asked if beef production practices taught were readily accepted. Twelve (37.5%) agents agreed, eight (25.0%) agents moderately agreed, and four (12.5%) agents strongly agreed that beef production

practices taught were being readily accepted. Six (18.8%) agents disagreed, one (3.1%) agent moderately disagreed, and one agent (3.1%) strongly disagreed that beef production practices being taught were being readily accepted (see Table 13).

When asked if West Virginia University Extension Agents consider beef production one of their specialty areas, twenty-one (55.3%) agents were in some form of agreement. Twelve (31.6%) agents strongly agreed, six (15.8%) agents agreed, and three (7.9%) agents moderately agreed that they consider beef production as one of their specialty areas. Seven (18.4%) agents strongly disagreed, six (15.8%) agents disagreed, and four (10.5%) agents moderately disagreed that beef production was one of their specialty areas (see Table 13).

West Virginia University Extension Agents were asked what methods of advertisement they use to promote beef programs. The top four methods of advertising reported were: word of mouth (97.1%), newspapers (97.0%), mail (94.3%), and newsletters (81.9%). This was followed by personal visits (81.8%), phone (79.9%), flyers (72.7%), and other sources (50.0%). The least reported methods of advertising Extension Agents prefer to use were: email (49.9%), Internet (45.5%), radio (36.4%), and television (27.3%). The other sources were magazines (see Table 14).

Table 13

Self Evaluation of West Virginia University Extension Agents and Their Beef Programs

	Strongly Disagree		Moderately Disagree		Disagree		Agree		Moderately Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%	N	%
Offer programs in beef production	5	13.5	1	2.7	0	0.0	4	10.8	4	10.8	23	62.2
Able to answer most questions about beef production	2	5.6	2	5.6	1	2.8	8	22.2	10	27.8	13	36.1
Returns calls in a timely manner	0	0.0	0	0.0	0	0.0	5	13.5	5	13.5	27	73.0
Returns emails in a timely manner	0	0.0	0	0.0	0	0.0	4	11.4	3	8.6	28	80.0
Beef programs are well attended	3	8.8	1	2.9	2	5.9	8	23.5	10	29.4	10	29.4
Beef production practices are readily accepted	1	3.1	1	3.1	6	18.8	12	37.5	8	25.0	4	12.5
Consider beef one of my specialty areas	7	18.4	4	10.5	6	15.8	6	15.8	3	7.9	12	31.6

Table 14

Methods of Advertisement West Virginia University Extension Agents Use

	Strongly Disagree		Moderately Disagree		Disagree		Agree		Moderately Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%	N	%
Email	5	14.7	2	5.9	10	29.4	6	17.6	5	14.7	6	17.6
Mail	2	5.7	0	0.0	0	0.0	6	17.1	3	8.6	24	68.6
Phone	3	8.6	1	2.9	3	8.6	13	37.1	4	11.4	11	31.4
Word of mouth	1	2.9	0	0.0	0	0.0	13	37.1	6	17.1	15	42.9
Newspapers	0	0.0	0	0.0	1	2.9	8	23.5	7	20.6	18	52.9
Newsletters	4	12.1	0	0.0	2	6.1	5	15.2	7	21.2	15	45.5
Radio	8	24.2	1	3.0	12	36.4	5	15.2	3	9.1	4	12.1
Internet	5	15.2	4	12.1	9	27.3	11	33.3	1	3.0	3	9.1
Television	12	36.4	1	3.0	11	33.3	6	18.2	1	3.0	2	6.1
Flyers	4	12.1	1	3.0	4	12.1	8	24.2	9	27.3	7	21.2
Personal visits	3	9.1	0	0.0	3	9.1	10	30.3	9	27.3	8	24.2
Other	0	0.0	0	0.0	0	0.0	0	0.0	1	50.0	1	50.0

West Virginia University Extension Agents were asked what teaching methods they prefer to use in beef programs. The top teaching methods were: discussion (94.1%), fact sheets (91.2%), and individual consultation (91.0%), followed by: demonstration (88.3%), lecture (88.2%), and showing video or DVD (85.4%). Extension Agents in West Virginia prefer not to use the following methods: books (66.7%), Internet (61.8%),

and teaching or demonstrating computer software (33.3%)(see Table 15). Other sources Extension Agents may use include: Power Point, one-on-one, farm days, and field days.

Table 15

Teaching Methods Extension Agents Prefer to Use to Deliver Beef Programs

	Strongly Disagree		Moderately Disagree		Disagree		Agree		Moderately Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%	N	%
Demonstration	3	8.8	0	0.0	1	2.9	11	32.4	5	14.7	14	41.2
Lecture	2	5.9	2	5.9	0	0.0	8	23.5	5	14.7	17	50.0
Discussion	2	5.9	0	0.0	0	0.0	8	23.5	7	20.6	17	50.0
Internet	8	23.5	3	8.8	10	29.4	10	29.4	1	2.9	2	5.9
Fact Sheets	1	2.9	0	0.0	2	5.9	7	20.6	13	38.2	11	32.4
Showing video-DVD	2	5.9	1	2.9	2	5.9	16	47.1	9	26.5	4	11.8
Teaching and-or demonstrating computer software	9	27.3	2	6.1	11	33.3	8	24.2	2	6.1	1	3.0
Books	8	24.2	2	6.1	8	24.2	10	30.3	2	6.1	3	9.1
Individual consultation	2	6.1	1	3.0	0	.0	5	15.2	5	15.2	20	60.6
Other	0	.0	0	.0	0	.0	1	20.0	0	.0	4	80.0

West Virginia University Extension Agents were ask what beef programs they offered in their counties. The top programs offered by Extension Agents were: nutrition (90.9%), forage production & management (90.9%), reproduction-fertility management, and marketing (87.9%) (see Table 16). This was followed by Beef Quality Assurance

Table 16

Beef Programs Offered by West Virginia University Extension Agents

	Strongly Disagree		Moderately Disagree		Disagree		Agree		Moderately Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%	N	%
Beef Quality Assurance (BQA)	2	6.3	0	0.0	2	6.3	4	12.5	8	25.0	16	50.0
Livestock Risk Protection (LRP)	2	6.3	0	0.0	8	25.0	11	34.4	5	15.6	6	18.8
Replacement heifer management	2	6.3	1	3.1	6	18.8	8	25.0	12	37.5	3	9.4
Herd health management	2	6.3	0	.0	1	3.1	5	15.6	5	15.6	19	59.4
Reproduction	3	9.4	1	3.1	2	6.3	7	21.9	13	40.6	6	18.8
Facilities design	3	9.4	2	6.3	3	9.4	16	50.0	3	9.4	5	15.6
Marketing	2	6.1	0	0.0	2	6.1	8	24.2	4	12.1	17	51.5
Record keeping	2	6.3	1	3.1	2	6.3	12	37.5	9	28.1	6	18.8
Nutrition	2	6.1	0	0.0	1	3.0	8	24.2	17	51.5	5	15.2
Forage production & management	2	6.1	0	0.0	1	3.0	4	12.1	8	24.2	18	54.5
Genetic evaluation	2	6.3	2	6.3	3	9.4	11	34.4	5	15.6	9	28.1
Bull Test	1	3.1	0	0.0	5	15.6	10	31.3	2	6.3	14	43.8

(87.5%), record keeping (84.4%), Bull Test (81.3%), and genetic evaluation (78.1%).

Extension Agents also offer: facility design (75.0%), replacement heifer production, and Livestock Risk Protection (68.8%) (see Table 16).

When asked, how many beef programs they offer a year, eighteen (47.4%) agents said they offered 5 or more programs, eight (21.1%) agents offered 3-4 beef programs, and five (13.2%) agents offered 1-2 beef programs a year. Seven (18.4%) agents said they did not offer any beef programs (see Table 17).

Table 17

Number of Beef Extension Programs, Agents Offer per Year

	N	%
None	7	18.4
1-2	5	13.2
3-4	8	21.1
5 or more	18	47.4

West Virginia Extension Agents were asked what percentage of your programs offered per year is beef related. Twenty-one (55.3%) indicated 0-25%, 16 (42.1%), agents indicated 26-50%, and one (2.6%) agent indicated that 51-75 percent of their programs are beef related (see Table 18).

When asked how many beef producers they work with each year, 11 (28.9%) agents indicated they worked with over 100 producers each year, eight (21.1%) agents indicated they worked with 0-10 per year, five (13.2%) agents said they worked with 41-50 per year, three (7.9%) agents each worked with 11-20, and 20-30 producers. Two (5.3%) agents each said they worked in the follow categories: 31-40, 71-80, and 81-90

producers per year. One (2.6%) agent worked with 51-60 producers each years and another agent (2.6%) works with 61-70 producers per year (see Table 19).

Table 18

Average Attendance of Extension Programs per Year

	N	%
0-25	21	55.3
26-50	16	42.1
51-75	1	2.6

When asked about the average beef herd size in their county, 19 (54.3%) agents indicated 21-40 head. Nine (25.7%) Extension Agents indicated 1-20 head. Three (8.6%) agents indicated 41-60 head. Two (5.7%) agents indicated 61-80 head, and two (5.7%) agents indicated 81-100 head (see Table 20).

When Extension Agents were asked what best describes their county's beef operations, 33 (89.2%) agents indicated commercial cow/operation selling feeder cattle; 11 (28.9%) agents indicated stocker operations, selling as yearlings; 10 (26.3%) agents indicated commercial cow/calf operations, retaining ownership through slaughter; nine (23.7%) agents indicated seedstock, purebred operations; six (15.8%) agents indicated feedlot operations; and two (5.3%) agents indicated other operations. The other operations were: hobby farm and grass fed beef operations (see Table 21).

Table 19

Average Number of West Virginia Beef Producers Worked with Each Year

	N	%
0-10	8	21.1
11-20	3	7.9
21-30	3	7.9
31-40	2	5.3
41-50	5	13.2
51-60	1	2.6
61-70	1	2.6
71-80	2	5.3
81-90	2	5.3
101 or more	11	28.9

Table 20

Average Herd Size per Farm

	N	%
1-20	9	25.7
21-40	19	54.3
41-60	3	8.6
61-80	2	5.7
81-100	2	5.7

Table 21

Types of Beef Operations in Their County

	N	%
Commercial cow-calf selling feeder cattle	33	89.2
Commercial cow-calf retaining ownership through slaughter	10	26.3
Seedstock	9	23.7
Stocker operations as yearlings	11	28.9
Feedlot	6	15.8
Other	2	5.3

When Extension Agents were asked about the average age of farmers in their county, 19 (51.4%) agents indicated 50-59 years of age. Thirteen (35.1%) agents indicated 60 or older, and five (13.5%) agents indicated 40-49 years of age (see Table 22).

Table 22

Average Age of Farmers in Their County

	N	%
40-49	5	13.5
50-59	19	51.4
60 or older	13	35.1

Extension Agents were asked what the average years of operation for their beef producers in their county. Seventeen (48.6%) agents indicated over 25 years, 11 (31.4%)

agents indicated 21-25 years, five (14.3%) agents indicated 16-20 years, one (2.9%) agent indicated 11-15 years, and one (2.9%) agent indicated less than a year of operation (see Table 23).

Table 23

Average Years of Beef Cattle Operation in Their County

	N	%
Less than 1 year	1	2.9
11-15 years	1	2.9
16-20 years	5	14.3
21-25 years	11	31.4
26 or more years	17	48.6

West Virginia Extension Agents were asked to rank six sources beef producers might go to for answers to beef related questions. The responses were then recoded to create a summed score for each source. The scores were then used to rank the information sources. According to Extension Agents in West Virginia neighbors were the most popular source for beef producers to use when a beef question needed answered. The other sources in order were, WVU Extension Agents, farm store employee, veterinarian, Extension Specialist, and other sources (see Table 24).

Table 24

Beef Producers Sources of Information

	Sum
Neighbor	166
WVU Extension Agent	158
Farm Store Employee	132
Veterinarian	123
Extension Specialist	101
Other	45

Comparisons of Extension Agents and West Virginia Beef producers

A *t*-test statistical procedure was used to determine if statistical differences existed in the means of the two groups Extension Agents and West Virginia beef producers on the use of the WVU Extension Agent as a source to get answers.

The WVU Extension Agent

The null hypothesis $H_0 = M_{\text{Extension}} = M_{\text{producer}}$, was tested. The alternative hypothesis was $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$. The mean average of group 1 was 4.51 with a standard deviation of 1.22. The mean average of group 2 was 4.72 with a standard deviation of 1.40 (see Table 25).

An independent *t*-test statistical analysis procedure was used to compare the means of group 1 and group 2. The statistical analysis results ($t = -0.747$, $df = 121$) were not significant at $\alpha \leq .05$. The researcher failed to reject the null there was no difference between the groups with regards of using the Extension Agent as a source of information.

Table 25

Comparison of the Mean Scores of the WVU Extension Agent as a Source of Information

	N	M	SD	df	t
Extension	35	4.51	1.22	121	-0.747
Producers	89	4.72	1.40		

* $\alpha \leq .05$

The Veterinarian

A *t*-test statistical procedure was used to determine if statistical differences existed in the means of the two groups Extension Agents and West Virginia beef producers on the use of a veterinarian as a source to get answers to beef related questions.

The null hypothesis $H_0 = M_{\text{Extension}} = M_{\text{producer}}$, was tested. The alternative hypothesis was $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$. The mean average of group 1 was 3.42 with a standard deviation of 1.34. The mean average of group 2 was 4.64 with a standard deviation of 1.25 (see Table 26).

An independent T-test statistical analysis procedure was used to compare the means of group 1 and group 2. The statistical analysis results ($t = -4.736$, $df = 111$) were significant at $\alpha \leq .05$. The null hypothesis was rejected and the alternative hypothesis, $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$, was accepted. There was a difference between Beef producers and Extension Agents. The difference between the means of group 1 and group 2 exhibited a medium effect size (Cohen, 1998).

Table 26

Comparison of Mean Scores of Veterinarians as a Source of Information

	N	M	SD	df	t
Extension	36	3.42	1.43	111	-4.736*
Producers	79	4.64	1.35		

* $\alpha \leq .05$ **The Neighbor**

A *t*-test statistical procedure was used to determine if statistical differences existed in the means of the two groups Extension Agents and West Virginia beef producers on the use of a neighbor as a source to get answers to beef related questions.

The null hypothesis $H_0 = M_{\text{Extension}} = M_{\text{producer}}$, was tested. The alternative hypothesis was $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$. The mean average of group 1 was 4.88 with a standard deviation of 1.34. The mean average of group 2 was 4.03 with a standard deviation of 1.44 (see Table 27).

An independent *t*-test statistical analysis procedure was used to compare the means of group 1 and group 2. The statistical analysis results ($t = 2.915$, $df = 105$) were significant at $\alpha \leq .05$. The null hypothesis was rejected and the alternative hypothesis, $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$, was accepted. There was a difference between Beef producers and Extension Agents. The difference between the means of group 1 and group 2 exhibited a large effect size (Cohen, 1998).

Table 27

Comparison of the Mean Scores of Neighbor as a Source of Information

	N	M	SD	df	t
Extension	34	4.88	1.34	105	2.915*
Producers	75	4.03	1.44		

* $\alpha \leq .05$ **The Extension Specialist**

A *t*-test statistical procedure was used to determine if statistical differences existed in the means of the two groups Extension Agents and West Virginia beef producers on the use of a WVU Extension Specialist as a source to get answers to beef related questions.

The null hypothesis $H_0 = M_{\text{Extension}} = M_{\text{producer}}$, was tested. The alternative hypothesis was $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$. The mean average of group 1 was 2.97 with a standard deviation of 1.36. The mean average of group 2 was 4.15 with a standard deviation of 1.50 (see Table 28).

An independent *t*-test statistical analysis procedure was used to compare the means of group 1 and group 2. The statistical analysis results ($t = -3.851$, $df = 100$) were significant at $\alpha \leq .05$. The null hypothesis was rejected and the alternative hypothesis, $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$, was accepted. There was a difference between Beef producers and Extension Agents. The difference between the means of group 1 and group 2 exhibited a medium (Cohen, 1998).

Table 28

Comparison of Extension Specialist as a Source of Information

	N	M	SD	df	t
Extension	34	2.97	1.36	100	-3.851*
Producers	75	4.15	1.50		

* $\alpha \leq .05$ **The Farm Store Employee**

A *t*-test statistical procedure was used to determine if statistical differences existed in the means of the two groups Extension Agents and West Virginia beef producers on the use of a farm store employee as a source to get answers to beef related questions.

The null hypothesis $H_0 = M_{\text{Extension}} = M_{\text{producer}}$, was tested. The alternative hypothesis was $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$. The mean average of group 1 was 4.00 with a standard deviation of 1.39. The mean average of group 2 was 3.51 with a standard deviation of 1.38 (see Table 29).

An independent *t*-test statistical analysis procedure was used to compare the means of group 1 and group 2. The statistical analysis results ($t = 1.663$, $df=96$) were not significant at $\alpha \leq .05$. The researcher failed to reject the null and did not accept the alternative hypothesis. There was no difference between the groups.

Table 29

The Farm Store Employee as a Source of Information

	N	M	SD	df	t
Extension	33	4.00	1.39	96	1.663
Producers	66	3.51	1.38		

* $\alpha \leq .05$ **The Other Sources of Information**

A *t*-test statistical procedure was used to determine if statistical differences existed in the means of the two groups Extension Agents and West Virginia beef producers on the use of other sources of information to get answers to beef related questions.

The null hypothesis $H_0 = M_{\text{Extension}} = M_{\text{producer}}$, was tested. The alternative hypothesis was $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$. The mean average of group 1 was 3.46 with a standard deviation of 2.18. The mean average of group 2 was 5.07 with a standard deviation of 1.44 (see Table 30).

An independent *t*-test statistical analysis procedure was used to compare the means of group 1 and group 2. The statistical analysis results ($t = -2.425$, $df = 17$) were significant at $\alpha \leq .05$. The null hypothesis was rejected and the alternative hypothesis, $H_1 = M_{\text{Extension}} \neq M_{\text{producer}}$, was accepted. There was a difference between Beef producers and Extension Agents. The difference between the means of group 1 and group 2 exhibited a medium effect size (Cohen, 1998).

Table 30

Comparison of Mean Scores of Other Sources of Information

	N	M	SD	df	t
Extension	14	3.46	2.18	17	-2.425
Producers	28	5.07	1.44		

* $\alpha \leq .05$

West Virginia beef producers were asked how they prefer to learn about Extension programs, while Extension Agents were asked what methods of advertising programs they use. Sixty (66.7%) beef producers indicated they would like to receive information about programming by email. Extension Agents were divided on the issue with 17 (50.0%) agents who agreed and 17 (50.0%) agents who disagreed on email (see Table 31).

Mail was another means of advertisement that 124 (98.4%) beef producers indicated they would prefer, while 33 (94.3%) Extension Agents indicated they used mail as a source of advertisement. Another source of information was the telephone. Twenty-eight (80.0%) Extension Agents indicated they use telephone, where only 77 (70.7%) beef producers indicated they would prefer to use the telephone as a method of advertisement (see Table 31).

When asked if newspapers was a preferred sources of advertisement, 96 (84.2%) beef producers agreed, while as 33 (97.1%) Extension agents agreed they used the newspaper to advertise programs. Twenty-seven (81.8%) Extension Agents indicated they use newsletters as a means of advertisement, where 118 (96.8%) beef producers indicated they would prefer to receive newsletters as a form of advertisement (see Table 31).

Sixty-eight (64.7%) producers indicated they would prefer to learn of programs via radio, while 12 (36.4%) of the agents indicated they use radio as a form of advertisement. One other source of advertisement was Internet. Seventy-one (68.9%) of beef producers indicated they would prefer to receive advertisements about upcoming programs via the Internet, while 15 (54.5%) agents indicated that they use the Internet as a method of advertisement (see Table 31).

When ask about television as a method of advertisement, nine (27.3%) agents agreed to using television, while 71 (68.9%) producers indicated they would prefer to receive information about upcoming programs via the television. Another method of advertisement was flyers. Ninety-six (87.3%) producers indicated they prefer flyers as a form of advertisement, in agreement with the producers, 24 (72.7%) agents indicated they used flyers as a form of advisement (see Table 31).

The final form of advertisement used for comparison was personal visits. Ninety-six (86.4%) producers indicated they prefer personal visits as a source of advertisement, while, 27 (81.8%) agents agreed in using personal visits as a method of advertisement (see Table 31).

Table 31

Comparison of Advertisement Methods

	Agents				Producers			
	Disagree		Agree		Disagree		Agree	
	N	%	N	%	N	%	N	%
Email	17	50.0	17	50.0	30	33.3	60	66.7
Mail	2	5.7	33	94.3	2	1.6	124	98.4
Phone	7	20.0	28	80.0	32	29.3	77	70.7
Word of mouth	1	2.9	34	97.1	27	24.1	85	75.9
Newspapers	1	2.9	33	97.1	18	15.8	96	84.2
Newsletters	6	18.2	27	81.8	4	3.3	118	96.8
Radio	21	63.6	12	36.4	37	35.2	68	64.7
Internet	18	54.5	15	45.5	31	33.4	62	66.7
Television	24	72.7	9	27.3	32	31.0	71	68.9
Flyers	9	27.3	24	72.7	14	12.7	96	87.3
Personal visits	6	18.2	27	81.8	15	13.5	96	86.4

Of the 128 (100%) beef producers that responded to the study all of them agreed that they had a desire for the demonstration method, where as only 30 (88.2%) Extension Agents agreed they used the demonstration method. One Hundred seventeen (93.6%) beef producers had a desire to learn by the lecture method, where as only 30 (88.2%) of Extension Agents indicated they used this method of teaching. The discussion method

was by 123 (97.6%) beef producers while 32 (94.1%) Extension Agents agreed to using this method of teaching with their producers (see Table 32).

Table 32

Comparison of Teaching Methods

	Producers				Agents			
	Disagree		Agree		Disagree		Agree	
	N	%	N	%	N	%	N	%
Demonstration	0	0.0	128	100.0	4	11.8	30	88.2
Lecture	8	6.4	117	93.6	4	11.8	30	88.2
Discussion	3	2.4	123	97.6	2	5.9	32	94.1
Internet	40	40.4	59	59.6	21	61.8	13	38.2
Fact Sheets	8	7.1	105	92.9	3	8.8	31	91.2
Showing video-DVD	10	8.4	108	91.6	5	14.7	29	85.3
Teaching &/or demonstrating computer software	30	29.7	71	70.3	22	66.7	11	33.3
Books	20	17.9	92	82.1	18	54.5	15	45.5
Individual consultation	7	5.8	114	94.2	3	9.1	30	90.9

The Internet method was undesirable to twenty-one (61.8%) agents, where as 59 (59.6%) producers show a desire to learn by this method. Another teaching method was fact sheets. One hundred five (91.6%) producers had a desire to learn by fact sheets and 31 (91.2%) agents agreed to use this method of teaching. When beef producers were asked if showing a video or DVD was a desirable method of teaching, 108 (91.6%)

agreed, where 29 (95.3%) agents agreed to using this method of teaching. West Virginia beef producers also had a desire to use books. Ninety-two (82.1%) producers indicated a desire to use this method, while 15 (45.5%) agents indicated they use this method of teaching. One other method of teaching is individual consultation. Thirty (90.9%) agents agreed to using this method for teaching, and 114, (94.2%) producers indicated they had a desire to learn by this method of teaching (see Table 32).

Comparison of Extension Programming

One hundred fifteen (96.6%) producers indicated they would like to know more about the BQA program while 28 (87.5%) agents indicated they offered this program. One hundred eight (91.5%) producers indicated they were interested in the LRP program, where as 22 (68.8%) agents indicated they offered the program (see Table 33).

When asked about the replacement heifer program, 121 (97.6%) producers indicated there was an interest; whereas 23(71.9%) agents indicated they offered the program. In herd health management, 121 (97.6%) producers indicated an interest, along with 29 (90.6%) agents offering this program in their counties (see Table 33).

When the respondents came to reproduction fertility management, 117 (95.1%) producers indicated an interest; twenty-six (81.3%) agents offered this program. Another program was facility design. One hundred-fourteen (95.8%) producers indicated an interest in this program, where as only 24 (75.0%) agents offer this program (see Table 33).

Table 33

Comparison of Extension Programming

	Producers				Agents			
	Disagree		Agree		Disagree		Agree	
	N	%	N	%	N	%	N	%
Beef Quality Assurance (BQA)	4	3.3	115	96.6	4	12.5	28	87.5
Livestock Risk Protection (LRP)	10	8.4	108	91.5	10	31.3	22	68.8
Replacement heifer management	3	2.4	121	97.6	9	28.1	23	71.9
Herd health management	1	0.8	128	99.2	3	9.4	29	90.6
Reproduction-fertility management	6	4.9	117	95.1	6	18.8	26	81.3
Facilities design	5	4.2	114	95.8	8	25.0	24	75.0
Marketing	5	4.0	121	96.1	4	12.1	29	87.9
Record keeping	5	4.2	114	95.9	5	15.6	27	84.4
Nutrition	2	1.6	122	98.4	3	9.1	30	90.9
Forage production & management	3	2.5	119	97.6	3	9.1	30	90.9
Genetic evaluation	6	5.1	111	94.9	7	21.9	25	78.1
Bull Test	14	11.6	107	88.5	6	18.8	26	81.3

When asked about a marketing program, 121 (96.1%) producers indicated they were interested, where 29 (84.4%) agents offered the program. Another program 119 (97.6%) beef producers showed interest in was forage production & management, 30 (90.9%) agents agreed to they offer this program. When asked about genetic evaluation, 111 (94.9%) producers indicated interest, where as 25 (78.1%) agents indicated they offered the program in their counties. The final program used in the study was the bull tests. One hundred-seven (88.5%) producers indicated they were interested in the program, while 26 (81.3%) agents indicated they offered the program (see Table 33).

CHAPTER V

Summary, Conclusions, Recommendations

Purpose and Objectives

The purpose of this study was to determine whether information from the West Virginia University Extension Service being disseminated to the West Virginia beef producers through appropriate programming and advertising. The primary objective of this study was to determine whether the Extension Agents are offering the programs beef producers want in their counties. The research focused on program advertising, teaching methods, and program offerings.

Research Questions

The objectives of study were reflected in the following research questions:

1. What methods are West Virginia University Extension Agents using to inform beef producers about upcoming programs and new technologies relating to the beef industry?
2. How do beef producers prefer to hear about Extension programs?
3. What methods do West Virginia University Extension Agents use to teach their programs?
4. What are the methods by which West Virginia beef producers prefer to learn?
5. What beef production programs are West Virginia University Extension Agents offering in the state?
6. What programs would the beef producers like to see West Virginia University Extension Service offer in their counties?
7. Are West Virginia University Extension Agents effectively communicating with their county beef producers?

Summary

The study consisted of 342 randomly selected West Virginia beef producers and a census of 46 agents responsible for Agriculture and Natural Resources in West Virginia, or agents in single agent counties. The response rates were 42% for beef producers and 87% for Extension Agents.

Research Question 1. “What methods are West Virginia University Extension Agents using to inform beef producers about upcoming programs and new technologies relating to the beef industry?”

West Virginia University Extension Agents use a variety of methods to advertise for their programs. The top four methods of advertisement were word of mouth, newspapers, mail, and newsletters. Extension Agents least preferred method of advertising was television.

Research Question 2. “How do beef producers prefer to hear about Extension programs?”

West Virginia beef producers most preferred to receive information about upcoming Extension programs, by mail, newsletters, and flyers. The least preferred method for beef producers preferred was radio.

Research Question 3. “What methods do West Virginia University Extension Agents use to teach their programs?”

When delivering beef programs to producers, Extension Agents’ preferred methods were: discussion, fact sheets, and individual consultation. The least used teaching methods were books, Internet, and teaching or demonstrating computer software.

Research Question 4. “What are the methods by which the West Virginia beef producers prefer to learn?”

The top teaching method most preferred by West Virginia beef producers was the demonstration method followed by lecture. The least preferred teaching method of West Virginia beef producers was teach or demonstrating computer software.

Research Question 5. “What beef production programs are the West Virginia Extension Agents offering in the state?”

The most frequently offered beef programs across the state by Extension Agents include: nutrition, forage production & management, and reproduction-fertility management. The program least likely to be offered by Extension Agents across the state was Livestock Risk Protection.

Research Question 6. “What programs would the beef producers like to see the West Virginia University Extension Service offer in their counties?”

The top programs in which West Virginia beef producers were most interested in were: herd health, nutrition, and replacement heifer management. The program West Virginia beef producers were least interested in was the Livestock Risk Protection program.

Research Question 7. “Are West Virginia University Extension Agents connected with their beef producers in their counties?”

Although Extension Agents and beef producers top advertising methods were different, both groups included mail and newspapers in their top methods for advertisement. Radio and television were low on the preferred lists for both groups.

Though there are differences between Extension Agents and beef producers, overall the groups appear to be unified with advertising methods.

Extension Agents and beef producers both selected the demonstration as their preferred method of teaching. Both groups also ranked teaching or demonstrating software low on the preferred list of teaching methods.

When it comes to programs the two groups were in disagreement. Extension Agents preferred to offer nutrition, forage, and reproduction management programs, while beef producers were more interested in herd health, nutrition, and replacement heifer management.

Conclusion

Based on the results of this study, the following conclusions were made

1. Extension Agents and beef producers both rate demonstration as their preferred teaching method.
2. A majority of the beef producers know if their Extension agent is responsible for one or more counties.
3. Extension Agents and West Virginia beef producers agree on preferred methods of advertisement for programs.
4. West Virginia beef producers agree that their WVU Extension Agents were able to answer their beef related questions.
5. West Virginia University Extension Agents offer all programs that beef producers indicate they have an interest in; however, the preferred programs differ between the two groups.
6. Beef producers do attend Extension beef related programs.

7. The findings of this study were similar to that of Nelson (2008) with Extension Agents and dairy producers in Pennsylvania.

Recommendations

The researcher makes the following recommendations based on the results of this study:

1. West Virginia University Extension Agents should use the demonstration method as the main teaching method when working with beef producers.
2. Extension Agents should advertise for beef programs using mail, newsletters, word of mouth, and newspapers.
3. West Virginia Extension Agents should conduct a needs assessment in their counties to determine what type of beef programs producers are most interested in attending.
4. Extension Agents should conduct a study in their county to determine how beef producers are getting answers to their beef production questions, preferred methods of advertisement, and methods of program delivery.
5. Extension Agents should consider using radio and television where available as a source of advertisement or program delivery.
6. This study should be conducted with Extension Agents and other producer groups.

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APPENDICES

APENDIX A
First Mailing Cover Letter
Extension Agent

January 11, 2010

Dear West Virginia Extension Agent:

As an Agent in West Virginia, I am sure you are aware that it takes many things to make a beef operation successful. At some point you have probably answered questions relating to beef production. The programs and advice you offer to beef producers in your county, make you a valuable resource.

I am Travis Cullen, a graduate student in Agricultural and Extension Education at West Virginia University. Under the direction of my advisor, Dr. Deborah Boone, I am conducting a research study to determine the amount and type of information transfer between county Extension Agents and beef producers in West Virginia. The result of this research study will be used to prepare a thesis to partially fulfill the requirements for a Master of Science degree in Agricultural and Extension Education. The result will be used to develop programs to better serve the beef producers of West Virginia. West Virginia University's IRB acknowledgement of this research is on file.

Your participation in this research study is solely voluntary. You may stop filling out this survey at any time or skip any question you do not wish to answer. However, your completion of this survey is crucial to the success of this study. The survey should only take about 15 minutes and your results will be held as confidential as possible. There is no penalty if you choose not to participate. You will notice a code number at the bottom left hand corner of your return envelope. This number is only used to keep track of non-respondents and will be separated from your survey and destroyed before the data is analyzed making it in no way possible to track your individual response.

Please place the completed questionnaire in the self addressed pre paid envelope and **drop it into the mail box by January 27, 2010**. Those responding by this date will receive an outdoor thermometer. For questions, you may contact Dr. Boone at 304-293-5450 or Travis at 304-293-2743. Thank you, we sincerely appreciate your time and effort.

Sincerely,

Travis J. Cullen
Graduate Student

Deborah A. Boone, Ph.D.
Associate Professor

APENDIX B

Second Mailing Cover Letter

Extension Agent

January 29, 2010

Dear West Virginia Extension Agent:

On January 11, we sent you a survey regarding your views on your beef programs. As of today we have not received your reply; we are sending a second copy of the survey and hope you will complete and return. If you have already returned the first survey there is no need to complete this one, we sincerely appreciate your participation.

As an Agent in West Virginia, I am sure you are aware that it takes many things to make a beef operation successful. At some point you have probably answered questions relating to beef production. The programs and advice you offer to beef producers in your county, make you a valuable resource.

I am Travis Cullen, a graduate student in Agricultural and Extension Education at West Virginia University. Under the direction of my advisor, Dr. Deborah Boone, I am conducting a research study to determine the amount and type of information transfer between county Extension Agents and beef producers in West Virginia. The result of this research study will be used to prepare a thesis to partially fulfill the requirements for a Master of Science degree in Agricultural and Extension Education. The result will be used to develop programs to better serve the beef producers of West Virginia. West Virginia University's IRB acknowledgement of this research is on file.

Your participation in this research study is solely voluntary. You may stop filling out this survey at any time or skip any question you do not wish to answer. However, your completion of this survey is crucial to the success of this study. The survey should only take about 15 minutes and your results will be held as confidential as possible. There is no penalty if you choose not to participate. You will notice a code number at the bottom left hand corner of your return envelope. This number is only used to keep track of non-respondents and will be separated from your survey and destroyed before the data is analyzed making it in no way possible to track your individual response.

Please place the completed questionnaire in the self addressed pre paid envelope and **drop it into the mail box by February 12, 2010**. For questions, you may contact Dr. Boone at 304-293-5450 or Travis at 304-293-2743. Thank you, we sincerely appreciate your time and effort.

Sincerely,
Travis J. Cullen
Graduate Student

Deborah A. Boone, Ph.D.
Associate Professor

APPENDIX C

First Mailing Cover letter

Beef Producer

January 11, 2010

Dear West Virginia Beef Producer:

As a producer in West Virginia, you are aware that it takes many things to make a beef operation successful. At some point in your career I am sure you have had questions about your farm. To answer these questions you may have turned to a fellow producer, a veterinarian, or county Extension Agent.

I am Travis Cullen, a graduate student in Agricultural and Extension Education at West Virginia University. Under the direction of my advisor, Dr. Deborah Boone, I am conducting a research study to determine the amount and type of information transfer between county Extension Agents and beef producers in West Virginia. The result of this research study will be used to prepare a thesis to partially fulfill the requirements for a Master of Science degree in Agricultural and Extension Education. The result will be used to develop programs to better serve the beef producers of West Virginia. West Virginia University's IRB acknowledgement of this research is on file.

Your participation in this research study is solely voluntary. You may stop filling out this survey at any time or skip any question you do not wish to answer. However, your completion of this survey is crucial to the success of this study. The survey should only take about 15 minutes and your results will be held as confidential as possible. There is no penalty or services withheld if you choose not to participate. You will notice a code number at the bottom left hand corner of your return envelope. This number is only used to keep track of non-respondents and will be destroyed before that data is analyzed making it in no way possible to track your individual response.

Please place the completed questionnaire in the self addressed pre paid envelope and **drop it into the mail box by January 27, 2010**. Those responding by this date will receive an outdoor thermometer. For questions, you may contact Dr. Boone at 304-293-5450 or Travis at 304-293-2743. Thank you, we sincerely appreciate your time and effort.

Sincerely,

Travis J. Cullen
Graduate Student

Deborah A. Boone, Ph.D.
Associate Professor

APPENDIX D

Second Mailing Cover letter

Beef Producer

January 29, 2010

Dear West Virginia Beef Producer:

On January 11 we sent you a survey regarding your views on your county's Extension agent and their beef programs. As of today we have not received your reply; we are sending a second copy of the survey and hope you will complete and return. If you have already returned the first survey there is no need to complete this one, we sincerely appreciate your participation.

As a producer in West Virginia, you are aware that it takes many things to make a beef operation successful. At some point in your career I am sure you have had questions about your farm. To answer these questions you may have turned to a fellow producer, a veterinarian, or county Extension Agent.

I am Travis Cullen, a graduate student in Agricultural and Extension Education at West Virginia University. Under the direction of my advisor, Dr. Deborah Boone, I am conducting a research study to determine the amount and type of information transfer between county Extension Agents and beef producers in West Virginia. The result of this research study will be used to prepare a thesis to partially fulfill the requirements for a Master of Science degree in Agricultural and Extension Education. The result will be used to develop programs to better serve the beef producers of West Virginia. West Virginia University's IRB acknowledgement of this research is on file.

Your participation in this research study is solely voluntary. You may stop filling out this survey at any time or skip any question you do not wish to answer. However, your completion of this survey is crucial to the success of this study. The survey should only take about 15 minutes and your results will be held as confidential as possible. There is no penalty or services withheld if you choose not to participate. You will notice a code number at the bottom left hand corner of your return envelope. This number is only used to keep track of non-respondents and will be destroyed before that data is analyzed making it in no way possible to track your individual response.

Please place the completed questionnaire in the self addressed pre paid envelope and **drop it into the mail box by February 12, 2010**. For questions, you may contact Dr. Boone at 304-293-5450 or Travis at 304-293-2743. Thank you, we sincerely appreciate your time and effort.

Sincerely,

Travis J. Cullen
Graduate Student

Deborah A. Boone, Ph.D.
Associate Professor

APPENDIX E
Extension Instrument

**Evaluation of Information Transfer Between
Beef Producers and Extension Agents
in West Virginia**

Extension Agent Survey



Travis Cullen
Agricultural and Extension Education
Davis College of Agriculture, Natural Resources, and Design
West Virginia University
26506

**Evaluation of Information Transfer Between
Beef Producers and Extension Agents
in West Virginia**

Instructions: Using the following Likert scale, rate the following statements about your county Extension office’s agents and programs. Indicate your opinion by circling the letters that best corresponds to your response. **SD** Strongly Disagree, **MD**- Moderately Disagree, **D**- Disagree, **A**- Agree, **MA** Moderately Agree, **SA**- Strongly Agree.

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
1. I offer programs in beef production.	SA	MA	A	D	MD	SD
2. I am able to answer most questions about beef production.	SA	MA	A	D	MD	SD
3. I return beef producers’ telephone calls in a timely manner.	SA	MA	A	D	MD	SD
4. I return beef producers’ emails in a timely manner.	SA	MA	A	D	MD	SD
5. Beef production program offered in my county are well attended.	SA	MA	A	D	MD	SD
6. The beef production practices taught are readily accepted.	SA	MA	A	D	MD	SD
7. I consider beef production one of my specialty areas.	SA	MA	A	D	MD	SD

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
I use the following methods to advertise my beef programs.						
8. Email	SA	MA	A	D	MD	SD
9. Mail	SA	MA	A	D	MD	SD
10. Phone	SA	MA	A	D	MD	SD
11. Word of mouth	SA	MA	A	D	MD	SD
12. Newspapers	SA	MA	A	D	MD	SD
13. Newsletters	SA	MA	A	D	MD	SD
14. Radio	SA	MA	A	D	MD	SD
15. Internet	SA	MA	A	D	MD	SD
16. Television	SA	MA	A	D	MD	SD
17. Flyers	SA	MA	A	D	MD	SD
18. Personal visits	SA	MA	A	D	MD	SD
19. Other (Please specify_____)	SA	MA	A	D	MD	SD
20. Other (Please specify_____)	SA	MA	A	D	MD	SD

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
I use the following teaching methods to deliver beef programs.						
21. Demonstrations	SA	MA	A	D	MD	SD
22. Lectures	SA	MA	A	D	MD	SD
23. Discussion	SA	MA	A	D	MD	SD
24. Internet	SA	MA	A	D	MD	SD
25. Fact sheets	SA	MA	A	D	MD	SD
26. Showing video/DVD	SA	MA	A	D	MD	SD
27. Teaching and/or demonstrating computer software	SA	MA	A	D	MD	SD
28. Books	SA	MA	A	D	MD	SD
29. Individual Consultation	SA	MA	A	D	MD	SD
30. Other (Please specify_____)	SA	MA	A	D	MD	SD
31. Other (Please specify_____)	SA	MA	A	D	MD	SD

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
I offer the following beef programs						
32. Beef Quality Assurance [BQA]	SA	MA	A	D	MD	SD
33. Livestock Risk Protection [LRP]	SA	MA	A	D	MD	SD
34. Replacement heifer management	SA	MA	A	D	MD	SD
35. Herd health management	SA	MA	A	D	MD	SD
36. Reproduction/fertility management	SA	MA	A	D	MD	SD
37. Facilities design	SA	MA	A	D	MD	SD
38. Marketing	SA	MA	A	D	MD	SD
39. Record keeping	SA	MA	A	D	MD	SD
40. Nutrition	SA	MA	A	D	MD	SD
41. Forage production & management	SA	MA	A	D	MD	SD
42. Genetic evaluation	SA	MA	A	D	MD	SD
43. Bull Test	SA	MA	A	D	MD	SD
44. Other (Please specify _____)	SA	MA	A	D	MD	SD
45. Other (Please specify _____)	SA	MA	A	D	MD	SD

Instructions: Answer the following questions to the best of your ability.

46. How many beef programs do you offer per year? (**Check one**)

- a. 0
- b. 1-2
- c. 3-4
- d. 5 or more

47. Beef programs account for ____ % of my yearly programming. (**Check one**)

- a. 0- 25
- b. 26-50
- c. 51-75
- d. 76-more

48. On average how many beef producers do you work within a year?

- a. 0-10
- b. 11-20
- c. 21-30
- d. 31-40
- e. 41-50
- f. 51-60
- g. 61-70
- h. 71-80
- i. 81-90
- j. 91-100
- j. 101 or more

49. What is the average beef herd size per farm in your county? (**Check one**)

- a. 1-20
- b. 21-40
- c. 41-60
- d. 61-80
- e. 81-100
- f. 101 or more

50. Which of the following best describes your county's beef cattle operations? (**Check all that apply**)

- a. Commercial cow/calf selling feeder cattle
- b. Commercial cow/calf retaining ownership through slaughter
- c. Seedstock
- d. Stocker operations sell as yearlings
- e. Feedlot
- f. Other: _____

51. What is the average age of beef producers within your county? (**Check one**)

- a. Younger than 20 years
- b. 20-29 years
- c. 30-39 years
- d. 40-49 years
- e. 50-59 years
- f. 60 or older

52. What are the average years of operation for your beef cattle producers?

_____ a. Less than 1 year

_____ b. 1-5 years

_____ c. 6-10 years

_____ d. 11-15 years

_____ e. 16-20 years

_____ f. 21-25 years

_____ g. 26 or more

53. Where do you feel that beef producers in your county get answers to their beef production questions? (**Rank all with 1 being the most used, 2 being the second most used and 3 being the third most used, etc.**)

_____ a. WVU Extension Agent

_____ b. Extension Specialist

_____ c. Veterinarian

_____ d. Neighbor

_____ e. Farm Store Employee

_____ f. Other: _____

Comments:

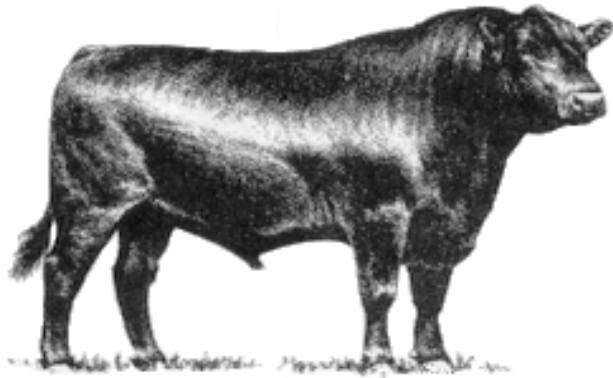
If you have any questions regarding this survey feel free to contact:
Travis by phone at 304-293-6131 ext. 4234 or email: tcullen1@mix.wvu.edu
or Dr. Debby Boone at 304-293-5450 or email at debby.boone@mail.wvu.edu
Thank you for taking the time and effort to complete this survey.

APPENDIX F

Beef Producer Instrument

**Evaluation of Information Transfer Between
Beef Producers and Extension Agents
in West Virginia**

Beef Producer Survey



**Travis Cullen
Graduate Student
Agricultural and Extension Education
Davis College of Agriculture, Natural Resources, and Design
West Virginia University
Morgantown, West Virginia, 26506**

**Evaluation of Information Transfer Between
Beef Producers and Extension Agents
in West Virginia**

Instructions: Using the following Likert scale, rate the following statements about local Extension Agents and programs. Indicate your opinion by circling the letters that best corresponds to your response. **SA-** Strongly Agree, **MA-** Moderately Agree, **A –** Agree, **D –** Disagree, **MD –** Moderately Disagree, **SD** Strongly Disagree, or **NA –** Not Applicable.

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree	Not Applicable
46. The local West Virginia U Extension Office offers programs in beef production.	SA	MA	A	D	MD	SD	NA
47. The local West Virginia U Extension Agent is able to answer most of my questions about beef production.	SA	MA	A	D	MD	SD	NA
48. The local West Virginia U Extension Agent returns my telephone calls in a timely manner.	SA	MA	A	D	MD	SD	NA
49. The local West Virginia U Extension Agent returns my emails in a timely manner.	SA	MA	A	D	MD	SD	NA
50. I attend Extension beef programs offered in my county.	SA	MA	A	D	MD	SD	NA
51. Extension beef programs provide adequate information to make an informed decision on new practices.	SA	MA	A	D	MD	SD	NA
52. I consider the local Extension agent to be knowledgeable about beef production.	SA	MA	A	D	MD	SD	NA

Instructions: Using the following Likert scale, rate the following methods of advertisement. The first set is what you prefer, and the last set is what you receive from your local Extension. Indicate your opinion by circling the letters that best corresponds to your response. **SA**- Strongly Agree, **MA**- Moderately Agree, **A** – Agree, **D** – Disagree, **MD** – Moderately Agree, or **SD** Strongly Disagree.

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree		Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
	I prefer the following methods of advertisement for beef programs:							I receive the following methods of advertisement for beef programs:					
53. Email	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
54. Mail	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
55. Phone	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
56. Word of mouth	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
57. Newspapers	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
58. Newsletters	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
59. Radio	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
60. Internet	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
61. Television	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
62. Flyers	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
63. Personal visits	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
64. Other (Please specify _____)	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD
65. Other (Please specify _____)	SA	MA	A	D	MD	SD		SA	MA	A	D	MD	SD

Instructions: Using the following Likert scale, rate the following teaching methods you would prefer your local Extension agent to use when teaching their programs. Indicate your opinion by circling the letters that best corresponds to your response. **SA**- Strongly Agree, **MA**- Moderately Agree, **A** – Agree, **D** – Disagree, **MD** – Moderately Disagree, or **SD** Strongly Disagree.

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
I prefer the following teaching methods at Extension programs:						
66. Demonstrations	SA	MA	A	D	MD	SD
67. Lectures	SA	MA	A	D	MD	SD
68. Discussion	SA	MA	A	D	MD	SD
69. Internet	SA	MA	A	D	MD	SD
70. Fact sheets	SA	MA	A	D	MD	SD
71. Showing video/DVD	SA	MA	A	D	MD	SD
72. Teaching and/or demonstrating computer software	SA	MA	A	D	MD	SD
73. Books	SA	MA	A	D	MD	SD
74. Individual consultation	SA	MA	A	D	MD	SD
75. Other (Please specify_____)	SA	MA	A	D	MD	SD
76. Other (Please specify_____)	SA	MA	A	D	MD	SD

Instructions: Using the following Likert scale, rate the following programs you would be interested in learning about. Indicate your opinion by circling the letters that best corresponds to your response. **SA**- Strongly Agree, **MA**- Moderately Agree, **A** – Agree, **D** – Disagree, **MD** – Moderately Disagree, or **SD** Strongly Disagree .

	Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
I am interested in beef programs related to:						
77. Beef Quality Assurance (BQA)	SA	MA	A	D	MD	SD
78. Livestock Risk Protection (LRP)	SA	MA	A	D	MD	SD
79. Replacement heifer management	SA	MA	A	D	MD	SD
80. Herd health management	SA	MA	A	D	MD	SD
81. Reproduction/fertility management	SA	MA	A	D	MD	SD
82. Facilities design	SA	MA	A	D	MD	SD
83. Marketing	SA	MA	A	D	MD	SD
84. Record keeping	SA	MA	A	D	MD	SD
85. Nutrition	SA	MA	A	D	MD	SD
86. Forage production & management	SA	MA	A	D	MD	SD
87. Genetic evaluation	SA	MA	A	D	MD	SD
88. Bull Test	SA	MA	A	D	MD	SD
89. Other (Please specify_____)	SA	MA	A	D	MD	SD
90. Other (Please specify_____)	SA	MA	A	D	MD	SD

Instructions: Answer the following questions to the best of your ability.

91. How many beef Extension programs do you attend per year? (**Check one**)

- a. 0
- b. 1-2
- c. 3-4
- d. 5 or more

92. Beef Extension programs account for _____% of Extension programs I attend per year? (**Check one**)

- a. 0- 25
- b. 26-50
- c. 51-75
- d. 76 or more

93. How many head of beef cattle do you have on your farm? (**Check one**)

- a. 1-20
- b. 21-40
- c. 41-60
- d. 61-80
- e. 81-100
- f. 101 or more

49. Which of the following best describes your beef cattle operation? (**Check all that apply**)

- a. Commercial cow/calf selling feeder cattle
- b. Commercial cow/calf retaining ownership through slaughter
- c. Seedstock
- d. Stocker operations sell as yearlings
- e. Feedlot
- f. Other: _____

50. What is your age range? (**Check one**)

- a. Younger than 20 years
- b. 20-29 years
- c. 30-39 years
- d. 40-49 years
- e. 50-59 years
- f. 60 or older

51. Where do you get answers to your beef production questions? (**Rank all with 1 being the most used, 2 being the second most used and 3 being the third most used, etc.**)

- a. WVU Extension Agent
- b. Extension Specialist
- c. Veterinarian
- c. Neighbor

_____ d. Farm Store Employee

_____ e. Other: _____

52. How many years has this operation been in the cattle business?

_____ a. Less than 1 year

_____ b. 1-5 years

_____ c. 6-10 years

_____ d. 11-15 years

_____ e. 16-20 years

_____ f. 21-25 years

_____ g. 26 or more

53. The local Extension agent, who handles beef programming...

_____ a. has responsibility for my county only.

_____ b. shares responsibility for two or more counties.

_____ c. I am not sure

Comments:

If you have any questions regarding this survey feel free to contact:
Travis by phone at 304-293-6131 ext. 4234 or email: tcullen1@mix.wvu.edu
or Dr. Debby Boone at 304-293-5450 or email at debby.boone@mail.wvu.edu

Thank you for taking the time and effort to complete this survey.

APPENDIX G

Extension Agent Open Ended Responses

Question 19: “I use the following methods to advertise my beef programs.”

Responses:

Regional Beef Newsletter

FSA Newsletter

Question 30: “I use the following teaching methods to deliver beef programs.”

Responses:

Field Days

Farm Visits

One-on-One

Newsletters

Question 50: “The following best describes your county’s beef cattle operation.”

Responses:

Hobby Farms

Grass Fed

Question 53: “Where do you feel that beef producers in your county get answers to their beef related questions?”

USDA

Breed Associations

NRCS

FSA

Other Farmers

Magazines

RFDTV

Internet

APPENDIX H

Beef Producer Open Ended Responses

Question 19: “I prefer/receive the following methods of advertisement for beef programs.”

Responses:

FFA Alumni News

Farm Tours

Meetings w/me and others

Field Days

Question 30: “I prefer the following teaching methods at extension programs”

Responses:

Multi County Meetings

Field Trips

Question 49: “Which of the following best describes your beef cattle operation?”

Responses:

back grounding

Breeding

clean land`

club calf production

club calf production

Cow/Calf Operation

Purebred Angus

purebred

Sell Some Bulls and Heifer Yearlings

Question 51: “Where do you get answer to your beef production questions?”

Research

Internet

Ag Teachers

Trial and Error

Buyers

Books

American Angus Association

Fellow Farmers

Other Farmers

Other State Universities

Family Members

APPENDIX I
Extension Agent Comments

Comments:

[There] is no “Ag agent in this county anymore. Any agriculture questions are answered by the office. No additional programs are offered. Agriculture related articles are put in the county Extension newsletter when available from state office. County offers an agriculture farm show where producers can show their beef. We also support the Beef Expo and West Virginia Livestock Round Up.

I would like to see the Extension Summary when finished. Good Luck. [county agent]

Do not offer programs at this time.

We have a local Cattleman Association that promotes beef quality and marketing; however, most beef farmers choose not to participate. I believe they’re well aware of it and well aware of educational opportunities. They just don’t /wont’ make the effort to adopt best practices on their farm or get involved.

Main Educational Teaching through articles in Bi-Monthly newsletters. Others include Phone call, Farm Visit, Internet Links, meetings in Neighboring States Dinner Educational Meeting.

We have no Ag Agent or Beef program.

They often get answers from neighbors or the farm store because of more regular contact. But not necessarily the best answer.

Keep up the good work young man!! Do not give up! Stay focus. I wish you my best.
[County Agent]

Very little beef production most people do it more so as a hobby and will slaughter to provide their family with beef. They will also go to the auction from time to time but not for large scale or purchase. 1-3 animals at a time at the most.

I just started late in the year, so take this information with that in mind.

Good Questions Makes me realize how many more programs I need to be offering!.
Good luck with the thesis.

APPENDIX J

Beef Producer Comments

Comments:

Calf pools are talked up but over the years local markets are the best bet. Sell in farmers groups.

Extension Agents seem to be in meetings in Morgantown or other places than their county, 75% of the time you need him or call office he is gone.

Get a Toll Free Number

Good Luck Bleed Green

He is Not Very User Friendly

I cannot see how this is going to result in better programs for farmers. Another example of a poor Extension Program

I definitely think the agent is doing a great job - just not knowledgeable in farming

I don't have a computer

I don't have email.

I go to a different County

I would like to see more development of the beef marketing program for W.V. I am not referring to the role of feeder cattle to out of state markets.

If you call our Extension Agent they try to be very helpful

I'm going out of business you can't make it. There is no market

In [West Virginia] County there are no beef classes at ALL.

I've used the agent one time in 11 years

More on organic Animal and crop production low inputs how to obtain more info on Herford cattle

[West Virginia] County, has not had an "agricultural" agent for years now. The last few have been great with 4-H programs but no help with farming.

Our county Agent is always available when called as need arises

Thanks For a chance for Farmers to be heard. The financial challenges that the small farmers have today are unbelievable. If I have to borrow Money to Buy Fertilizer this year, and right now it looks like this is going to happen, I'll have to go out of business. How many small farms go out each year? Something has to change! Thanks

The County agent of [West Virginia] County does a very good job of working with the cattle owners.

There is a feeder market in the [West Virginia City] area. The state should assist this development and keep those jobs in West Virginia. Call me after 6 pm and I will explain what I think will help the West Virginia Beef Producers

We have 232 Dinner meetings per year. They are on the most part very full of info.

We would like to have an organized sale of cattle of all breeds in our county

[West Virginia] County does not have any beef programs. We have to go to [West Virginia] County.

[West Virginia] County has a new agent.

West Virginia Bull Sale is not pushed due to change in grading several years ago. Genetic Alliance Bull Sale is highly recommended but only two farms are involved along with Extension agent.

VITA

Travis Cullen

Education:	May 2010	<i>Masters of Science</i> Agricultural and Extension Education West Virginia University Morgantown, West Virginia
	December 2008	<i>Bachelors of Science</i> Agra-business Management and Rural Development West Virginia University Morgantown, West Virginia
Profession Experience:	May 2008 – August 2008	Intern WVU Extension Service West Virginia University Point Pleasant, West Virginia
	February 2009 –August 2009	Graduate Student WVU Extension Service West Virginia University Morgantown, West Virginia
	August 2009 –May 2010	Graduate Research Assistant WV Small Farm Center WVU Extension Service West Virginia University Morgantown, West Virginia
	June 2010	Extension Agent in Training WVU Extension Service West Virginia University Morgantown, West Virginia