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# EVALUATION OF INFORMATION TRANSFER BETWEEN BEEF PRODUCERS AND EXTENSION AGENTS IN WEST VIRGINIA

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### ABSTRACT

West Virginia University Extension Agents are available to assist clients with topics ranging from families and health to 4-H youth development and agriculture. With constantly changing technologies, Extension Agents continue to adopt new methods of marketing their programs. The purpose of this study was to determine whether information from the West Virginia University Extension Service is being disseminated to West Virginia beef producers through desired programming, teaching methods and advertised the way beef producers' desire. 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 offered.

### Introduction

The West Virginia beef industry ranks 38<sup>th</sup> 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 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 youth development and agriculture. With constantly changing technologies, 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.

### Problem Statement

West Virginia's beef industry is very diverse ranging from cow/calf operations to seedstock farms. In the 2007 *Census of Agriculture* there were approximately 12,000 West Virginia farms with approximately 400,000 beef cattle while the average age of the 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 full and part-time farmers? By understanding what the beef producers' preferences are regarding programs, teaching methods, and information transfer, Extension Agents will be able to better adapt their programs, communication methods, and in return increase the average attendance for programs relating to West Virginia's beef industry.

### Purpose/Objectives

The purpose of this study was to determine whether information from the West Virginia University Extension Service was 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 were offering the programs beef producers wanted in their counties. The research focused on program advertising, teaching methods, and program offerings. The objectives of the study are reflected in the following research questions:

What methods were West Virginia University Extension Agents using to inform beef producers about upcoming programs and new technologies relating to the beef industry?

How do beef producers prefer to hear about Extension programs?

What methods do West Virginia University Extension Agents use to teach their programs?

What are the methods by which West Virginia beef producers prefer to learn?

What beef production programs are West Virginia University Extension Agents offering in the state?

What programs would the beef producers like to see West Virginia University Extension Service offer in their counties?

Were West Virginia University Extension Agents effectively communicating with their county beef producers?

### Research Design

A descriptive research design in the form of a mailed questionnaire was chosen to evaluate the research questions for the study. The target population for this study was Extension Agents responsible for Agriculture and Natural Resources programming or Agents in charge. A census was conducted of 46 Agriculture & Natural Resources agents who offered beef programming.

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 the 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 Cattlemen's Association mailing list, participants in the South Branch and Weston livestock markets, and State Livestock Roundup (N = 4600). Krejcie and Morgan (1960) guidelines were used to determine the total sample size of the beef producers (n = 365). Twenty-three individuals were deceased, had sold their operation, or were otherwise unreachable leaving an accessible population of 342. One hundred and forty-two producer (42%) and 40 Extension Agent questionnaires (87%) were returned.

### Instrumentation

Two different instruments were used in this study; one was designed for beef producers and one for Extension Agents. The surveys were adapted from two instruments created by Nelson (2008) and used with Extension Agents and dairy producers in Pennsylvania.

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, Jacobs, Razavieh, and Sorenson (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 third part collected demographic information about the participants.

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

The reliability of both instruments was determined using the final data set and established to be reliable. 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 both instruments were found to be exemplary with the coefficient of 0.95 on the producer survey and a coefficient of 0.86 (Robinson, Shaver, & Wrightsman, 1991) on the producer survey.

Dillman's Tailored Design Method (2007) was used for this study. A packet including a cover letter and survey was mailed to participants, followed by a second mailing. The data were entered into an Excel spreadsheet then transferred to SPSS for analysis with significance level set *a priori* at  $\leq .05$  for all statistical tests. Frequency tables were generated for both instruments.

### Findings

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. The top methods were determined by adding the strongly, moderately agree, and agree percentages for the Likert-type questions. The top three methods indicated by beef producers were mail, newsletters and flyers. The least popular methods were television, radio, and Internet. The top three methods Extension Agents used were newspapers, word of mouth, and mail. The least popular methods were Internet, radio, and television (see Table 1).

Table 1

*Advertisement Preferred by Beef Producers Versus Methods Used by Extension Agents*

	Beef Producers	Extension Agents
Method	%	%
Mail	98.4	94.3
Newsletters	96.8	81.8
Flyers	87.3	72.7
Personal Visits	86.4	81.8
Newspapers	84.2	97.1
Word of Mouth	75.9	97.1

Phone	70.7	80.1
Television	68.9	27.3
Email	66.7	50.0
Internet	66.7	45.5
Radio	64.7	36.4

The top teaching methods were determined for beef producers and Extension Agents. This was found by adding the strongly, moderately agree, and agree percentages from the Likert-type questions. Beef producers preferred demonstrations, discussion, and individual consultation. The least popular method for producers was use of the Internet. The top three teaching methods used by Extension Agents were discussions, fact sheets and individual consultations. The least popular method for agents was teaching or demonstrating software (see Table 2).

Table 2

*Teaching Methods Preferred by Beef Producers Versus Used by Extension Agents*

Beef Producers		Extension Agents	
Method	%	Method	%
Demonstrations	100.0	Discussion	94.2
Discussion	97.6	Fact Sheets	91.2
Individual Consultation	94.2	Individual Consultation	90.9
Lecture	93.6	Demonstrations	88.1
Fact Sheets	92.6	Lectures	88.1
Videos/DVD's	91.6	Videos/DVDS	85.3
Books	82.1	Books	45.5
Teaching/Demo Software	70.3	Internet	38.2
Internet	59.6	Teaching/Demo Software	33.3

The top programs offered by Extension Agents and the top programs preferred by beef producers were studied. In excess of 85% of the beef producers expressed a desire to receive training on all topics in the study. Over 60% of the Extension Agents indicated their clients desired training on all topics in the list. The top three programs offered by Extension Agents were forage production & management, nutrition, and health and herd management. Livestock Risk Protection was the program least likely to be offered by Extension Agents. The top four programs beef producers were interested in were herd health management, nutrition, replacement heifer management, and forage production & management. Bull test was rated as the least preferred program by beef producers (see Table 3).

Table 3

*Comparison of Beef Programs Offered by Agents Versus Preferred by Beef Producers*

Beef Producers		Extension Agents	
Program	%	Program	%
Herd Health Mgmt	99.2	Forage Production Mgmt	90.9
Nutrition	98.4	Nutrition	90.9
Forage Production Mgmt	97.6	Heard Health Mgmt	90.1
Replacement Heifer Mgmt	97.6	Marketing	87.9
Beef Quality Assurance	96.6	Beef Quality Assurance	87.5
Marketing	96.1	Record Keeping	84.4
Record Keeping	95.9	Reproduction	81.3
Facilities Design	95.8	Bull Test	81.3

Reproduction	95.1	Genetic Evaluation	78.1
Genetic Evaluation	94.9	Facilities Design	75.0
Livestock Risk Protection	91.5	Replacement Heifer Mgmt	71.9
Bull Test	88.5	Livestock Risk Protection	68.8

### Conclusions

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

Beef producers preferred demonstrations as a teaching method while Extension Agents preferred listed discussions their preferred teaching method.

Extension Agents and beef producers agree on mail as a preferred method of advertisement for programs.

Extension Agents offer all programs that beef producers indicate they have an interest in; however, the preferred programs differ between the two groups.

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

### Recommendations

The researchers make the following recommendations based on the results of this study:

Extension Agents should use the demonstration method as the main teaching method when working with beef producers.

Extension Agents should advertise for beef programs using mail, newsletters, word of mouth, and newspapers.

Extension Agents should conduct a needs assessment in their counties to determine what type of beef programs producers are most interested in attending.

Extension Agents should continue to assess methods beef producers prefer to get answers to their beef production questions, preferred methods of advertisement, and methods of program delivery. This will allow them to best serve the needs of their clients.

This study should be conducted with Extension Agents and other producer groups.

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