

- \* Divide into small groups, critical thinking worksheet
- \* Journal entry - My Employment Strengths and Areas Where I Might Need Improvement
- \* Handouts, Internship form, and activities
- \* Journal Assignment - My Short and Long Term Goals in Life
- \* Schedule individual conference for discussion and return of journal
- \* Assignment - Complete and turn in journal

**Reminder: A minimum of two out-of-class journal entries on self-selected topics are required each week in addition to classroom entries and those assigned as homework.**

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## **Montana Legislators' Knowledge and Perception of Agriculture**

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### **Abstract**

This study assessed the level of agricultural knowledge and perceptions of elected officials who served in Montana's 54th legislative session in 1995 as members of the House of Representatives and of the Senate.

Of the 150 survey instruments mailed out to both chambers, 90 usable surveys were sent back for a 60% return rate. Data were collected in three sections: (1) agricultural knowledge true/false statements, (2) agriculture perception statements, and (3) demographic information of legislators.

Data collected from respondents cannot be statistically generalized to the entire population of the 54<sup>th</sup> Session of the Montana Legislature. However, the findings may have practical implications for College of Agriculture faculty since they indicated a need for better education for the general public about agriculture and agricultural issues. Support and encouragement must be provided to agencies of agricultural education in the future as they strive to maintain or increase public agricultural literacy.

### **Introduction**

During the 20th century this country was transformed from an agrarian society into one in which over 97% of all employed persons do not produce their own food. Rather, they are free to manufacture other products or provide services which are characteristic of highly industrialized nations (Nipp, 1988). This transformation has contributed to the relatively high standard of living enjoyed by most U.S. citizens. Although this country's dependence on an inexpensive, abundant, and safe supply of food and

agricultural products has not diminished, the production of agricultural products has become concentrated in the hands of progressively fewer producers.

Coinciding with the decline of employment in production agriculture there has been a diminished representation of broad agricultural interests in Congress and many state legislatures. Mayer and Mayer (1974) reported that:

. . . only government officials identified with an agrarian interest wish to serve on the Agriculture committee and subcommittees. This self-selection has tended to support large-scale government programs intended to support narrow classes of producers with little regard for end users or even an overall production policy. (p. 91)

Most state and national legislative representatives have been elected from non-agricultural districts and few have any direct relationship with agriculture. The number of politicians who analyze agriculture questions and issues from the perspective of a consumer, rather than a producer, is increasing (Nipp, 1988). This shift has and will continue to impact the development of agricultural policies in this country. The change in focus from production-oriented food and agricultural policies to consumer-oriented policies has the potential to dramatically affect the stability and reliability of the food production and distribution system in this country.

Although direct involvement in production agriculture has declined, increasing numbers of citizens in this country have become more vocal about issues related to agriculture, food, and natural resources. Public response to

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the use of the growth regulator Alar on the Washington apple crop and BST (Bovine Somatotropin) in the dairy industry are two illustrations of the extent to which the consuming public has reacted to issues in the agriculture and food industry. However, public beliefs, attitudes, and actions often have been formed from inaccurate or insufficient information. These beliefs, attitudes, and actions have the potential to be manifested in legislative action taken by our state and national government (Western Region Coordinating Committee-106, 1997). Mawby (1990, p. 72) noted that by “. . . educating Americans in the wise management of food supplies and related renewable resources, we can anticipate more knowledgeable decision-making about agriculture in the future.”

Communicating with our elected officials is important for all involved in teaching, service, and research in a College or Department of Agriculture. College or department administration and faculty often petition legislators in support of agricultural teaching, research, and service activities. To date no one has assessed the agricultural literacy and perceptions of an elected body of officials in Montana who have the power to impact the agriculture industry.

### **Purpose of the Study**

The purpose of the study was to assess the level of agricultural knowledge and perceptions of those elected officials who served in Montana's 54th legislative session in 1995. The study's objectives were:

1. To assess the agricultural knowledge of people elected to serve in the Montana 1995 legislative session,
2. To assess the level of agricultural perceptions of people elected to serve in the Montana 1995 legislative session.
3. To determine Montana's Legislators' rating of various educational organizations' ability to educate the public about agriculture, and
4. To determine which agriculturally-related issues Montana's Legislators believe are most critical to address.

### **Materials And Methods**

The population of the study was all of the members of the 54th legislative session held in Helena, Montana in 1995. Names and addresses were secured from the Montana 1995 Directory Fifty-Fourth Session (U.S. West Communications, 1995) and Lawmakers of Montana (Langley and Langley, 1995) distributed to the general public. There were 150 total legislators comprised of 100 representatives and senators. There were 41 male and 9 female senators and 73 male and 27 female representatives. For the purposes of this

study, a census of the entire study population was conducted.

Representatives came from a city which had at least one school with over 750 students enrolled in grades 9 through 12. Twenty-one senators came from similar cities.

A data collection instrument organized in three sections was developed for this study using Frick's (1991) Delphi study as the basis. The instrument included a knowledge section, perception section, and demographics section. However, Frick's eleven agricultural literacy concept areas were collapsed into seven areas following the original pilot test and, as a result of the data analyzed, the 11 concept areas were collapsed into 7 concept areas (Table 1). The concept relating to the Environment was merged into the Natural Resources concept. The Global Significance concept was merged with the Societal Significance concept into a new concept area titled Significance. The Public Agricultural Policies concept was merged with the Economic Impact concept into a new concept area titled Policy. And lastly, the Distribution of Agricultural Products concept was merged with the Marketing Agricultural Products concept into a new concept area titled Marketing.

### **Results and Discussion**

Of the usable surveys, 70 (78%) were from males and 20 (22%) were from females. This was close to the gender distribution of the study population. A majority of the respondents lived in a town or city. Nineteen (21%) of the legislators indicated their home was on a farm or ranch and 48 (54%) indicated they lived in a town or city. Twenty-two (25%) of the respondents lived in a rural area. Of those who did live on a farm only two lived on a farm with less than 1000 acres while 22 (24.8%) lived on a farm of over 1000 acres.

A greater percentage of members of the House of Representatives (64%) returned completed surveys than did the members of the Senate (50%). The data also revealed that Democrats had lower return rates (37.5%-House and 32%-Senate) than Republicans (62.5%-House and 68.0%-Senate). Fourteen percent (13) of the respondents were former members of FFA and 39% (35) of the respondents had been 4-H members. The majority did not have experience as a member of the FFA or 4-H organizations. Nineteen legislators (21.1%) responded they had taken agricultural courses in high school. When asked if they thought a considerable portion of their constituents were involved in agriculture, about half (48.9%) replied yes while 46 (51.1%) replied no.

### **Knowledge and Perceptions of Agriculture**

Analysis involved the computation of means and standard deviations for the knowledge of agriculture and

Table 1. Comparison of Agricultural Literacy Concept Areas

Concept Areas Identified by Frick (1991)	Titles of Merged Concept Areas Used In This Study
Societal Significance of Agriculture (1)	1. Significance
Global Significance of Agriculture (1)	
Public Agricultural Policies (2)	2. Policy
Economic Impact of Agriculture (2)	
Agriculture's Relationship with the Environment (3)	3. Natural Resources
Agriculture's Relationship with Natural Resources (3)	
Production of Plant Products (4)	4. Plants
Production of Animal Products (5)	5. Animals
Processing Agricultural Products (6)	6. Processing
Marketing Agricultural Products (7)	7. Marketing
Distribution of Agricultural Products (7)	

perception of agriculture scores for all respondents. Scores are reported for the overall knowledge and perception scale in addition to each of the seven concept areas comprising agricultural literacy.

The first objective was to assess the level of agricultural knowledge of the 54th Session of the Montana Legislature. Mean scores and standard deviations for the seven subject areas represented in the knowledge section of the instrument appear in Table 2. Montana Legislators produced a knowledge of agriculture mean score of 30.63 with a standard deviation of 2.69. The highest group mean knowledge score for the seven concept areas was found to be the Marketing concept area (4.81) whereas the lowest group mean knowledge score was the Plant concept area (3.90). Collective responses to some of the Knowledge items were considered worthy of noting by the researchers, but are not included because of lack of space for this article. For instance, 49.4 percent of the legislators responded "true" while 28.1 percent responded "false" and 22.5 percent "didn't know" to the statement "The average U.S. farm is larger than 500 acres" and in response to the item "Homogenization uses heat to kill bacteria in milk", 25.8% of the Legislature responded "false." Furthermore, 67% of legislators missed

the basic economic principle in the plant science knowledge area that "Profits do not necessarily increase as farmers strive for maximum crop yields" in the Knowledge section of the survey. Also, about one-third of the legislators lack knowledge about the size of the agricultural industry and its contribution to the Gross National Product.

The second objective was designed to assess the level of agricultural perception. The mean perception scores and standard deviations for the seven subject areas appear in Table 3. Montana Legislators' perception of agriculture mean score was 69.85 with a standard deviation of 10.64 which indicates a positive perception toward agriculture. Lower perception scores reflected more positive perceptions of agriculture. The legislators, as a group, produced lower (most positive) perception mean scores for the Policy concept area (8.81), whereas the highest (least positive) score was in the Significance concept area (10.96). Collective responses to some of the Perception items by the Montana Legislature were considered worthy of noting by the researchers, but are not included because of lack of space for this article. For instance, 86.7 percent of the respondents "strongly disagreed" or "disagreed" that "The government should exert more control over farming" and 81.1% of the respondents "strongly disagreed" or "disagreed" that "Farmers should not use chemicals in crop production."

Table 2. Means and Standard Deviations of Agriculture Knowledge Scores of Montana Legislators (n=90)

Concept Area	Mean <sup>2</sup>	Standard Deviation
Significance	4.37	0.61
Policy	4.10	0.90
Natural Resources	4.74	0.43
Plants	3.90	0.79
Animals	4.50	0.71
Processing	4.21	0.93
Marketing	4.81	0.47
Total	30.63	2.69

<sup>2</sup> Knowledge concept area scores ranged from 0 to 5. Total Knowledge scores ranged from 0 to 35.  
0= least knowledgeable, 5= most knowledgeable

Table 3. Means and Standard Deviations of Agriculture Perception Scores of Montana Legislators (n=89)

Concept Area	Mean <sup>2</sup>	Standard Deviation
Significance	10.96	2.70
Policy	8.81	2.21
Natural Resources	9.29	2.65
Plants	10.52	1.78
Animals	8.94	2.26
Processing	10.55	2.03
Marketing	10.79	2.04
Total	69.85	10.64

<sup>2</sup> Perception concept area scores ranged from 5 to 35. Total perception scores ranged from 35 to 175.  
5=most positive, 35= least positive

### Selected State Educational Organizations' Ability to Educate the Public about Agriculture

Legislators were asked to rate a list of state educational organizations regarding which organization currently has the best ability to educate the state's people about the food and fiber system. The respondents were to indicate on a scale of 1 to 7 with 1 representing "poor ability", 4 representing "good ability", and 7 representing excellent ability to educate Montanans about agriculture. Of the given list of choices (Table 4), the College of Agriculture at Montana State University-Bozeman and the Extension Service were perceived as currently having the best "good ability" rating to deliver information about agriculture to the public with a mean rating of 4.6. While all other organizations received a "good ability" rating (4.0 - 4.5), Public Education Agricultural Education Programs (4.0) received the lowest "good ability" rating. The Montana Department of Agriculture and Farm

and Ranch Interest Groups received mean ratings of 4.1. Ag in Montana Schools received a mean rating of 4.5. Ag in Montana Schools is a grass-roots program which furnishes support (inservice and curriculum materials) to integrate agricultural subject matter in Montana's elementary schools. This may be due to Ag in Montana Schools being a check-off program, hence creating legislative awareness. University and USDA research stations were rated as having a good (4.2) ability to educate Montanans about agriculture. The "other" category was provided so respondents could mention groups that were not included on the survey instrument. Groups mentioned by respondents included elementary and high schools' general curriculum teachers, media, membership groups including WIFE (Women Involved in Farm Economics) and Stockgrowers, family, 4-H (kids and fairs), radio (ag news), and public information programs.

Table 4. Perceived current ability of selected state educational organizations to educate Montanans about agriculture.

State Groups	Mean <sup>1</sup>	Number Responding (n)
Extension Service	4.6	83
College of Agriculture at Montana State University	4.6	82
Montana Department of Agriculture	4.1	83
Ag in Montana Schools	4.5	82
Public Education Agricultural Education Programs	4.0	82
Farm and Ranch Interest Groups	4.1	82
University and USDA Research Stations	4.2	82
Other	5.9	8

<sup>1</sup> 1.0 to 2.5 - poor ability, 2.6 to 4.5 - good ability, 4.6 to 7.0 - excellent ability.

When asked about the future ability of state groups to educate the public about the food and fiber system, Ag in Montana Schools recorded the highest mean (5.1). The data revealed that all organizations were rated as important (greater than 4.5). The State of Montana Department of Agriculture received the lowest rate of 4.7. Additional groups included College of Agriculture at Montana State University at 5.0, Farm and Ranch Interest Groups at 4.9, Extension Service at 4.9, Public Education Agricultural Education Programs at 4.8, and University and USDA Research Stations at 4.8. It should be noted that all future abilities were rated higher than present abilities. This suggests that all of these organizations have an increasing responsibility for educating the public about agriculture in the future. Groups mentioned in the "other" category by the respondents included the media, families, 4-H and fairs, and public information programs.

#### Sources of Agriculture Information

For agricultural news, respondents were asked to identify their most common use of four media sources. *Newspapers* (62) were the most common media used to gather information about agriculture (Table 5). *Television* (28) was the least-used mode of information. Other media sources listed were *Radio* (41) and *News magazines* (39).

Table 5. Most commonly used media sources of agriculture information.

Media Type	n <sup>1</sup>
Newspapers	62
Radio	41
News magazines	39
Television	28

<sup>1</sup> Respondents selected more than one source, so number of responses is greater than the number of respondents.

#### Importance of Issues to Respondents

Data in Table 6 present the respondents' ranking of issues most critical to address. Respondents were asked to rank the most critical issue with a 1 and the least critical issue with a 6 or 7. The issues rated were primarily derived from the "Agricultural Issues" Instructional Materials developed by the National Council for Agricultural Education. The highest ranking issue was the Viability of our rural economic base with a high average ranking of 2 out of 7. Animal welfare was the lowest ranking issue at 5.6. Additional issues included Conservation of our natural resource base at 2.9, Food safety at 3.2, Agricultural practices that affect the environment at 3.3, and Biotechnology at 4.2.

Table 6. Agricultural issues most critical to address.

Issue	Mean Rank <sup>z</sup>	Number Responding (n)
Food safety	3.2	73
Animal welfare	5.6	72
Agriculture practices that affect the environment	3.3	73
Viability of our rural economic base	2.0	73
Conservation of our natural resource base	2.9	74
Biotechnology	4.2	72

<sup>z</sup> 1-most critical to 6-least critical

### Summary

The purpose of the study was to assess the level of agricultural knowledge and perceptions of those elected officials who served as representatives and senators in Montana's 54th legislative session in 1995.

It should be recognized that the data collected from respondents cannot be generalized statistically to the entire population of the 54th Session of the Montana. However, the findings reported may have practical implications for College of Agriculture Faculty and should direct researchers to further examine the issue of agricultural literacy with other groups that communicate with Colleges of Agriculture. The data analysis brought out the following conclusions:

1. Montana's elected officials who served in the 54th legislature, on the average, have a positive perception of agriculture (69.85) as a group, though perceptions varied widely.
2. Legislative leaders in Montana have strong positive perceptions about the economic well-being of farmers. This was based on responses to economic statements contained within the seven concept areas. However, 67% of legislators missed the basic economic principle in the plant science knowledge area that "Profits do not necessarily increase as farmers strive for maximum crop yields" in the Knowledge section of the survey. Also, about one-third of the legislators lack knowledge about the size of the agricultural industry and its contribution to the Gross National Product. In addition, legislators have a positive perception about agricultural policy and ranked the viability of our rural economic base as a number one issue.
3. Legislators perceive that education about agriculture in the future will be more important than it is currently. While educational agencies are currently doing a good job, they must increasingly emphasize in the future of educating the public about agriculture.

### Recommendations

1. An effort needs to be made to better educate legislators and the public about biotechnology. Public schools and adult education programs should increase the awareness and use of biotechnologies.
2. Possibly a programmatic emphasis in agricultural public relations could improve the comprehensive delivery of agricultural information to Montana's public.
3. An agricultural education center should be established at Montana State University-Bozeman, which would bring all sources of agriculture and agricultural education together into a focused plan for educating the public about agriculture and its importance. With legislators' high ranking of the future ability of the College of Agriculture, the Extension Service, and research stations to educate the public about agriculture, an agricultural education network with all state agriculture groups involved could be easily put into place.

The results from this study can establish guidelines for communicating and educating our elected officials about the industry of agriculture and the importance agriculture plays in American society. The data provide information to the public and agricultural groups to better understand how legislators feel about the agriculture industry.

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## Current Status of Preservice Teacher Education Programs In Agriculture

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### Abstract

Preservice teacher education programs in agricultural education are administered in Colleges of Agriculture. The average preservice agricultural education program has 41 teaching majors educated by 1.7 full-time equivalent faculty members. Admission requirements into teacher education vary by institution. The curriculum/degree program preservice students complete to become certified teachers consists of 131 semester hours, including 45 semester hours in general education, 43 semester hours in technical agriculture, and 37 semester hours in professional education courses. Preservice students are also expected to complete coursework and experiences in multicultural education, exceptional children, computers/instructional technologies. Preservice teacher education students complete 60 clock hours of an early field experience in a local agricultural education program and complete student teaching for 12 weeks.

### Introduction

During the 1980s, national education reports criticized the way students were performing in the classroom and chronicled the need for the recruitment and preparation of talented individuals in the teaching profession. *A Nation at Risk* (National Commission on Excellence in Education, 1983) reported teaching majors should meet high educational standards, demonstrate an aptitude for teaching, and demonstrate competence in an academic discipline. The Holmes Group (1986) called for extended programs of teacher

education and stronger evaluations of candidates for entry, retention, and licensure in teacher education. *A Call for Change in Teacher Education* (National Commission for Excellence in Teacher Education, 1985) suggested that more rigorous academic and performance standards for admission into and graduation from teacher education programs was the solution to the problem of not having quality individuals entering the teaching profession.

Although teacher education programs have been held accountable for many of the perceived failures of public education, early education reports focused on curriculum reform for public school students and not that of preservice students (Lynch, 1990). These reports provided an impetus resulting in significant changes in teacher education and state-required certification in the mid 1980s. This impetus prompted a reform movement for school improvement to begin with upgrading the quality of those entering the teaching profession (Lynch and Griggs, 1989). This led to additional reform efforts that looked at teacher test scores, subject-matter credit or degree requirements, and hours or weeks of required clinical experiences in teacher preparation programs.

The dearth of research in teacher education has not helped answer the challenges brought forth by commission reports. Furthermore, research on vocational teacher education is relatively nonexistent. Lynch (1990) collected baseline data on preservice teacher education programs in the United States because such data was not included or segmented in larger studies on teacher education. Lynch's attempt provided the necessary data to formulate policy and teacher education reform decisions in vocational education. Data on agriculture teacher education programs was included in his study, but like in past research in teacher

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