This is to certify that the

thesis entitled
Characteristics, Technical Educational Needs and Preferred Educational Delivery Methods of Alaskan Agricultural Producers

presented by

Carolyn L. Pennington

has been accepted towards fulfillment of the requirements for

M.S. degree in Agriculture and Extension Education

Major professor

Date May 20, 1992

CHARACTERISTICS, TECHNICAL EDUCATIONAL NEEDS AND PREFERRED EDUCATIONAL DELIVERY METHODS OF ALASKAN AGRICULTURAL PRODUCERS

By

Carolyn L. Pennington

A THESIS

Submitted to

Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Agricultural and Extension Education

1992

ABSTRACT

CHARACTERISTICS, TECHNICAL EDUCATIONAL NEEDS AND PREFERRED EDUCATIONAL DELIVERY METHODS OF ALASKAN AGRICULTURAL PRODUCERS

By

Carolyn L. Pennington

Productive agricultural enterprises are often the result of hard work, information, education and luck. With the recent development of agriculture in Alaska, pertinent information and education for subarctic production conditions are vital.

A general needs assessment of Alaskan agricultural producers was used to identify demographic characteristics, identify sources of agricultural information preferred and utilized, and identify existing and preferred educational delivery systems and programs.

The mail survey consisted of 46 questions divided into four sections: agricultural experience and education, information sources, educational programs, and demographic information.

Data were analyzed using descriptive statistics, frequencies, and correlations. There were several strong positive correlations between commodity produced, preferred information method and importance of educational programs.

Data revealed respondents were an average age of 52 years, having at least a high school education and 31 years of general agricultural experience. Information sources used most included magazines and Cooperative Extension Service (CES). The information source most preferred was person to person. Participation in CES and local organizations was most frequently listed by respondents. Top programs of importance included University and CES.

ACKNOWLEDGMENTS

This document is a reflection of the dedication of many, hence I would like to express my sincere appreciation to a few of the many who made the dream a reality.

Thank you to Dr. Kirk Heinze, who served as my major professor during the final lap; your encouragement and input kept me moving. Thank you also to Dr. Eddie Moore for getting me on the right track in the beginning.

Sincere appreciation to my committee members, Dr. Jack Elliot, Dr. Joe Levine, and Dr. Howard Person. Your varied insights gave me food for thought.

Special thanks to the supportive AEE crew of professors, secretaries, and fellow students - - one and all.

Also many thanks to DeLon Brown, Alaska Agricultural Statistical Service, for your suggestions and assistance in reaching the Alaskan farmers. Many thanks to Alan Tonne for your assistance in data collection and moral support, and to Steven Lay for your invaluable time and information.

Most important appreciation to Dr. Carla Kirts as mentor, philosopher and friend. You may have been miles away, but you were always there.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 - INTRODUCTION

Background for the Study

Early pioneer farmers in America learned agricultural skills from family operations, apprenticeship work, and neighbors. Formal or structured education to develop agricultural skills was limited or non-existent in most cases. New innovations spread slowly as skeptical farmers had to rely on observations of other community members who were daring enough to attempt changes in traditional farming practices.

With the establishment of Land Grant Colleges in 1862, formal educational opportunities to study agriculture developed. Farmers in production were faced with potential problems of distance, limited time to attend classes and pressures associated with limited previous educational experience. The 1887 establishment of agricultural research stations provided a more direct route for information useful to farmers, yet dissemination of the information was still limited. The extension of the research information provided by the land grant institutions to the farmers off campus became a reality with the introduction of the Cooperative Extension Service in 1914. Farmers were able to gain relevant information in local areas and had access to knowledgeable extension specialists within a short distance of the farm.

Alaskan agricultural producers received information in much the same way as the previously mentioned farmers. Additionally, the early northern farmers were influenced by Russian agricultural practices. Russians settled in Alaska in search of furs in the early 1700's, and many brought foodstuffs to support the growing communities. On Kodiak Island in 1784, Grigori Shelikof founded a settlement at Three Saints Bay and brought livestock with him (Snodgrass, 1982).

Later settlers from Russia brought chickens, cows and grain which expanded the agricultural base (Snodgrass, 1982). When the Russian occupation ended, many of the agricultural practices remained in effect in the native villages, but only for a short time.

Agricultural regions were surveyed in the early 1900's by U.S. Department of Agriculture for potential development (Fig. 1). In the mid 1930's, the federal government brought approximately 250 unsettled farmers from Wisconsin, North Dakota, Michigan and other midwest states to relocate in Alaska and develop agriculture in the Matanuska Valley. These farmers established holdings and began producing milk, hay, small grains, and potatoes. Most of the feed concentrates were shipped in by barge for the dairy cattle, while the hay and silage was harvested locally (Restad, 1986). These early Alaskan farmers brought with them agricultural knowledge attained from hands-on, midwest experiences.

Significance and Statement of Problem

As the Alaskan population has expanded, the state government has initiated programs to encourage agricultural development. Imports of meat, milk, fruit, vegetables, grain products and livestock feedstuffs still outweigh the contributions by local producers. While Alaska may provide challenges for farmers, e.g. subarctic climate, shorter growing season for crops, and underdeveloped transportation/ marketing networks, the problem of limited educational and technical assistance is one which may be addressed with hopes of potential solutions.

While state projects have provided great incentive and opportunity for new agricultural development, few programs have guidelines regarding the experience required by the participants or the technical assistance available. New farmers with limited experience can find themselves in situations where they are unable to assess and implement needed actions necessary for success.

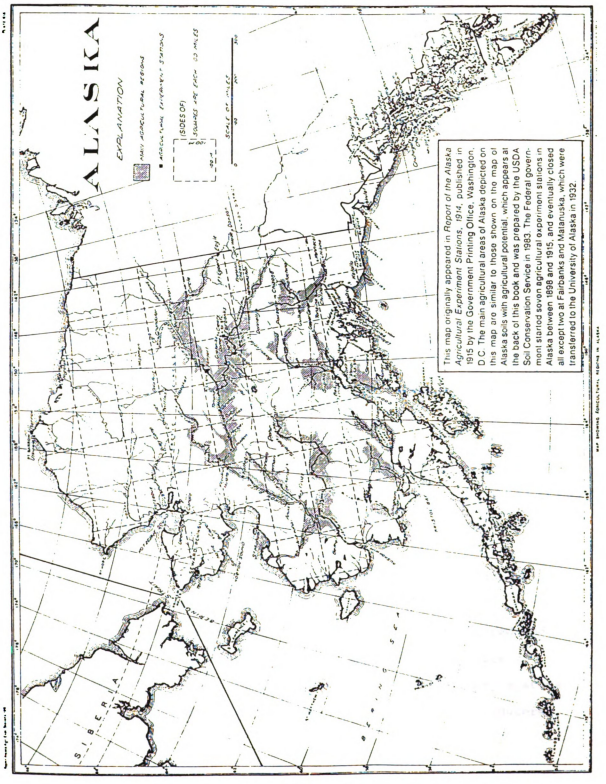

Figure 1.

Map of Alaskan Agricultural Regions

(Restad & McNickolas, 1983)

Current state agricultural projects provide land and low interest, long term loans for those interested in Alaskan farming. The investment made by the state to increase the agricultural base is one worth protecting, hence agricultural education and technical assistance could reduce the unnecessary risk farmers are faced with and could provide a higher success rate for farmers currently struggling.

Because recent state funding and support in Alaska have not increased to maintain needed levels for the farming communities, it is vital to determine what the remaining agricultural producers need in terms of technical educational assistance from existing programs. By identifying and providing educational assistance, state and local agencies can help farmers maintain current levels of production, and perhaps expand in some areas. This production, in turn, provides agricultural products that would otherwise be imported from overseas and other states at higher costs and lower quality to the Alaskan consumer.

Purpose and Objectives

The purpose of this study was to determine the educational background, current educational needs and preferred educational delivery systems of Alaskan agricultural producers. The specific objectives included:

1. Identify demographic characteristics of current Alaskan agricultural producers,
2. Identify sources of agricultural information preferred and currently utilized by Alaskan agricultural producers,
3. Identify existing and preferred educational delivery systems and programs utilized by Alaskan agricultural producers.

Definition of Terms

Agricultural education experiences - formal and non-formal education opportunities provided by the University of Alaska, Community College branches, agricultural cooperatives, Cooperative Extension Service, and local, regional, and state agricultural organizations

Alaskan Agricultural Projects - state sponsored agricultural enterprise developments in various locations around the state (Fig. 2.)

Alaskan agricultural producers - those farmers and ranchers in Alaska reporting an annual sale of $1,000 or more of agricultural products in 1990 (Alaska Division of Agriculture, 1991, p.8)

Crops - includes, but not limited to, small grains (barley, oats, canola/rapeseed, rye and wheat), turf/lawn seed, hay, and potatoes

Educational delivery systems - those methods used to disseminate information to producers, including but not limited to interpersonal, small group, seminar, lecture, mass media, non-formal and formal education

Livestock - includes cattle (dairy and beef), swine, sheep, goats, poultry, and reindeer

Limitations of the Study

The 1990 Alaska Division of Agriculture State Report listed 580 farms currently producing one or more agricultural commodities. A follow up telephone call to the State Statistical Office on March 12, 1992, confirmed only 324 farms in production of small grains, hay, potatoes, and/or livestock.

This study focused on those farmers in small grains, hay, potatoes, and/or livestock production. Horticulture, greenhouse production, and vegetable production have been previously studied, and while found to have the highest percentage of agricultural income, these enterprises are primarily privately funded (Brown, 1986, p. 39).

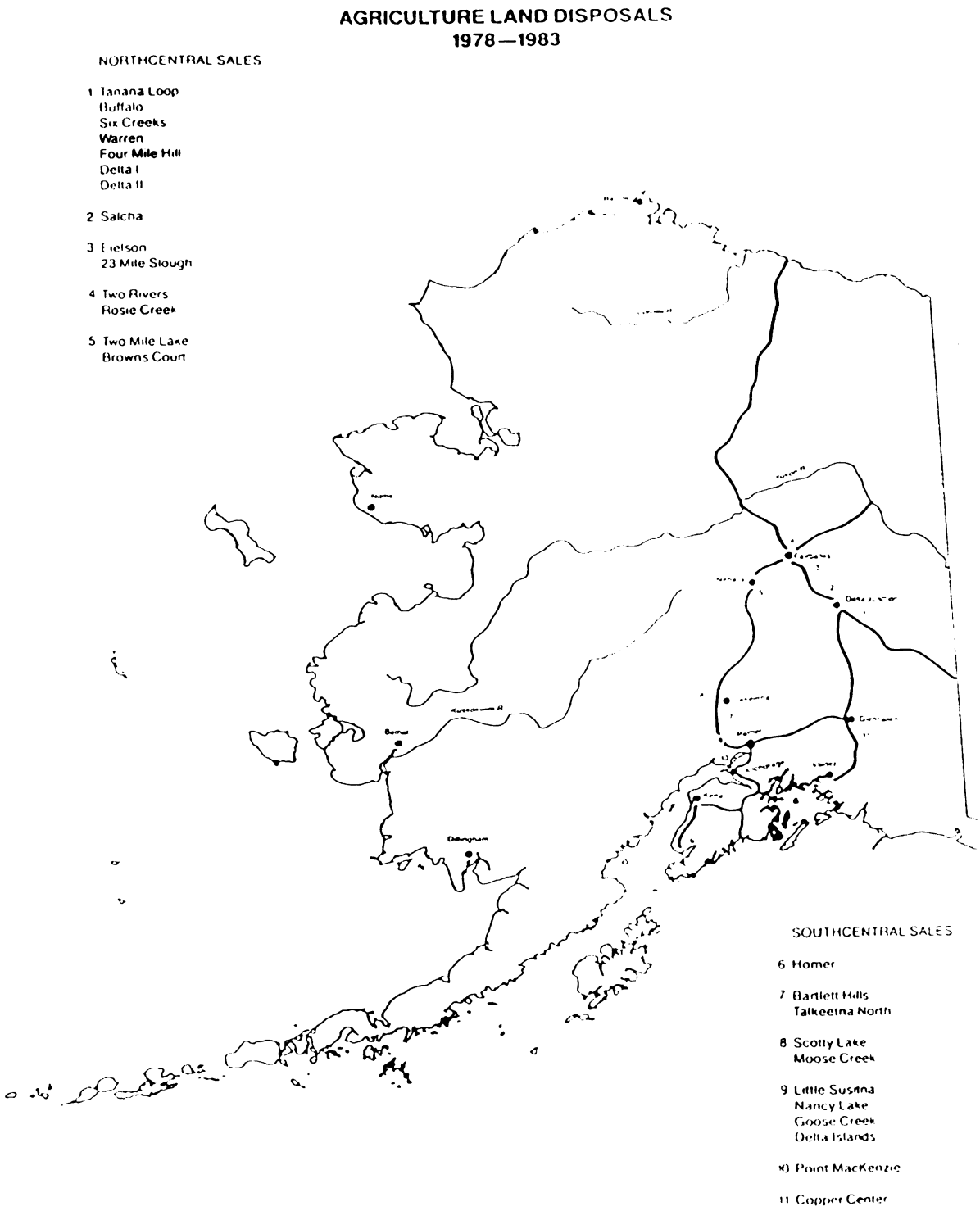

Figure 2.

Map of Alaskan Agricultural State Projects

(Restad & McNicholas, 1983)

This study examined demographics of the farmers, as well as limited topics related to general farm production, educational background, current educational participation, and desired future educational experience offerings.

Basic Assumptions

For this study, it was assumed that the farmers surveyed have an annual agricultural based income of $1,000 or more. It was further assumed that the farmers have some knowledge of agricultural practices and that the knowledge was gained through non-formal or formal educational experiences.

The survey data were dependent upon the self reporting of the questionnaire by the farmers; therefore, it was assumed the answers are honest.

CHAPTER II - REVIEW OF LITERATURE

Introduction

In 1915, the National University Extension Association (NUEA) was organized with the purpose of:

> maintaining an official and authorized organization through which colleges and universities engaged in educational extension work may confer for the development and the promotion of the best ideals, methods, and standards. (NUEA Proceedings, 1940, p. ii)

By 1940, over 50 colleges and universities had membership in the National University Extension Association, promoting the importance of extension education. Topics discussed at the annual conventions included the implications of population growth and distribution on education, arising adult education problems, state-wide educational radio programs, use of visual educational aides, and vocational guidance (NUEA Proceedings, 1937). While many of these topics did not directly address agricultural extension education, the principles discussed were relevant and could have been used by the agricultural extension sector.

The agricultural extension sector provides technical educational assistance while acting as a personal link between farmers who need information and agencies who are potential information sources (Sieber et al., 1972). Current extension programs take many forms, both formal and non-formal, including universities, community colleges, agricultural organizations, and Cooperative Extension Service programs.

Traditional extension programs have been used in Alaska with mixed results. While many of the Alaskan farmers integrate practices previously learned in other states, those practices occasionally must be modified to meet the unique situations caused by climatic and environmental differences. The production of small grains can be a relatively straightforward process until farmers are confronted with the reality of permafrost and slow organic cycling soils. Alaskan agricultural extension programs, while integrating traditional agricultural skills, must address specific situational factors to provide effective information.

Alaskan Agricultural Development

Early 1900's farming in the Tanana Valley was a result of the mining impacts in the area. Increases in population created a greater demand for food products. Local gardens provided vegetable produce, while hay and grain were also raised (Lewis and Thomas, 1982, p. 3). The amended Homestead Act of 1903 provided 320 acres to homesteaders, many of whom raised their own produce and limited livestock (Johnson and Stanton, 1955, p. 18). Lewis and Thomas (1982) stated:

> In 1935, a federal program moved 250 impoverished farm families from midwestern United States to the Matanuska Valley in central Alaska. The families were supported in various agricultural endeavors. The primary purpose was to help them supply themselves with food, not to provide a catalyst for development. (p.3)

Other sources (Burton, 1975) outline the original purposes of the Matanuska Valley Colony Settlement:

1. To get and keep families off relief,
2. To determine whether or not Alaska could absorb further population,
3. To aid the economy of Alaska by producing more food locally and hence lessening dependence on expensive and unreliable transportation. (p. 6)

These early agricultural sites provided the basis of knowledge for dealing with the subarctic conditions unique to Alaska. The Matanuska colonists had a working knowledge of farming practices prior to arrival in Alaska, and had to adapt to the conditions.

Soil surveys done during the colonization times provided information on suitable lands throughout the state. Approximately 20 million acres, about 5% of Alaska's total acreage, of virgin soil was identified as capable of producing crops (Amstrup, 1982, p. 27). Of that, recent studies identify approximately 3 million acres of potential agricultural lands located near viable transportation - - existing roads and railroad lines (Drew, 1989, p. 2). With less than 1% of the land in private ownership, development of state programs for production expansion becomes the key. Thomas and Lewis (1981) state that historical production records indicate that "no more than 20,000 acres

of privately held land ever was in crop production in Alaska" (p. 366).

Because of the limited acreage in production, food imports to Alaska are extremely high. The state obtains 95% of its food supplies from outside sources (Amstrup, 1982, p. 27; Lewis and Thomas, 1982, p. 1). Alaska farmers produce less than 30% of the fresh milk needed in the state, 2% of the red meat, 15% of cool season vegetables, and 17% of the feed grain for the livestock and poultry produced in Alaska (Thomas and Lewis, 1981, p. 370; Amstrup, 1982, p. 29).

Agricultural programs to expand production in Alaska were boosted by the oil development in the early 1970's. In 1979, the Alaska State Legislature created the Alaska Agricultural Action Council (AAAC) to oversee the planning and management of agricultural development projects in the state (Alaska Agricultural Action Council, 1980, p. 2; Lewis and Thomas, 1982, p. 4-6). The 5-member council was appointed by and answered to the governor rather than directly to the State Department of Natural Resources, Division of Agriculture (Lewis and Thomas, 1982, p. 6; Engelbrecht and Thomas, 1987, p. 78).

The Council was responsible for proposing specific agricultural projects to the legislature for approval, selecting lands for agricultural projects, conducting pilot marketing programs needed for the projects, and providing statewide management for agricultural development (Alaska Agricultural Action Council, 1980, p. 2; Lewis and Thomas, 1982, p. 6). Several agricultural projects were proposed by the Alaska Agricultural Action Council.

One of the most extensive was the Delta Agricultural Project. Promoted to attract small grain farmers to Alaska's Interior, the Delta project provided 60,000 acres of undeveloped land to be sold by lottery in tracts of 2,000 to 3,600 acres (Alaska Agricultural Action Council, 1980, p. 3; Thomas and Lewis, 1981, p. 366; Engelbrecht and Thomas, 1987). Applicants for the land lottery had three primary qualifications to meet:

1. 30-day residency or voter registration

2. $35,000 in personal investment capital available

3. Submit a qualification statement listing experience in similar farming, financial statement, and academic or vocational education. (Lewis and Thomas, 1982, p. 6; Thomas and Lewis, 1981, p. 367)

While the qualifications were well intended for promoting success of the farmers, several sources pointed out potential problems, best summed up by Thomas and Lewis (1981, p. 360):

> The kinds of agriculture to be included in the planning process was a second major issue . . . planning for a diversified series of farm enterprises in the initial project [Delta] development phase could increase the chance of failure. This position was based on the following assumptions:
>
> 1) the new land area in the Delta-Clearwater had never been farmed,
>
> 2) a large portion of the infrastructure necessary for large farm development was missing and
>
> 3) many of the new farmers would have little experience in a diversified line of farm enterprises, particularly in a new lands situation.

Lewis and Thomas (1982, p. 9) addressed this, "because there has been little agricultural activity in Alaska in the past, many farmers have come from the industrial labor force. . . many are both inexperienced and not totally dependent on income from farm production."

The amended 1959 Alaska Land Statute outlines guidelines for the Delta land lottery. Land prices were set at the appraised value by the Director of the Alaska Division of Lands. The statute allows for the title to be transferred for the agricultural rights only, as all subsurface and other developmental rights are retained in perpetuity by the state (Thomas and Lewis, 1981, p. 366). The fee simple title required that the land be used only for agricultural purposes, and excluded future subdivision and development.

The lottery was held in 1978, and farmers were expected to have the land cleared and ready for planting by spring of 1982. Those selected from the lottery were required to put up an initial payment

equal to 5% of the value of the parcel, and conservation and development plans were to be completed and approved prior to development (Thomas and Lewis, 1981, p. 367). Average land costs for the first Delta Project were $51 an acre (Lewis and Thomas, 1982, p. 6).

By 1979, 80% of the tract acreage had trees cut, and 25% was cleared and ready for spring planting (Alaska Agricultural Action Council, 1980, p. 3). By the end of the same year, the State of Alaska had invested $13 million in the project. Eighty-five percent of this amount was government loans which borrowers were to repay to the state (Thomas and Lewis, 1981, p. 366). At that time, it was estimated that only $500,000 of private funds were invested.

To meet the growing financial needs of the developing agricultural producers, the State Agricultural Revolving Loan Fund limit was raised to $250,000 per farm in 1980, and two new financial institutions opened their doors for agricultural loan business. The Commercial Fisheries and Agriculture Bank (CFAB) and the Alaska Renewable Resources Corporation both provided agricultural loans, but at a higher lending rate than the 6% annual interest charged by the State Revolving Loan Fund (Lewis and Thomas, 1982, p. 9).

The support from these three sources was vital to the producers. Lewis and Thomas (1982) reported:

> . . .discussions with commercial banks, the federal farm credit system and the Farmers Home Administration indicated that the high risk involved in securing loans in an undeveloped agricultural area for loans with a restricted title would limit other than state financial participation until more data were available concerning production capability of the land. (p. 6)

With development underway, the Alaska Agricultural Action Council 1980 report projected 500,000 acres in cultivation by 1990. (p. 7) Within this same time frame, the state government projected a commitment of $80 million by 1992, of which, 73% would be repaid through loans (Engelbrecht and Thomas, 1987, p. 76). This financial commitment encompassed the first Delta Project, as well as two other agricultural projects (Delta II and Point MacKenzie).

Near the Delta Projects, state land was auctioned off to encourage diversified farming enterprises in 1978. Five thousand acres were sold in smaller tracts of 20 to 325 acres and at higher prices than the original Delta Project ($185 to $775 per acre) (Alaska Agricultural Action Council, 1980, p. 3; Thomas and Lewis, 1981, p. 367).

Development near Anchorage at the Point MacKenzie Project was established to encourage dairy production. The second Delta Project, adjacent to the first, was to encourage small grains and diversified crops. All of the development was directed at Alaska's ten-year goal of being more self-sufficient. There were projected production levels for 60% of the fluid milk consumed in the state, for increases in pork production from the then current levels of 2 - 3% to 33% of the state's needs and for production of 30% of the beef consumed in state by 1992 (Amstrup, 1982, p. 29).

The Alaska Agricultural Action Council had high hopes for the year 2000 as well for in-state production: "Alaska should be self - sufficient in fluid milk and pork production, and probably more than 50% self - sufficient in beef production" (Amstrup, 1982, p. 29).

Agricultural development under the Alaska Agricultural Action Council was short lived. With the 1983 election of a new governor, policies and priorities changed. The state financed grain terminal construction was halted, as the executive office felt in-state markets, rather than exports, should be developed first (Engelbrecht and Thomas, 1987, p. 88). The Council appointments were not renewed, and the state agricultural development responsibilities were returned to the Department of Natural Resources.

The Department of Natural Resources, Division of Agriculture, reported 1,000,000 acres of farm land and 580 farmers in 1990 (1991, p. 8). These numbers are down from previous years, according to the same source. This decline could cause several problems including increasing food costs, especially in rural areas, due to prohibitive transportation costs, and fluctuating job markets based upon non-renewable resources.

The Alaska Agricultural Action Council, in its first report to the state legislature addressed these potential problems:

> Increased Alaska food production should have a stabilizing effect on Alaska food prices . . . in rural Alaska local food production may be the only reasonable alternative to higher imported-food costs, scarcity of subsistence foods, and increasing dietary health problems . . . many rural families in Alaska spend about 66% of their income to meet less than 50% of their food needs (subsistence foods make the rest) . . . the average American family [lower 48 states] spends less than 17% of its income on food (1982, p. 38-39).

Carl Amstrup, then Executive Director of the Alaska Agricultural Action Council, gave a speech at the 1982 Alaska Agricultural Symposium and stated:

> Another benefit from developing an agricultural industry is that it would help stabilize Alaska's economy. This would be done by supplying a substantial number of jobs in an industry that provides income on a steady year-to-year basis, thus avoiding the sharp ups and downs of an economy that depends principally on nonrenewable resources. (p. 32)

Burton, in 1975, mentioned:

> The agricultural industry appears to have definite possibilities for expanding from the present 600 workers, and a farm product value of $5.5 million to more than 55,000 workers and a farm product value in excess of $4.0 billion per year, if serious attention is directed to its development. (p. 2)

Harker (1982) examined the economics of Alaska's agricultural industry and concluded:

> . . .expansion must be premised on adding units of production compatible with the use of the most efficient technology available . . . such an approach, however, carries a concurrent challenge to simultaneously develop the infrastructure complementary to such production units. That is to say, transportation systems, intermediate and final marketing systems for agricultural inputs and products, processing, credit services, technical assistance, research and extension . . . are essential as integrated components of an agricultural development program based upon creating a competitive and therefore viable agricultural industry. (p. 2)

Alaskan Educational Extension Programs

The beginning of organized agriculture extension in Alaska came with the establishment of the Experimental Stations around the state. While no formal colleges of agriculture had yet been built, the stations provided information and aid to local communities attempting to support

themselves. The Sitka station operated from 1898 to 1932, Kodiak station from 1898 to 1931, Kenai from 1899 to 1908, Rampart station from 1900 to 1925, and Copper Center from 1903 to 1908 (Gasser, 1951, p. 5-7; Burton, 1975, p. 2). Only the Fairbanks station, established in 1906, and the Matanuska station, established in 1915, are still in operation (Lewis and Thomas, 1982, p. 3).

In 1917, the Alaska Agricultural College and School of Mines began to take shape, opening its doors as a federally supported land-grant institute in 1921 (Lewis and Thomas, 1982, p. 3). The College officially became the University of Alaska in 1935, and the Experiment Stations and the Extension Service were combined under a single director in 1937 (Burton, 1975, p. 6).

A special report to the governor from the Alaska Division of Agriculture (1983) suggested:

> Organize agricultural research, teaching and extension in a single administrative unit within the University of Alaska [the benefit of] closer coordination of agricultural research and teaching in the School of Agriculture and Land Resources Management with agricultural extension in the Cooperative Extension Service will strengthen the transfer of new technology to the agricultural community. (p. 19)

Alaska State Senator Pappy Moss, speaking at the Alaska Agricultural Symposium stated, "The research and extension levels of the University Experimental Stations, although of quality, are not sufficient for the magnitude of the development project that we have undertaken." (1983, p. 6)

The 1981 annual report by the Alaska Agricultural Action Council stated:

> Much of the agricultural research and extension in Alaska will need to be done in the public sector. Researchers in the private sector rely on the Experimental Station to provide primary information for Alaskan agriculture. Investment through the public sector for agricultural research and extension will pay off in the formation of a successful and competitive agricultural industry in Alaska. (p. 17)

A good deal of the research and extension reflects basic agricultural needs and information. Specialized grain, potato and horticultural varieties have been developed to meet the environmental

constraints of Alaskan production (Husby and Krieg, 1987, p. 4; Carling and Westphale, 1990). Test plots and demonstrations for increasing crop yields are common around the state, and findings are released to help benefit local producers (Klebesadel, 1983; Cooperative Extension Service, 1987: Agricultural Experimental Station, 1983).

According to Vandre (1991), there are several specialized educational Cooperative Extension Service programs offered:

1. Cooperative Extension Service Pest Scout Program
2. Alaska Annual Agricultural Symposium
3. Potato Growers Conference
4. Vegetable Growers Conference
5. Numerous workshops covering topics from crop fertility to animal husbandry to pesticide applicator training
6. Annual Farm Tours in Fairbanks and Delta Junction
7. Annual Farm Forum updates on various topics

In addition, there are local, state and national organizations which also provide agricultural information to producers including:

-Soil Conservation Service

-Farmers Home Administration

-Alaska Agricultural Statistical Service

-Alaska Farmers and Stockgrowers Association

-Alaska Governor's Office of International Trade and Development

-Alaska Agricultural and Forestry Experimental Stations

-Alaska Department of Environmental Conservation

-Alaska Department of Natural Resources

-Agricultural Revolving Loan Fund

-Alaska Plant Materials Center

-University of Alaska state-wide system (including community colleges)

-Native Corporation regional specialists

Programs provided attempt to meet specific needs of the agricultural clientele. With this in mind, review of relevant studies on

agricultural education and information provided a basis for development of this study.

Relevant Studies and Instrument Development Review

Agricultural education opportunities and information can be provided from a multitude of sources. Recent studies, most from the Cooperative Extension Service (CES) standpoint, have tried to address information and educational needs.

Beiler (1987, Spring) sent out a four-page questionnaire to 80 farmers "to find out how much [those] farmers learned about grain marketing techniques in programs sponsored by Ohio CES [that they had attended]." (p. 19) After follow-up questionnaires and telephone calls, 75% of the questionnaires were returned and usable. Approximately 28% of the nonrespondents were randomly resampled using Miller and Smith's (1983) double-dipping procedures to address the nonrespondent issue (Beiler, 1987, p. 19). No significant differences between the respondents and nonrespondents were found by Beiler.

The primary objective of Beiler's study was to determine the amount understood and adopted by the local farmers from the grain marketing programs (1987, p. 19) Other objectives included the determination of the level of future training desired by the clientele (p. 20). Results from Beiler's study found farmers who participated in the program learned the basic skills but lacked understanding of the more advanced ideas, possibly due to lack of applicable situations for the farmers to use training (1987, p. 21). In this case, useful, applied knowledge may have improved the farmers' understanding.

Applicable situations, while encompassing true-to-life examples, should also be reflective of learner characteristics. Obahayujie and Hillison (1988, Spring) stated:

> The clientele served and its unique characteristics must be kept in mind. The methods used must coincide with maturity, educational level, background, and objectives of the audience being served (p. 21).

For their study, Obahayujie and Hillison sent out a mail questionnaire to 1,202 Virginia beef farmers, and received a 67% usable response rate. Comparison of nonrespondents (telephone follow-up) with the respondents indicated no statistical differences between the two groups (1988, p. 21). Comparisons between full-time and part-time cattle farmers (less than 50% of income from beef cattle sales) were made to assess potential differences between preferred information methods (p. 21). Results showed part-time farmers felt on-farm demonstrations were more effective, while full-time farmers preferred newsletters/ publications and visits to experimental stations (all three methods ranked a mean of 3.29 on a scale of 1 to 4 with 4 being perceived as most effected) (Obahayujie and Hillison, 1988, p. 21). The researchers concluded (1988):

> Part-time and full-time beef farmers should be reached by different methods. Part-time . . . preferred more individual contact methods . . . but full-time farmers preferred mass contact methods. . . overall, both groups were more pleased than displeased with the dissemination methods used (p. 22).

In 1983, Steinfelt and Iams sent out a mail survey (58% usable rate) to a random sample of the general population of Yuma, Arizona to examine the most and least preferred education methods of teaching household financial management CES program (1985, p. 15). The researchers also attempted to address where families usually for needed information, and if the families are not using CES for specific information, why not (p. 15). Results showed educational methods most preferred to be individualized learning experience, and least preferred were group meetings and radio programs (Steinfelt and Iams, 1985, p. 15). The questionnaires returned revealed participants who did not contact Yuma County Extension for information "didn't know to ask for such service (p. 16)."

"Knowing where people look for information is only half the battle for extension communicators. Knowing where people find information is the other half (Pounds, 1985, p. 20)." An Iowa study (Pounds, 1985) examined where people go for information, and where they actually find

the information. Mail surveys were sent out to 600 randomly chosen Iowa residents, with a 57% usable return rate (Pounds, 1985, p. 21). Results showed preference toward "professionals or businesses" as sources where people would seek information. Where the participants actually found information appeared to be newspapers, with a high reported finding of information in magazines and on television as well (Pounds, 1985, p. 21) Implications cited by Pounds were (1985):

> Results show people do pick up considerable amounts of information . . . from newspapers, magazines, radio, television, newsletters and leaflets. People are accustomed to finding information in these media. That makes these media valuable outlets for Extension information. (p. 23)

These preferences in delivery methods were also studied by Bielema and Sofranko (1983). A mail questionnaire was sent to 260 single parents with school-age children in a rural Illinois county to address the following objectives:

1. To identify educational needs of single parents.
2. To determine their preferences for program delivery.
3. To identify single parents who would participate in a program, as well as in program planning.

The study defined program delivery as understanding:

1. use of various information channels to publicize an educational program
2. preferences for particular instructional modes, and
3. preferences on program format (location, time, length) (Bielema and Sofranko, 1983, p. 4) .

Results of delivery preferences outlined "the best means of disseminating information about forthcoming programs was through 'local newspapers' (Bielema and Sofranko, 1983, p. 6)." Preferred instructional modes favored receiving educational information through a monthly newsletter and small group discussion (p. 6). Respondents preferred one hour, weekly evening group meetings or discussion format (p. 7).

Summary

Previous studies have attempted to address information and educational needs of various user groups. Identifying specific areas of need and effective delivery systems for Alaskan agricultural producers may provide insight for future information and program development. Figure 3 shows the factors impacting the information/educational system.

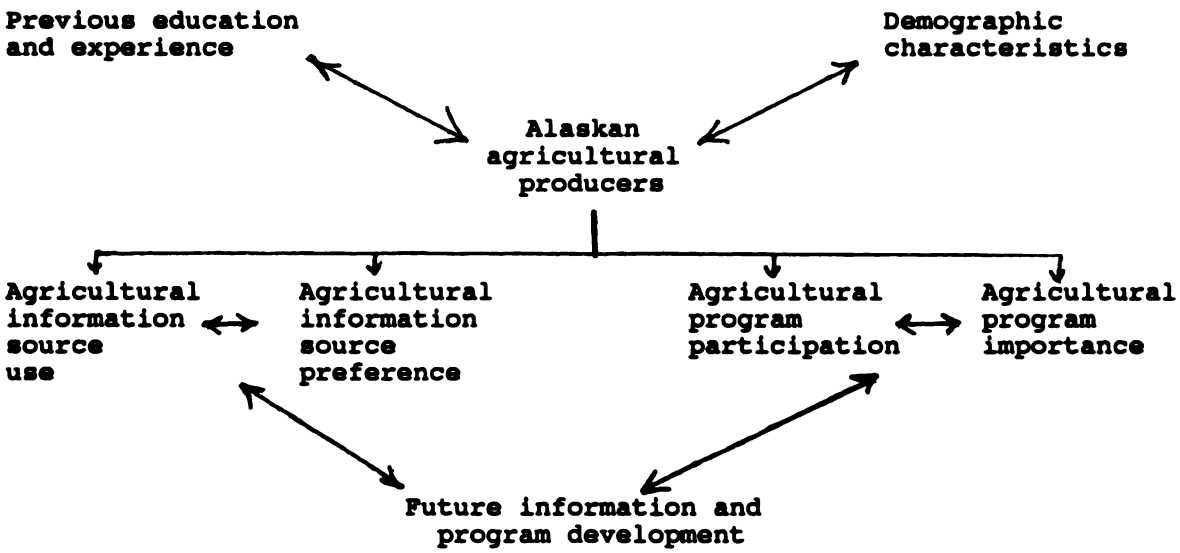

Figure 3.

Conceptual framework for study

Correlations between use and/or preference for educational agricultural programs, information sources, and demographic information could help to target key producers in need of technical educational assistance. Identification of the importance of and participation in current programs by producers could promote further development of effective programs while encouraging changes in programs less effective or efficient in meeting clientele needs. Interactions between information sources and programs could assist in reaching clientele effectively through future development.

A survey of the Alaskan agricultural producers addressing the specific areas of agricultural information use and preference, program importance and participation, previous experience/education and demographic characteristics could be a first step to meeting specific information and educational needs.

CHAPTER III - METHODOLOGY

Research Design

To determine the demographic characteristics, technical education needs and desired educational delivery methods of Alaskan farmers, a mail survey was developed, distributed and analyzed. The development and distribution was based upon guidelines and practices of Donald A. Dillman (1978) and suggestions from DeLon Brown, Alaska State Statistician (1992). This survey should have been perceived as non-confrontational or invasive because participation was purely voluntary.

The survey was composed of four parts: previous agricultural education and experience, preferred agricultural information sources, participation in and importance of current programs, and demographic information (see Appendix A). Questions dealing with previous agricultural education/experience and importance of educational agricultural programs were based upon a 1 to 5 Likert scale: 1 = not applicable, 2 = not important, 3 = neutral importance, 4 = important, and 5 = very important. The Likert scale for the questions on information source preference was also a 1 to 5: 1 = strongly dislike, 2 = dislike, 3 = undecided, 4 = like and 5 = strongly like. The data from this survey aided in addressing the research objectives by providing information relevant to those objectives stated earlier.

Because selection included greenhouse producers, horticulturalists and produce farmers, the survey contained a screening question to help identify the agricultural commodity produced by the survey participant.

Subject Selection

All 324 farmers listed with the Alaska State Division of Agriculture Statistics Office at the time of mailing were included in the study. Because of State and Federal Privacy Acts, the mailing list was not available to the project investigator; however, written instructions for mailing procedures were provided to the Division of Agriculture agent assigned to the mailing of the survey.

Procedures for Data Collection

To help ensure anonymity of the subjects, names and addresses were attached only to the outside envelope, and not listed on the survey or reply forms. Pre-addressed, stamped reply forms were included with the survey to prevent subjects from inadvertently using personal stationery or return labels. Instructions for the subjects specifically stated not to put name, address or signature on the survey or reply forms.

Follow-up reminder/thank you cards for survey return were addressed at the same time as the surveys. These cards were mailed 7 days after the surveys were sent out to encourage return of the instrument, and to thank those who may have already replied. The follow-up cards were to help identify early and late respondents to the survey. Because the investigator did not have access to the mailing list, it was not possible to further contact the non-respondents after the follow-up card mailing. The non-respondents were treated as similar to the late respondents (Miller and Smith, 1983, p. 48).

Outcome Measures

Instrument validity was established through the review of the survey by a panel of experts from Michigan State University, Department of Agricultural and Extension Education, and University of Alaska Fairbanks, School of Agriculture and Land Resources Management.

Because the survey was based upon a census of the total listing of Alaskan agricultural producers, no pilot test could occur. Reliability and suitability were determined through review from the panel of experts and peers. Also, a Statistical Package for Social Sciences reliability check was implemented, and desired alpha levels of .60 for reliability were used for developing the final survey. Necessary changes were made to the survey to help insure the validity, reliability, and suitability of the instrument used in this project.

Data Analysis

The data analysis was based upon responses to Likert-type questions focusing on importance of previous and current agricultural experience and education, preferences for information sources, and the importance of current educational programs on agriculture.

Final analysis of Likert-type questions on importance of current educational programs required adjustment to include only those respondents who participated in the programs. The scale then reflected a 1 to 4 scale of importance, with 1 = not important, 2 = neutral importance, 3 = important, and 4 = very important.

Further analysis was based upon responses to dichotomous questions on use of agricultural information sources, participation in current educational programs, and preferred times for educational programs.

The responses to the Likert-type questions were analyzed using descriptive statistics (frequencies, means, standard deviations and percentages). Correlational statistics were used to determine if there were any statistically significant relationships between and within groups. Responses to the dichotomous questions were analyzed using frequencies and percentages, and were in selected correlations.

To identify demographic characteristics of current Alaskan agricultural producers, frequencies were examined for trends in age, education, commodity produced, agricultural experience and agricultural income. Correlations using Kendall Tau-C were run between previous agricultural education, age, experience and agricultural income. Kendall Tau-C was utilized due to the ordinal nature of the variables and the need for a rectangular cross comparison.

Descriptive statistics and frequencies were used to identify sources of agricultural information use and preference. Correlations using Person Product Coefficient were run for comparison of current and preferred agricultural information sources.

Analysis of existing and preferred educational delivery systems and programs was done using descriptive statistics, frequencies, and Person Product Coefficient correlations. Descriptive statistics were utilized to determine the importance of current educational programs. Frequencies were used to determine participation in current programs, and preferences for future programs. Correlations were ran between current and preferred educational delivery systems and programs.

CHAPTER IV - STUDY FINDINGS

The purpose of this study was to determine the educational and experience background, current educational needs and educational delivery systems preferences of Alaskan agricultural producers. The specific objectives included:

1. Identify demographic characteristics of current Alaskan producers,
2. Identify sources of agricultural information preferred and currently used by Alaskan producers,
3. Identify existing and preferred educational delivery systems and programs used by Alaskan producers.

The results of the study are presented in four sections: three sections addressing each specific research objective, and the final section summarizing correlational results.

Section I - Demographic Characteristics of Respondents

In order to address potential correlations and trends, nine questions focusing on demographic characteristics were included in the survey. Table 1 shows the total response rate and breakdown by gender.

Table 1

Alaskan Agricultural Producer Response to the Survey

	N	Percent
Alaskan Agricultural Producer Respondents	131	40.43
Nonrespondents	193	59.57
TOTAL	324	100.00
Male	110	85.3
Female	19	14.7
TOTAL	129	100.0

Age classification were grouped all respondents (Table 2). Of the producers still in production, 69.5% are 46 years old or older. With the mean age reported at 52 years old, programs and information sources need to integrate traditional agricultural methods as needed to accommodate the older, traditional producers.

Table 2

Alaskan Agricultural Producer Response by Age Group

Age	N	Percent
25 thru 35 years	12	9.4
36 thru 45 years	27	21.1
46 thru 55 years	38	29.7
56 thru 65 years	32	25.0
66 thru 85 years	19	14.8
TOTAL	128	100.0

Mean = 52.32 years	Std Dev = 12.10	Min = 25	Max = 80	N=128

Table 3 shows the years of general agricultural experience of the respondents. The largest classification for years of general agricultural experience was 11 thru 20 years of experience (24.8%). Overall, more than half of the respondents had 0 to 30 years of experience (55.2%).

Table 3

Years of Agricultural Experience

Years	N	Percent
0 thru 10 years	13	10.4
11 thru 20 years	31	24.8
21 thru 30 years	25	20.0
31 thru 40 years	21	16.8
41 thru 50 years	23	18.4
51 + years	12	9.6
TOTAL	125	100.0

Mean = 30.69 Std Dev = 16.18 Min = 0 Max = 76 N = 125

Table 4 summarizes the results from the question asking for number of years of Alaskan agricultural experience. The largest response for years of Alaskan agricultural experience was for those with 11 thru 20 years of experience (35.4%), comparative with responses for years of general agricultural experience in Table 3. More than fifty percent of the respondents indicated a level of Alaskan agricultural experience between 0 and 20 years (63.0%).

Table 4

Years of Alaskan Agricultural Experience

Years	N	Percent
0 thru 10 years	35	27.6
11 thru 20 years	45	35.4
21 thru 30 years	26	20.5
31 thru 40 years	13	10.2
41 thru 50 years	7	5.5
51 + years	1	.8
TOTAL	127	100.0

Mean = 19.47 Std Dev = 12.02 Min = 0 Max = 60 N=127

Table 5 ranks the levels of importance of various experience and educational sources. The mean was calculated on a Likert scale of 1 to 5, with 1 = not applicable to 5 = very important. Alaskan agricultural producers responding to the survey rated their own farm experience and education at a high level of importance (4.49). Formal educational sources such as four year college/ university (2.20), community college (2.17) and vocational/ technical school (1.90) were rated as the least important sources of experience and education.

Comments on the surveys revealed experience from a variety of sources, including respondent's own farm, on the job training, parents' farm, hands on experience, and specific programs (see Appendix D, question 17 - What was your most important agricultural learning experience?).

Table 5

Rating of Agricultural Experience and Education Level of Importance from Various Sources by Alaskan Agricultural Producers

Source	Rank	Mean	Std. Dev.
Own Farm	1	4.49	1.09
Cooperative Extension	2	3.80	1.07
Local Agricultural Organization	3	3.28	1.24
State Agricultural Organization	4	3.17	1.30
Parent's Farm	5	3.13	1.77
Neighbor's Farm	6	3.02	1.43
National Agricultural Organization	7	2.83	1.28
High School	8	2.78	1.50
Relative's Farm	9	2.61	1.58
Four Year College/University	10	2.20	1.45
Community College	11	2.17	1.51
Vocational/Technical School	12	1.90	1.29

Table 6 shows all respondents indicated at least some level of high school education or higher. Nearly half of the Alaskan agricultural producers responding have attended college (48.9%). Areas studied varied, with few being directly related to agriculture (see Appendix D).

Table 6

Alaskan Agricultural Producers Highest Level of Education

	N	Percent
High School	39	29.8
Vocational/Technical School	14	10.7
College (Community or 4 year)	64	48.9
Graduate School	14	10.7
TOTAL	131	100.0

Approximately two-thirds (66.1%) of the respondents indicated that they had 0 to 24% of their annual income based upon sales of agricultural commodities (see Table 7). Supplemental, non-agricultural income from one or more persons in the household appeared to account for the large majority of the disposable income of Alaskan agricultural producers.

Table 7

Percentage of Income From Agricultural Production

	N	Percent
0 to 24%	82	66.1
25 to 49%	18	14.5
50 to 74%	6	4.8
75 to 100%	18	14.5
TOTAL	124	100.0

Table 8 lists frequencies and percentages of commodities raised by respondents (more than one commodity could be selected). Alaskan agricultural producers responding reported a substantial number of multi-commodity operations. Hay operation (79.2%) was reported both as a single commodity being produced, and, more frequently, as one of two or more commodities, along with other crops or livestock.

Table 8

Percentages of Alaskan Agricultural Producers Raising Selected Commodities

Commodity	N	Percent
1. Hay	103	79.2
2. Vegetables	60	46.2
3. Potatoes	54	41.5
4. Beef cattle	49	37.7
5. Grain	47	36.2
6. Poultry	43	33.1
7. Swine	32	24.6
8. Dairy cattle	21	16.2
9. Sheep	18	13.8
10. Goats	13	10.0

Table 9 outlines the comparisons between commodities and agricultural income levels. Those respondents receiving 75 to 100% of their income from agricultural sources were predominately producers of hay, potatoes, vegetables, and grain.

Table 9

Comparison of Selected Commodities and Agricultural Income Levels

Commodity	Number of Respondents (% Income from Agricultural Sources)			
	0 - 24%	25 - 49%	50 - 74%	75 - 100%
Hay	66	14	5	13
Vegetables	41	7	1	9
Potatoes	34	6	2	10
Beef cattle	27	12	4	5
Grain	25	9	2	8
Poultry	31	7	2	2
Swine	23	4	2	2
Dairy cattle	7	4	1	7
Sheep	12	3	1	2
Goats	10	2	0	1

Alaskan agricultural producers responding reported more than half of the households on the agricultural sites had 3 or less people present (63.0%), with the largest group having only 2 persons (37.8%) (Table 10). Comments reflected household members to include children, parents, siblings, in-laws, and non-related workers.

Table 10

Number of People in Household at Agricultural Site

Number of persons	N	Percent
0	1	.8
1	14	11.0
2	48	37.8
3	17	13.4
4	25	19.7
5	13	10.2
More than 5	9	7.2
TOTAL	127	100.0

Section II - Preference and Use of Agricultural Information Sources by Respondents

The survey contained several questions asking for current information sources used and those preferred by Alaskan agricultural producers. Dichotomous questions (yes/no) were analyzed using frequencies of those who stated they did use specific information sources. Results are listed in Table 11. Respondents were able to choose more than one source for this section of the survey.

Printed materials (magazines [79.2%] and books [69.2%]) were reported as highly utilized as informational sources by respondents. Information from the Cooperative Extension Service was also rated highly (77.7), but it was not determined if CES information was from person to person contact or printed materials for each individual case.

Table 11

Percentages of Alaskan Agricultural Producers Using Selected Agricultural Information Sources

Source	N	Percent
1. Magazines	103	79.2
2. Cooperative Extension Service	101	77.7
3. Books	90	69.2
4. Neighbors	80	61.5
5. University Agricultural Experimental Stations	63	48.5
6. Alaska State Division of Agriculture	51	39.2
7. U.S. Department of Agriculture	46	35.7
8. Feedstores	43	33.1
9. State Organizations	26	20.0
10. Local Organizations	25	19.2
11. National Organizations	22	17.0
12. University or Community College Teachers	18	13.8

For questions regarding preferences toward information sources, a 1 to 5 Likert scale was used for analysis, with 1 = strongly dislike, 2 = dislike, 3 = undecided, 4 = like and 5 = strongly like.

Alaskan agricultural producers responding to the survey indicated a strong preference for person to person (4.45) and mail (4.28) as information sources (Table 12). There may be overlap because the specific source (person to person from CES or USDA mail, etc) was not indicated.

Low responses and preferences for telephone (2.90), radio (3.24) and television (3.50) may be a result of the undeveloped rural nature of some agricultural areas. Few respondents indicated that they did not have television or telephone service. Others stated they were too busy to listen to radio or watch television.

Table 12

Rating of Preferred Agricultural Information Sources by Alaskan Agricultural Producers

Information Source	Rank	Mean	Std. Dev.
Person to person	1	4.45	.60
Mail	2	4.28	.70
Cooperative Extension Service	3	4.14	.79
Informal Workshops	4	4.06	.81
Conferences and Symposiums	5	3.71	1.01
College or University	6	3.64	.90
Television	7	3.50	1.09
Radio	8	3.24	.98
Telephone	9	2.90	1.09

Section III - Preferences and Use of Agricultural Educational Delivery Systems and Programs by Respondents

Alaskan agricultural producers responding to the survey indicated they participated primarily in Cooperative Extension Service programs (45.7%) and listed Farm Forum, pesticide application, and Farm Tour programs sponsored by CES. State and local organizations also had a fair percentage of respondents listing program participation (state organizations at 25.8% and local organizations at 29.5%).

Specific programs cited include Alaska Farmers and Stockgrowers Association, Alaska Sheep and Wool Association, Vegetable Growers, Potato Growers, Grange, and others. Table 13 lists the number and percentages of respondents participating in educational programs on agriculture during 1991. More than one program could be chosen.

Table 13

Percentage of Respondents Participating in Educational Programs on Agriculture During 1991

Program Sponsor	N	Percent
Cooperative Extension Service	59	45.7
Local Organizations	36	29.5
State Organizations	32	25.8
University	25	19.8
National Organization	20	16.3
Government Program	20	16.7
Community College	9	7.3

Questions dealing with the importance of various educational programs on agriculture were analyzed using a Likert scale of 1 to 4 with 1 = not important, 2 = neutral importance, 3 = important, and 4 = very important. Only those cases which had participated in a program in 1991 were used determining levels of importance. There were cases, however, which listed a level of importance and yet were not participants in the program. This may indicate previous participation.

Alaskan agricultural producers responding to the survey ranked University (3.54) and Cooperative Extension Service (3.46) educational programs on agriculture as those most important (Table 14).

The open ended question, "What type of educational programs on agriculture would you like to see provided in the future?," revealed a wide variety of desired programs. Some included wild game ranching, home gardening, crops and livestock. See Appendix D for the summary of all responses to this question.

Table 14

Rating of Importance of Educational Programs on Agriculture Sources During 1991 by Alaskan Agricultural Producers

Program Source	Rank	Mean	Std. Dev.
University	1	3.54	.59
Cooperative Extension Service	2	3.46	.64
National Organization	3	3.26	.56
Government	4	3.24	.75
State Organization	5	3.23	.73
Community College	6	3.22	.67
Local Organization	7	3.06	.79

The survey included a question to determine the preferred times for programs on agriculture. More than one response was possible, and Table 15 shows the results. Single evening session was most preferred by respondents (49.6%) which may be due to the demanding and inconsistent nature of agricultural production.

Table 15

Preferred Times for Educational Programs on Agriculture By Alaskan Agricultural Producers

	N	Percent
Single Evening Session	62	49.6
Single Evening Session Every Week for Several Weeks	46	36.8
One Day Session	45	36.0
Self Paced	29	23.4
Two Day Session	26	20.8
Several Evenings During One Week	23	18.4
Three Day Session	8	6.4
Week Long Session	6	4.8

Section IV - Summary of Correlations

Correlations were found between many variables. Coefficient relationships of .50 to .69 can be found in Appendix C. Correlational reviews resulted in the following very strong (.70 or higher) coefficient relationships:

1. Experience and education from local agricultural organization programs and from state agricultural organization programs = .7474
2. Experience and education from local agricultural organization programs and from national agricultural organization programs = .8431
3. Experience and education from state agricultural organization programs and from national agricultural organization programs = .8364
4. Experience and education from CES programs and preference for information from CES = .8012
5. Preference for information from radio and television = .7369
6. Use of information from national agricultural organizations and from local agricultural organizations = .7055
7. Participation in community college programs and in national agricultural organization programs = .7188
8. Participation in state agricultural organization programs and in national agricultural organization programs = .7510
9. Importance of community college programs and of national agricultural organization programs = .7442
10. Importance of community college programs and of government programs = .7775
11. Importance of local agricultural organization programs and of national agricultural organization programs = .7294
12. Importance of state agricultural organization programs and of national agricultural organization programs = .8957

CHAPTER V - DISCUSSION OF RESULTS

Agricultural production is a multi-faceted enterprise, with many influencing factors. Survey results from Alaskan agricultural producers have shed some light on potential factors of agricultural education, experience, information and programs. Responses to the survey have also aided in providing a general demographic picture of Alaskan agricultural producers.

Results indicate producers are primarily male, 45+ years of age, having at least a high school education, and raise several agricultural commodities for less than 50% of their income. Low levels of agricultural production income may be a result of older producers lacking family members to assist them. With the highest percentage of households having only 2 members, it is likely the adult children have moved, and intensive agricultural production may no longer be viable.

With a majority of the producers raising crops rather than livestock, agricultural income may also be indicative of the seasonal dependency of crops, and the lack of transportation and marketing networks. The three months of summer may contribute to respondents having and/or needing non-agricultural income sources. Transportation and marketing constraints can limit operation size, and thereby impact revenues from the operation. With these constraints, specific programs addressing networking for marketing and transportation are vital.

Correlations between program sources indicate current ties and the need for increased networking between sources state-wide, and at all levels. Cooperation and coordination between these sources could reduce program overlap, promote efficient and effective use of funding, and encourage appropriate program development for local application. Varied climatic conditions due to the size of Alaska, can make generalized program planning ineffective or nonapplicable.

Responses indicate an awareness of potential information and educational sources by producers. The preference for person to person and informal sources may be a result of isolation (remote rural areas, small household size) and the generally relaxed lifestyle typical of Alaska. A desire to discuss local applicability may also be a contributing factor. Lack of preference for mass media may be due to unfamiliarity or unavailability of these sources.

Respondents reported highest levels of importance related to agricultural experience and education from efforts and exposure on their own farms. With trial, error, and personal judgement as primary inputs, producers may be highly reliant upon alternative information and education sources/programs for guidance. Low levels of participation in informational and educational programs could be a result of several factors including availability, timing, location, topic and perceived needs.

CHAPTER VI - CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

Studies to further address the needs of Alaskan agricultural producers are many. While a few programs and sources successful in the contiguous states may be of benefit to Alaskan agricultural producers, the uniqueness of the producers, climatic conditions, transportation and marketing structures, and need for applicable, localized programs and information sources requires that new ground be covered and old ground adapted.

Expansion of renewable resources such as agriculture is needed to counterbalance and stabilize Alaska's current non-renewable resource based economy. Agricultural expansion can provide needed commodities for the state's population, as well as promote additional employment opportunities.

Further studies may indicate if there are producers who have had higher agricultural incomes in the past but have cut back on production. This cut back could be attributed to personal choice or due to situational circumstances. Once identified, cut backs not a result of personal choice might be addressed, and programs developed to meet individual needs in order to increase production levels on existing sites. With only 14.5% of the respondents indicating 75 to 100% of their incomes based upon agricultural sales, the remaining respondents may be in production for subsistence or supplemental income reasons only.

With the expressed interest by many respondents, viable non-traditional livestock production such as wild game farming, fur farming, and beefalo production could increase not only the number of producers more highly dependent on agricultural income, but also the demand for local grains, hence expanding both meat/fur and grain markets on local levels with minimal transportation concerns.

Studies and development of alternative information and educational sources/programs to effectively reach producers could address unique communications and production concerns, including transportation and marketing. With a limited number of staff personnel and large regions to serve, person to person via direct contact may not always be an alternative Development of video demonstration for producers with access to proper equipment may be a possibility for some topics.

Further studies on regional/local information and educational program needs may reveal target areas for program development. Research tracking information availability and applicability in relation to previous education and experience in successful and non-successful agricultural production operations may identify key elements promoting successful production practices.

These key elements could be utilized in promoting successful practices at current and potential state agricultural development sites. Successful or economically stable production protects the state's investment of time, money and land resources. This, in the long run, may attract and encourage expansion and development of agricultural production in Alaska.

From and educational standpoint, several specific recommendations are made based upon the findings of this study:

1. Future programs, regardless of sponsor, should attempt to provide educational opportunities on a person to person or informal basis when possible.

2. Educational programs on agriculture should be developed at the local level, reflective of local conditions and local needs.

3. Various agricultural commodity groups should be targeted for educational programs utilizing their preferred information sources in order to maximize input and coordination with the producers.

4. Informational and educational networking should be increased throughout the local, state and government agricultural organizations to better meet the needs of Alaskan agricultural producers.

APPENDIX A

QUESTIONNAIRE AND SURVEY MATERIALS

UNIVERSITY OF ALASKA FAIRBANKS

School of Agriculture and Land Resources Management
Fairbanks, Alaska • 99775-0100 • (907) 474-5550

March 25, 1992

Dear Alaskan Agricultural Producer,

Farming in Alaska provides many challenges including unique transportation and marketing challenges, environmental factors and developing support resources. As a long-time Alaskan interested in agriculture and extension education, I am attempting to identify current agricultural education and technical information needs of Alaskan agricultural producers.

Your household is one of a select group of producers who were chosen and are being asked to give their opinions on agricultural education and technical information. The following questions should take approximately 15 minutes of your time to complete. Participation is voluntary - you may choose to answer all, part or none of the questions. You indicate your voluntary agreement to participate by completing and returning the survey.

In order that the results will truly represent the thinking of Alaskan producers, it is important that each survey be completed and returned by April 20, 1992. It is requested that you do not sign or in any other way personally identify yourself on the survey - all individual results will be treated with strict confidence and you will remain anonymous. The prefolded, stamped survey requires only that you refold the survey, with the return address on the outside and secure the lower edge with tape.

You may receive a summary of results by sending a request to the address below. If you have any questions or concerns regarding this study, please feel free to contact me at (517) 355-3059 or at P.O. Box 81026, Fairbanks, Alaska 99708. Dr. Kirts can be contacted at the University of Alaska, (907) 474-7471.

I hope the information from this survey will provide direction for developing future agricultural educational opportunities in Alaska. Your participation is greatly appreciated!!

Sincerely,

Carolyn L. Pennington
Graduate Researcher

and

Carla A. Kirts, Ph.D.
Associate Professor
University of Alaska Fairbanks

AGRICULTURAL INFORMATION, EDUCATION AND EXPERIENCE

Directions

Answer each question as accurately as you can. Many questions can be answered by circling the item that best describes your opinion or situation. Other questions will require a written response. All answers will be kept completely confidential.

SECTION I

Please indicate the level of importance concerning the agricultural experience and education you may have received from the following areas: (Circle one response per question)

Response	Key
Not applicable	NA
Not important	NI
Neutral importance	?
Important	I
Very important	VI

1. Your parents' farm. NA NI ? I VI
2. Your relatives' farm. NA NI ? I VI
3. Your neighbors' farm. NA NI ? I VI
4. Your own farm. NA NI ? I VI
5. High school. NA NI ? I VI
6. Community college NA NI ? I VI
7. Vocational/Technical school NA NI ? I VI
8. Four year college or university. NA NI ? I VI
9. Cooperative Extension Service programs NA NI ? I VI
10. Local agricultural organization programs. NA NI ? I VI
11. State agricultural organization programs. NA NI ? I VI
12. National agricultural programs. NA NI ? I VI
13. Other (specify _____) NA NI ? I VI
14. Other (specify _____) NA NI ? I VI
15. Other (specify _____) NA NI ? I VI

16. What is the highest level of education you have completed? (circle one letter and fill blanks if applicable)

    A. NO FORMAL EDUCATION
    B. GRADE SCHOOL _____ GRADE
    C. HIGH SCHOOL _____ GRADE
    D. VOCATIONAL/TECHNICAL SCHOOL _____YEARS, (STUDIED? _____)
    E. COLLEGE _____YEARS, (STUDIED? _____)
    F. GRADUATE SCHOOL (DEGREE?_____)

17. What was your most important agricultural learning experience?

SECTION II

The following are sources of information about agricultural products and methods. Please indicate your preference to getting information from these sources. (Circle your response)

Response	Key
Strongly dislike	SD
Dislike	D
Undecided	?
Like	L
Strongly like	SL

18. Mail SD D ? L SL
19. Radio SD D ? L SL
20. Television SD D ? L SL
21. Telephone SD D ? L SL
22. Person to person SD D ? L SL
23. Informal workshops SD D ? L SL
24. College or university SD D ? L SL
25. Cooperative Extension Service SD D ? L SL
26. Conferences and symposiums SD D ? L SL
27. Other (specify _____) SD D ? L SL

Please continue with question 28 on the top of page 2.

28. Where do you usually get agricultural information?
(Circle all letters that apply)

A. BOOKS
B. MAGAZINES (specify _____
_____)
C. NEIGHBORS
D. FEEDSTORES
E. COOPERATIVE EXTENSION SERVICE
F. UNIVERSITY OR COMMUNITY COLLEGE TEACHERS
G. UNIVERSITY AGRICULTURAL EXPERIMENTAL STATIONS
H. STATE DIVISION OF AGRICULTURE
I. US DEPARTMENT OF AGRICULTURE
J. LOCAL ORGANIZATION (specify _____)
K. STATE ORGANIZATION (specify _____)
L. NATIONAL ORGANIZATION (specify _____)
M. OTHER (specify _____)

SECTION III

The following are sources of educational programs on agriculture. For each source, please indicate whether or not you participated in a program (specify type) in the past year, and the importance level of the program source to you. (Circle your responses)

Response	Key
Not applicable	NA
Not important	NI
Neutral importance	?
Important	I
Very important	VI

	Participated?		Importance?				
	No	Yes	NA	NI	?	I	VI
29. University programs (specify)							

30. Cooperative Extension Service programs (specify) No Yes NA NI ? I VI

31. Community College programs (specify) No Yes NA NI ? I VI

32. Local organization programs (specify) No Yes NA NI ? I VI

33. State organization programs (specify) No Yes NA NI ? I VI

34. National organization programs (specify) No Yes NA NI ? I VI

35. Government programs (specify) No Yes NA NI ? I VI

36. Other (specify) No Yes NA NI ? I VI

37. What time or times for an educational program would be most effective for you? (check all that apply)

___ Single evening session
___ Single evening every week for several weeks
___ Several evenings during one week
___ One day session
___ Two day session
___ Three day session
___ Week long session
___ Self paced
___ Other (specify _____)

38. What type of educational programs on agriculture would you like to see provided in the future?

SECTION IV

The following are general information questions, please circle, or fill in the blanks as indicated for each question.

39. What gender are you? (circle a letter)

A. MALE
B. FEMALE

40. What is your age? _____ **YEARS**

41. What is your total number of years of agricultural experience?____YEARS

42. What is your total number of years of agricultural experience in Alaska? _____YEARS

43. What type of agriculture products do you raise?
(circle all letters that apply)

A. GRAIN
B. HAY
C. POTATOES
D. BEEF CATTLE
E. DAIRY CATTLE
F. SHEEP
G. SWINE
H. GOATS
I. POULTRY
J. VEGETABLES
K. GREENHOUSE
L. OTHER (SPECIFY _____)

44. What percentage of your gross 1991 income came from selling agricultural products?
(circle one letter)

A. 0 TO 24%
B. 25 TO 49%
C. 50 TO 74%
D. 75 TO 100%

45. Please indicate the number of people working on your agricultural operation in 1991 for each category.

____ SELF
____ SPOUSE
____ YOUR CHILDREN, UNDER 18 YEARS OLD
____ YOUR CHILDREN, 18 YEARS AND OLDER
____ OTHER RELATIVES (SPECIFY _____)
____ NON-RELATIVES
____ NOT IN PRODUCTION IN 1991

46. How many people are in your household? _____

If you have any additional comments, please feel free to use the space below.

If you have any questions concerning the study or this survey form, please contact C. Pennington at (517) 355-3059, P.O. Box 81026 Fairbanks, Alaska 99708.

THANK YOU FOR TAKING TIME TO COMPLETE THIS QUESTIONNAIRE!!

Dear Alaskan Producer,

A few days ago, you should have received a survey asking for your input on agricultural education, experience and information. If you have already returned your survey, I'd like to take this time to thank you. If you have not, please take a few minutes to fill out and return it. If you need a replacement survey, please contact me at the address below. Thank you for your time and assistance.

Carolyn Pennington,
P.O. Box 81026
Fairbanks, Alaska 99708

APPENDIX B

UNIVERSITY COMMITTEE ON RESEARCH INVOLVING HUMAN SUBJECTS APPROVAL LETTER

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

March 6, 1992

Ms. Carolyn L. Pennington
1546-H Spartan Village
East Lansing, MI 48823

RE: CHARACTERISTICS, TECHNICAL EDUCATIONAL NEEDS AND PREFERRED EDUCATIONAL DELIVERY METHODS OF ALASKAN FARMERS, IRB #92-069

Dear Ms. Pennington:

The above project is exempt from full UCRIHS review. The proposed research protocol has been reviewed by another committee member. The rights and welfare of human subjects appear to be protected and you have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to February 26, 1993.

Any changes in procedures involving human subjects must be reviewed by UCRIHS prior to initiation of the change. UCRIHS must also be notifed promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to my attention. If I can be of any future help, please do not hesitate to let me know.

Sincerely,

David E. Wright, Ph.D., Chair
University Committee on Research Involving
Human Subjects (UCRIHS)

DEW/deo

cc: Dr. Eddie Moore

APPENDIX C

STUDY CORRELATIONS

STUDY CORRELATIONS

Correlational reviews resulted in the following substantial (.50 to .69) co-efficient relationships:

Commodity production

Dairy and sheep production = .5431

Greenhouse and swine production = .6218

Poultry and vegetable production = .6193

Poultry and swine production = .6778

Hay production and importance of experience/education from neighbor's farm = .5055

Sheep production and importance of experience/education from state agricultural organizations = .5164

Dairy production and importance of experience/education from own farm = .5104

Greenhouse production and importance of experience/education from community college = .6348

Hay production and neighbors as utilized source of information = .5518

Swine production and conferences/symposiums as a preferred source of information = .5831

Beef production and total years of agricultural experience = .5021

Beef production and years of Alaskan agricultural experience = .5021

Experience and Education

Experience and education from relatives and from neighbors' farm = .5068

Experience and education from own farm and utilization of information from CES = .5104

Experience and education from own farm and utilization of information from magazines = .5289

Experience and education from CES and local agricultural organization programs = .5875

Experience and education from CES and state agricultural organization programs = .5249
Experience and education from CES and utilization of information from CES = .6095

Experience and education from CES and importance of CES programs = .6442

Experience and education from CES and utilization of information from University Agricultural Experimental stations = .6183

Experience and education from four year college/university and from state agricultural organization programs = .5377

Experience and education from community college and vocational technical school = .5496

Experience and education from community college and four year college/university = .5356

Experience and education from community collage and utilization of information from state agricultural organizations = .6348

Experience and education from community college and participation in community college programs = .5979

Experience and education from community college and importance of government programs = .6835

Experience and education from four year college/university and utilization of information from state agricultural organization programs = .6731

Experience and education from four year college/university and percentage of income from agricultural production = .5451

Information Source Preferences

Preference for information from college/university and experience and education from local agricultural organization programs = .5590

Preference for information from college/university and preference for information from CES = .6634

Preference for information from college/university and preference for information conference/symposiums = .6231

Preference for information from college/university and participation in university programs = .5776

Preference for information from college/university and importance of university programs = .5911

Preference for information from informal workshops and importance of CES programs = .5110

Preference for information from feedstores and importance of government programs = .6087

Preference for information from CES and importance of CES programs = .5173

Preference for information from CES and utilization of information from CES = .6782

Preference for information from CES and preference for information from conferences and symposiums = .5935

Preference for information from CES and experience and education from local agricultural organization programs = .6283

Preference for information from conferences and symposiums and experience and education from local agricultural organization programs = .6359

Preference for information from conferences and symposiums and experience and education from state agricultural organization programs = .5055

Preference for information from conferences and symposiums and experience and education from national agricultural organization programs = .5841

Information Utilization

Utilization of information from CES and utilization of information from Alaska State Division of Agriculture = .6218

Utilization of information from Alaska State Division of Agriculture and utilization of information from state agricultural organizations = .5353

Utilization of information from Alaska State Division of Agriculture and importance of CES programs = .5111

Utilization of information from USDA and utilization of information from state agricultural organizations = .5353

Utilization of information from state agricultural organizations and importance of government programs = .5632

Program Participation

Participation in national agricultural programs and preference for information from national agricultural programs = .5188

Participation in national agricultural programs and importance of state agricultural organization programs = .5092

Participation in national agricultural programs and importance of national agricultural programs = .5660

Participation in university programs and participation in CES programs = .6176

Participation in university programs and participation in community college programs = .5408

Participation in university programs and participation in national agricultural programs = .5078

Participation in CES programs and importance of CES programs = .5755

Participation in community college programs and participation in state agricultural organization programs = .5683

Participation in community college programs and participation in government programs = .6517

Participation in local agricultural organization programs and importance of local agricultural organization programs = .5263

Participation in local agricultural organization programs and participation in state agricultural organization programs = .6311

Participation in local agricultural organization programs and participation in national agricultural organization programs = .6001

Importance of Programs

Importance of university programs and importance of CES programs = .6386

Importance of university programs and importance of community college programs = .5556

Importance of university programs and importance of local agricultural organization programs = .6192

Importance of university programs and importance of state agricultural organization programs = .5593

Importance of university programs and importance of national agricultural organization programs = .6097

Importance of university programs and participation in university programs = .6277

Importance of state agricultural organization programs and experience and education from national agricultural organization programs = .5248

Importance of community college and importance of local agricultural organization programs = .5764

Importance of community college and importance of state agricultural organization programs = .6757

Importance of local agricultural organization programs and importance of state agricultural organization programs = .6572

Importance of local agricultural organization programs and importance of government programs = .5092

Importance of national agricultural organization programs and importance of government programs = .5553

APPENDIX D

LISTING OF RESPONDENTS' COMMENTS

LISTING OF RESPONDENTS' COMMENTS

Educational area studied/degree?

Agricultural related subjects
Agriculture (5 responses)
Master of Agriculture
Agriculture science
Agriculture. engineering
Agricultural business
Animal husbandry/science (3)
Architecture and agriculture
Communications and farm management
Culinary arts, biology, agriculture
Farm mechanics
Herd health, AI, computing
Horticulture
Chemistry & Civil Engineering (2)
Civil engineering
B.S. Mechanical engineering (2)
Pre Engineering
Applied science
Physical Science, B.S
M.S. Biology
Biology, fire science
Biology, natural resources
Forestry
B.S. Game management
Geology
Mining
Soils
Psychology, Japanese
Psychology, history
History and journalism
Theology. linguistics
B.A. Journalism/broadcasting
English, botany
B.A. English
B.A. Education (7)
Masters in Education, Phy. Ed
Masters in Education
Vocation Education
Liberal arts (2)
History
Business Law
Business management classes
Masters in Administration
Health sciences
Nursing, RN diploma program
Medical
Wood tech., industrial arts
Electrical welding
Mechanics/electronics
Electronics (2)
Electronics, Instrumentation
Electric radio/tv/refrigerator
Architecture/industrial engin.
Heavy equipment operations

Aircraft mechanic

Mechanics, math

Various courses, no ag. (3)

B.A. (did not specify area)

B.F.A. (did not specify area)

L.A. (did not specify area)

B.A. (did not specify area)

B.S. (did not specify area - 2)

M.S. (did not specify area - 3)

Ph.D. (did not specify area - 2)

LISTING OF RESPONDENTS' COMMENTS

17. What was your most important agricultural learning experience?

The most important experience was starting my own farm.

Having my own little farm, a life long dream, raising my own animals and have and enjoying each task and new experience.

Plowing with a 1 bottom sulky plow, pulled by 3 horses.

My father's farm and surrounding neighbor's farms.

Working on the farm, . . . also good vet . . . very willing to teach farmer about animal health.

How to pay taxes on farm land.

. . . We learned on our own farm just by doing it! We asked people questions. We read books.

Farming in Alaska is a marginal business and requires raising and marketing the right produce.

Animal science and animal surgery - UAF, hands-on experience - clearing, planting, harvesting, mechanical.

Actual work on farms.

Dairy farming and sheep farming.

Starting a farm from scratch.

Growing up on a farmstead in Alaska.

Realizing that . . . the Univ., regardless of its status as an agricultural land-grant U was totally out of touch with real-life farming . . . Children need to learn about the secret life of plants beginning at a tender ("children's garden") age.

I have actively participated in farming for 30 years. Keeping track of crop results & fertilizer amounts, rainfall, seed types, & temp. on my own as well as reading everything I could find on forage crops & animal nutritional requirements.

If you mean negative learning experience, then Alaska farming qualifies. My most positive learning was growing up on my Dad's farm and doing things the way he told me to. We had a ready commercial market there for anything you grew. That's lacking here. A lot of things will grow here, and yield better than where I grew up, but if you have to peddle it out or can't sell it at all, then you cannot afford to do it. A select few have a market for potatoes - a few are making a go with hogs, cattle, veg.

On the job training, CES.

How bureaucrats can screw things up. Having a basic knowledge on farming and set ideas on how we wanted to clear and farm. The State and Borough said it wouldn't work and we have proven it does.

Work experience.

Family farm + 4-H leader, member 40yrs.

Experience in Alaskan Ag.

On the home farm in the Midwest where 85% of the population were farmers as I grew up 1937 - 1960.

Being raised on a farm.

Gradually developing what we have now, vegetable garden, chickens, turkeys. We used to have pigs and geese. We learned from our mistakes. Our goal was to avoid food containing herbicides, pesticides & any other contaminants. We fill our freezer each year with our own meat, vegetables & fruits. We use our root cellar, and I can fruits and vegetables also.

When I had the 1st opportunity to handle reindeer.

Parent's farm.

Working on farms from boyhood to now when I will retire.

Personal involvement in farming.

Not be able to farm in home state, makes me want to farm harder.

Producing your own food as an only source in the 1930's

Raising fur bearers mink and fox.

Parent's farm.

Own farm, university, and work as farm laborer.

Growing up on my parents farm and the vocational agricultural program in high school.

The Pt. MacKenzie how not to do it school of hard knocks.

Not to trust bureaucrats.

Learning by experience over the years I have been involved in agriculture.

High school FFA.

Personal experience.

I cannot single out the most important learning experience. Agriculture is such a changing science, when you learn something, it soon becomes obsolete and replaced by new practices.

Alaska farming.

"School of hard knocks" is hands on general experience. Each year our methods and storage improve. Our biggest problem was learning how to control mold in the hay bales. Transportation and storage are other problem areas.

Growing up on the farm and working with subsistence farmers around the world.

Developing our own farm here in Alaska, with the help of all the fine people at the University and Extension Service organization. We accomplished our goal. Had the State of Alaska fulfilled its obligation and the infrastructure to provide a market been completed the program as designed would have been very successful.

Working our farm.

Getting out there and doing it.

Most important was being able to work on the farm during the summer while in grade school and high school. Forage crops and grains have been the main emphasis of the farm.

Grain farming and truck farming as a young boy.

Dr. Husby was a great help with this. Light wt. 36-38 barley test are deceitful in that while protein may be high, energy is low enough to lock calcium. In dairy, that is a disaster. Heat detection in a stall barn in Alaska is tough.

Helping with day to day chores on a friend's farm as a child.

You are never your own boss (county, state, etc.)

Doing your own vet work in Alaska.

1991.

New born livestock. How other farmers seldom help or mingle with each other - few exchange knowledge. They seldom join together for common goal - always the synopsis of Big ag vs. Little ag.

Growing up on a small farm.

Going through the past winter raising hogs.

Farming for myself and not as an employee.

Two short summer experiences grade school & high school level. Observing what happens with water management, weeds and soil fertility by doing it, as well as timing here in Alaska.

Raising 10 head beef cattle.

Coping with farming on the family farm during the dust bowl and depression years 1930 - 1945.

Planning, starting and operating my own small farm. Also early years in 4-H, Father an FFA teacher.

Learning never to trust the State of Alaska in the state's agricultural plans.

Hands on experience & the feeling of accomplishment.

The difference of farming in Alaska from farming in the South 48, and still learning.

Personally going through the farming cycle.

Senior thesis (college) on pigs. Hands-on experience w/ animals.

Working as a child with my father.

My mother's example, and the actual experience of growing high quality organic vegetables in Alaska.

Learning at own farm.

Growing up on my Dad's farm - he was very progressive for his time.

My parents owned and operated a small business for approx. 10 years - while I helped from age 12 to 20.

Developing our own farm.

Cooperative Extension Service.

Raising cattle in Alaska.

Growing on a farm surrounded by farms.

On the job training.

Having been raised on a farm.

Working on farms and ranches.

Growing up & working on grandparent's farm.

Failure is a great learning experience as long as you keep it in moderation.

Parent's farm and 4-H.

Hands-on projects.

Agriculture college, foreign exchange student, worked on many different farms, trial and error on our own farm.

I am 76 years old, have been involved in agriculture all my life, have lived in Alaska 43 years. I cannot point to one project on Kodiak as a success story as the results of the Agriculture Dept. What we need is applied science on the land. We have spent all our money & time on research and not the land.

7 years dairy in Alaska - 1960-1967.

Reading early day (1906-1920) reports of Ag. Exp. Stations at Rampart & Fairbanks, and actual hands on trial & error on our farm, with cover crops, rotations, and tillage methods.

High school nine thru twelfth.

Being born and raised on a cattle ranch and farm, I feel that my 45 years experience in the agricultural field far surpassed that of a college graduate.

Farm work throughout high school & college provided me with my basis.

On the job.

Raising livestock, sheep in particular.

Working on my parent's farm while growing up.

I learned that if I had my life to live over again, I would never farm in Alaska. In fact, I would never even consider being a farmer. I would rather be a Govt. employee and regulate other people because it seems to be a policy that people are too dumb to be able to think for themselves.

Being raised where I was and when I was. . . Although it was a period of much change (not for the better) I experienced much of an era when quality of life was much better than now, and the equipment much more suitable for attaining that life. I now buy older sales literature about that equipment since I fee that it was pinnacle of American progress. I can't cite any one factor, but something in my childhood set me on the agricultural path.

Homesteading & trying to keep from going broke farming.

High school voc. ag. classes, FFA.

Dealing with day to day actualities of agricultural enterprises tried in various degrees at various times since age 7.

38. What type of educational programs on agriculture would you like to see provided in the future?

Focusing on children and gardening, stimulating their desire and interest in raising food for the family.

Educating the public to fact that farmers have to make a profit on their products as well as all the middlemen.

All kinds of programs - mostly on raising hay and the marketability of livestock in Alaska.

Animal health, crop rotation, renewable agriculture, silage crops, Alaskan farm buildings, marketing, new crops, farm accounting.

We want to see wild game ranching started in Alaska. We think that Alaskans will have to use our natural resources to farm instead of traditional stock and crops.

Home study programs.

Animal nutrition, practical methods.

More state funded symposiums.

A CPR course for housewives or husbands.

Hydroponics, wild game ranching, vegetable growing, greenhouse production, forage/grain production, fish farming, anything that pertains to agricultural production that would really work in Alaska.

Agricultural know-how as an integral part of all elementary education, including (but not limited to) extensive summer practicums utilizing existing campuses retrofitted with sunspaces, aquatanks, raised beds & sunken oasis, multi level plots, and processing, storage & marketing facilities.

I would like to see programs that would be helpful for local forage farmers - including field preparation, seeding, fertilizer quantity & application, harvesting, storage - silage - hay - grains - how to measure moisture content for hay to be baled.

Marketing - local & international, transportation - rural Ak to other markets, land development/preparation.

Genetics - hybrid plant and animal.

Night school on dairy, crops and feed.

Effect of using urea in the fall (vs. spring) for your next spring - summer hay crop (timothy) and also the effect of smaller applications of urea during the growing season.

Need more programs for our youth - encourage ag courses in H.S. While 4-H is good, we need more programs.

In the public school, I'd like to see use of a greenhouse along with a class for high school students & possibly junior high on gardening, raising animals & a 4-H club with a knowledgeable director. Young people have very few models here and no way to learn the benefits of growing ones own food.

How to get State and National Government out of agriculture.

Winter grains, fertilizers, weed control, grasshopper control.

Anything on fur bearers.

New equipment methods.

Programs geared to marketing, profitability, how to fill out state paper work, and farm planning out of ruins.

Any that apply.

Community College support and strength. That's about a laugh with this administration at UAA & UAF.

How to make money in farming.

Livestock nutrition and ration balancing for Alaskan grown products.

Marketing, tax info., bookkeeping, how to fill out ARLF loan applications.

Organic vegetable production, beef production, education on how to keep politics and government out of agriculture.

Farm tax information.

Too many people farming have not understood a return of investment, return on asset, influence on taxes, net worth. . . that is the business side. Most failures I have seen have come from the business management side of farming.

Marketing and market availability.

Stock raising and game animal production.

Some 30-day courses in different aspects of dairying, breeding, record keeping, herd health, milking techniques, forage mgmt., all phases so we can send our employees and kids.

Livestock feeds, hay & feed grains, game ranching, greenhouse applications.

UAF provide classes that local farmer can attend & receive credit toward degree.

The CES has offered good classes in our area but not at convenient times - more info directly related to our area, especially pertaining to grasses for fall pasture and hay.

Possibly something of KUAC about training, not just documentary. Swine judging class mostly for the purpose of being able to choose good quality animals for replacement stock.

Marketing, marketing, marketing, marketing!!

Commercial methods of vegetable growing.

Interested in berries at this time.

U.S. government programs.

Farm planning and layout, animal husbandry.

Land, feed, beef cattle, latest tech, and markets.

Information on new grains, grasses, animal mineral shortages including pigs, cows, and game such as elk buffalo and musk oxen.

Open house tours of other's facilities, on-site consultation, animal rights updates, marketing info.

Choosing crop varieties, tillage techniques (mechanical and chemical weed control), quality control in harvest and storage.

The future of ag. will rely on sustainable methods using locally produced inputs. "Ag in the Classroom," FFA, Ag Symposium need to zero in on this "soil based" type agriculture, and raise up a new generation of young farmers.

Extension specialists working on farm research with ag student as helpers. Hands on small scale low budget stuff.

Soil testing info. Plant development for specific areas.

Marketing procedures.

Keep the CES like it is in Delta, Don can do us more good than all the rest.

Better in the school for kids wanting to learn about agriculture.

How to workshops - test your soil & tell what it needs, vet skills in livestock.

How to keep out government intervention, how to make a profit in spite of these intrusions & regulations.

Crop science for Alaskan conditions, production orientated, scientific but applicable.

Put into action what we already know from year to year on the soil. There was much more done in ag. 100 yrs ago than there is today. This is where agriculture started in Alaska in the 1800 B.C.

General home garden.

Specific research on maintaining soil fertility on interior soils, slopes and flat land.

From what I have observed, most of the past programs have not served the participating farmers with much help except to foul them up. Especially State programs.

Raising profitable beef, hogs, hay in AK.

Publications on new products and ideas concerning Alaska and Alaskans. Moose farming, alfalfa that will grow here, etc.

Job training to help get people off the farm and into an occupation were we can make a good living, do nothing, and have a good retirement, and medical. Read: Work for the Government.

Not totally sure, but other than big-time commercial ventures.

Cost effectiveness. How to determine ahead of time if a crop or program or new piece of machinery has a chance of breaking even.

Short courses with more content than one evening from 7 to 9 (numb out time for busy farmers).

If you have any additional comments, please feel free to use the space below.

I do not farm.

I would like to know how you could close the exp. farm (test plots) at Pt. MacKenzie, when we needed so much help to try to make our ag parcels productive. At the time we were told it was because of budget cuts, but I didn't notice any less personnel, just less help for the farmers.

I believe a sustaining agricultural base in Alaska is feasible if the State would stay out of it and let free enterprise take its course. Although I believe that in order for this to succeed Alaska should make small loans available to farmers not to exceed ($50,000) for maintenance or the purchase of small farms on conditions that money will be used for farming. That way a farming base would be established and in time would roller coaster.

I have a few head of cows and calves - bucking bulls -roping steers. We have to buy all our feed from local farmers. We put on about ten rodeos in summer time - makes no money.

I work in Valdez to build the farm or I would be more active.

Help those who are already farming in Alaska by a tax incentive on real and personal property (farm equipment) that does not have a penalty clause. (ie having to pay full tax on property plus 8% interest if property is taken out of agriculture).

I will enclose a Letter to the Editor that explains more how we feel about raising moose and other wild game.

Local clubs or groups with a common interest in agriculture are good for informing and educating anyone who is interested in farming.

Farming in Alaska is a long term investment for the next generation.

Encourage the State of Ak to reclaim ag. parcels i.e. 1,000 acres or more be broke down into 100 acre farmsteads - example a farm with 4 members and 4 hired hands to run 1,000 or more acre farm. 10 -100 acre farmsteads based on 4 member family = 40 on the same acreage - would out produce the bigger farm and develop the farms for better resale for those who continue to farm.

We feel that the University and CES are important to agriculture in Alaska.

I am very disheartened by what I have seen in our State. I genuinely feel that Alaska could have a great agricultural future. I keep trying to improve my fields and increase my production & to produce quality crops. My own animals have been an ongoing experiment - I adjust & adapt my farming methods as I see what works well for us. I do not feel that the "powers that be" want agriculture to succeed in the state - I feel that farmers have had to proceed on their own with no real beneficial support from the State. In projects, the State seems to have tied their hands & not only has not aided the farmer - but has hindered

them severely. I love to see things grow. I feel that agriculture has always been (& should be in the future) the backbone of this nation. I do not believe in paying people to not produce. We need to encourage production on the farm. Farming is expensive - the equipment is high - the fertilizers and seeds are high. (even fertilizers that are produced in the state - fish meal & urea can be purchased cheaper in Seattle) Can't be freight costs - can it? We have a horrendous national debt - we pay farmers not to grow - we see people starving all over the world. I am appalled - why don't we produce & use our excess agricultural products for foreign aide to the countries that need it. Foreign aide funding could go down - our government could buy the excess from the farmers for foreign aide - the farmers could produce something for the $ that's being paid them to not produce - the price of products would stay unaffected because the excess would not be released on the public market. Hungry people could eat. Why not? Our state could produce very high quality hay & grain crops if we could have a market that was dependable. We need to go about things a little differently because of our short growing season & cool falls - but I feel it could be done. We have wonderful soils - long summer days - moisture - lots of +'s too. It's just expensive. I would love to be able to earn a living farming - instead of having to work at an outside job while I'm trying to get set up & have the equipment etc to make the farming pay like it should.

We need local small slaughter house facilities.

The politicians had more to do with the failure of agriculture in Alaska than the farmers did. The so called agricultural rights should never been. The five acre homesite on the land never did make sense. The land should have been left for Alaskan residents to homestead if he would farm it. The big farms in Delta were too big for the markets that are here. The State should not hold on to this land until it grows up again in trees. It should get back to people at an affordable price. Agriculture can succeed in Alaska, but as small farms, small farms are all that are hanging in there now. This state's farms have to grow as the lower 48 states' grew - they all started as small farms over 150 years ago. I could almost write a book about this subject.

Good luck - Ramona Barnes & Steve McAlpine and others killed the barley project by stopping construction of the terminal. Several million dollars of equipment was sold to Seward for $16,000 - they sold it to Korea. Pt. MacKenzie was rushed into production to coincide with a Lower 48 surplus. Inexperienced operators didn't have a chance. Alaska is so few consumers politically & strategically between the two largest food exporters in the world. We benefit but also have to compete with them. Its no match.

More education from Extension Service and University.

I do a lot of composting and barn litter goes on the garden each spring. My husband cultivates with a rototiller. I've tried to raise fruit trees but the hazards are numerous. The moose eat the tops, the snow breaks down the branches and the mice eat the bark under the snow. Had good luck with raspberries & strawberries when I can keep the porcupines & bears out and the weather provides enough sun. Garden pests are slugs if the are long wet spells. Root maggots get the cold crops but I just plant enough to share with them.

There is a world of information needed on crops here.

The State of Alaska needs to put good ag people in right offices. Too many people who don't know ag.

Each farm is as individual and unique in their location, field structure, water table, and actual usable acreage. I would like to see a direct interest taken to address these needs and get ag. rolling again in the state. We need an end to politics and get to farming before nature reclaims the land we worked so hard to put in production.

More documentation of successes and failures of farming in Alaska in the past. Disregard the State involvement which has been failures not due to Alaskan conditions.

Agriculture is a continuing scientific study. The day we say "I know how to farm," is the day that we have definitely lost interest. Universities working hand in hand with real producing farmers, can enhance the learning process many times over. Through such experimentation the successes and failures can be documented for educating future generations, allowing them to escape making the same mistakes over and over.

There is a wealth of common sense knowledge from experience of those who farmed prior to the projects that is going into graves. It would be good to document what went on in the 40's, 50's & 60's.

Thanks. Nice to see your interest in promoting agriculture. The big problem has been marketing. We're sitting with 500 tons of barley and can't sell it right now.

I would like to recommend that the U of A have 3-4 ag. specialists in different fields that could go from farm to farm as requested & offer 2 day a week of help maybe in bookkeeping, herd mgmt., crop production. If you approach State Div. of Ag. with a problem, immediately you are viewed as incompetent. There are retired Ak farmers with a lot of knowledge. The state has been spinning its wheels for years, maybe U of A could fill the gap or we may all loose. Some farmers could use help getting grants - there are projects where maybe the U of A could help with research feasibility, data, and writing.

The U of Alaska Experimental farms in all areas must stay open to provide info for local farmers. Agriculture in Alaska can be profitable & is shown to be when govt stays out of it & the land grant university is there as support.

Farming is a hobby for our family at this time. Especially good for the kids.

I am concerned from what I hear about the cutbacks in UAF & the changes being considered about shifting the agricultural school to tie it in with another school that might curtail the freedom and opportunity for UAF faculty to come & do hands on type of instruction or guidance. Dr. Husby & Ken Krieg have been extremely helpful to us & it is vital that they be allowed to continue that help to us & many others as well as to the future of Ak agriculture.

It is too late for me to improve, expand, or increase efficiency - years of primitive ag. bucking bales, pitching manure, making loose hay, heaving logs, digging garden has lead to severe arthritis and my level of farming will be cut back. What happens to my fields, I don't know. I will be selling off the beef stock. I seem to have 1% of the chickens in the state What a sad commentary! I have 35 birds. But I think reporting is off, that less than 1% of the flocks the size of mine are reported, and people who have them think it's none of the government's business.

Raising berries - gooseberries, raspberries, strawberries for grandkids education and their spending money.

I am thankful and satisfied with the programs sponsored by the U.S. government in Alaskan and it has been a help to me. I am not happy with the way the state is running things in regards to farming in Alaska. Their programs only discourage the development of farming in Alaskan.

Do more input on the plus side of ag. in the state and less on the negative. Bad press on state projects, all ag. taking the flack.

I would like to see agriculture move along a little faster but at the present date it seems to be going back instead of forward and I am rather disappointed.

I like to learn (and learn faster) from people. My spouse gets more out of printed materials. Regional data is always appreciated.

Agriculture in the 20th century has gradually become up to 90% petro-chemical based. While seemingly miraculous results have been gained, it has been at great expense to the environment. Consequently, radical environmental groups - both private and govt sponsored - have emerged to control and limit agriculture. Sustainable - soil based agriculture seeks to replace chemicals with true renewable resource inputs. In Ak these inputs being - fish waste, sea weed, glacial silts, forest and right of way thinnings, composted sewage sludge, unbleached waste paper and land fill components, etc. Intelligent integration of these inputs into agri. will lessen the need and "cause" of radical environmental groups, while at the same time show the true, viable environmentalists to be farmers! Alaska needs to set a course toward developing its renewable, sustainable agri, inputs and it will take an across the board resolve at the University , CES and Div. of Ag to accomplish this.

I am greatly pleased to see a survey like this. I hope we as an agricultural community can move toward practices that will be environmentally wholesome and financially profitable.

My farm is not more than 50% complete - it may take me another 10 years to develop a comfortable farm operation for me.

Cooperative Extension Service is important to us - because of "user-friendly" source of information!

Don Quarberg gets us more good info. than all the other programs. He can do small experiments on various farms that really help us.

My biggest disappointment in our ag endeavors has been the lack of cooperation of the U of A reindeer research people. We have had reindeer since early 1987 and summer of 1991 was the 1st time anyone from there came to my property to see the operation and offer information. My staff and I need training on health aide skills - giving shots, assisting cows having trouble in labor, etc. Would love to have a video, but am sure that eve if there was one, it wouldn't be available to me. So we attended the CES lambing workshop as the next best thing.

We fertilized and repaired equipment in 1991, but did nothing more. The hay didn't grow.

I hope your definition of "agriculture" is broad and not just farm related. Urban horticulture/agriculture is a very large portion of Alaskan ag's industry.

If you are going to teach me something, you better do it quick before I kick the bucket.

All these years we spent too much money and time and research in the classroom watching the dairy, cattle, agri business die under our nose, when we should have worked on markets and transportation. It is easy to tell a farmer how he should make a success when you are supported by a gov. budget, but it is another story to be successful off the land without gov. support. We need to move out of our offices and put to practice what we know on the land then maybe we would have some success stories.

It appears on our farm that continuous cropping does not work. We believe that more research be directed at soil fertility and crop rotations. For example, data about growing potatoes in Europe indicate a field produces potatoes one in every 5 to 7 years. The other years are used to build soil fertility and a natural resistance to pests and diseases.

The last four years I have pretty much given up everything in the agricultural line except raising gardens and potatoes enough for several of our children's families. I have a good root cellar so can store my potatoes and carrots.

I personally do not have time to leave the farm to attend classes, symposiums and what not that may or may not be of value to me. I do however take time to read any and all publications concerning agriculture. We need a real and viable experimental program in Alaska to develop usable and viable products. If not, we need the government to step aside so we can do it ourselves.

I feel the State should open up more land that is suitable for agriculture, to the public. Too much good agricultural land is tied up in parks and recreational areas.

When the greenies get into power, it will be impossible to farm profitable. We then will have a choice to import most of our food or collectivize all the farms, and then import all our food. Federal and some state policy has made land in Alaska almost worthless, and that gives a person less and less incentive to even pay the taxes on property, even if one is able. When a person sees many years of hard work and frugal living go down the tubes, it sure is kind of hard to be an optimist in a State that is almost bankrupt, both morally and financially.

As you have probably concluded, I am not a "government approved" farmer. Since almost all government loans, land-tax assessment, etc have to do with income or percentage of income, I don't quality. The thing that bothers me is seeing others who do qualify and knowing how they did it with clever (or crooked) paperwork. Many of these who can claim getting a high percentage of their income from farming are only able to do so because of governmental loans (which are their real source of income). They weren't farming on their own before the loan, and they stop farming when the loans stop. I don't consider these people as farmers and indeed consider them to be one of the best examples of what is wrong with this country.

My farming now is limited to leasing hay land for percentage of crop (15%) and trying to keep weeds and brush from taking over the rest.

LIST OF REFERENCES

LIST OF REFERENCES

Agricultural Experimental Station. (1983). Agricultural Research Near Delta Junction. Fairbanks, Alaska: University of Alaska - Fairbanks Agricultural Experimental Station. Publication 83-2.

Alaska Agricultural Action Council. (1980). Expanding Alaska's Agriculture - A Positive Commitment. Juneau, Alaska: Office of the Governor.

Alaska Agricultural Action Council. (1982). "First Report to the Legislature on the Development of a Plan for Alaska Agricultural Development." Juneau, Alaska: Office of the Governor.

Alaska Division of Agriculture. (1983). Agriculture in Alaska: A Plan for the Future. A special report to the Governor. Palmer, Alaska: Department of Natural Resources.

Alaska Division of Agriculture. (1987). Demonstration and Research Report. Fairbanks, Alaska: Cooperative Extension Service.

Alaska Division of Agriculture. (1990). Alaska Agriculture Statistics 1990. Palmer, Alaska: Cooperative Extension Service.

Alaska Division of Agriculture. (1991). Alaska Agriculture Statistics 1991. Palmer, Alaska: Cooperative Extension Service.

Amstrup, Carl. (1982). "Alaskan Agricultural Development Plans and the Influence of Risk and Uncertainty." Speech delivered at Alaska's Fourth Annual Agricultural Symposium. Anchorage, Alaska.

Beiler. E. Joseph. (1987, Spring). "Measuring Program Effectiveness." Journal of Extension. Madison Wisconsin: Extension Journal, Inc.

Bielema, Cheryl and Sofranko, Andrew. (1983, January/February). "Determining Needs of a Hard-to-Reach Audience." Journal of Extension. Madison Wisconsin: Extension Journal, Inc.

Brown, Deborah, & Holloway, Patricia, & Kirts, Carla. (1986). A Survey of the Alaska Greenhouse Industry and Related Enterprises. Fairbanks, Alaska: University of Alaska - Fairbanks Agricultural and Forestry Experiment Station. Circular 57.

Brown, DeLon. (March 12, 1992). Personal telephone call to Alaska Agricultural Statistics Office. Palmer, Alaska.

Burton, Wayne E. (1975). "Creating a Northern Agriculture: II. Historical Perspectives in Alaskan Agriculture". Fairbanks, Alaska: Institute of Agricultural Sciences. Bulletin No. 43.

Burton, Wayne E. (1975). "Creating a Northern Agriculture: III. Defining Parameters of Agricultural Potential in Alaska". Fairbanks, Alaska: Institute of Agricultural Sciences. Bulletin No. 44.

Carling, D.E. and Westphale, P.C. (1990). Potato Variety Performance Alaska 1989. Fairbanks, Alaska: University of Alaska - Fairbanks Agricultural and Forestry Experiment Station. Circular 77.

Davis. (1971). Elementary Survey Analysis. Englewood Cliffs, N.J.: Prentice-Hall.

Drew, James V. (1989). "Potential Products From Alaska's Agriculture and Forestry." Speech delivered at Conference on Resources and the Environment. National Cheng Kung University, Tainan Taiwan.

Dillman, Donald A. (1978). Mail and Telephone Surveys. New York: John Wiley and Sons.

Engelbrecht, C. R. and Thomas, W. C. (1987). "Agricultural Policy Implementation in Alaska." Agricultural Administration and Extension. England: Elsevier Applied Science Publishers Ltd. Vol. 26, no. 9.

Gasser, G. W. (1951). "A Brief History of Agriculture in Alaska." Unpublished paper.

Harker, J. Michael. (1982). "Economic Interrelationships Within Alaska's Developing Agricultural Industry." Alaska Commercial Agriculture Development Series. Fairbanks, Alaska: University of Alaska - Fairbanks Cooperative Extension Service. Publication #P-148.

Husby, Fred and Krieg, Ken. (1987). Alaska's Feeds for Alaska's Livestock. Fairbanks, Alaska: University of Alaska - Fairbanks Agricultural and Forestry Experiment Station. Circular 63.

Johnson, Hugh A. and Stanton, Keith L. (1955). Matanuska Valley Memoir. Palmer, Alaska: Mapmakers Printing.

Klebesadel, L.J. (1983). Forage Crops in Alaska. Fairbanks, Alaska: University of Alaska - Fairbanks Agricultural and Forestry Experiment Station. Bulletin 63.

Lewis, Carol E., & Arobio, Edward L., & Birklid, Cathy A. (1987). The Economics of Barley Production in the Delta Junction Area of Interior Alaska. Fairbanks, Alaska: University of Alaska - Fairbanks Agricultural and Forestry Experiment Station. Bulletin 77.

Lewis, Carol E. and Thomas, Wayne C. (1982). "Expanding Subarctic Agriculture: Social, Political and Economic Aspects in Alaska." Interdisciplinary Science Reviews. England: Wiley Heyden Ltd. Vol. 7, no. 3.

Logsdon, Charles L., & Casavant, Kenneth L., & Thomas, Wayne C. (1977). Input - Output Tables for Alaska's Economy: A First Look. Fairbanks, Alaska: University of Alaska - Fairbanks Agricultural and Forestry Experiment Station. Bulletin 48.

Miller, Larry E. and Smith, Keith L. (1983, September/ October). "Handling Nonresponse Issues." Journal of Extension. Madison, Wisconsin: Extension Journal, Inc.

Moss, Pappy. (1983). Speech delivered at Alaska's Sixth Annual Agricultural Symposium. Fairbanks, Alaska.

The National University Extension Association. (1937). Proceedings of the Twenty-Second Annual Convention. Spencer, Indiana: Samuel R. Guard & Co., Inc.

The National University Extension Association. (1940). Proceedings of the Twenty-Fifth Annual Convention. Spencer, Indiana: Samuel R. Guard & Co., Inc.

Obahayjie, Julius and Hillison, John. (1988, Spring). "Now Hear This: Delivery Methods for Farmers." Journal of Extension. Madison, Wisconsin: Extension Journal, Inc.

Pounds, Diana. (1985, Winter). "Putting Extension Information Where People Will Find It." Journal of Extension. Madison, Wisconsin: Extension Journal, Inc.

Restad, Sigmund. (1986). Telephone interview. Palmer, Alaska.

Restad, Sigmund H. and McNicholas, Helen L., ed. (1983). Alaska's Agriculture and Forestry. Fairbanks, Alaska: Cooperative Extension Service, University of Alaska and US Department of Agriculture.

Richardson, John G. and Mustian, R. David. (1988, February). "Perceived Capacity of the North Carolina Agricultural Service to Deliver Technological Information: Reactions of Agricultural Producers Who Use Extension Information." Paper presented to the Southern Rural Sociological Association at the Annual Meeting of the Southern Association of Agricultural Scientists. New Orleans, Louisiana.

Richardson, John G. and Mustian, R. David. (1988, February). "Preferred Methods for Delivery of Technological Information by the North Carolina Agricultural Extension Service: Opinions of Agricultural Producers Who Use Extension Information." Paper presented to the Southern Rural Sociological Association at the Annual Meeting of the Southern Association of Agricultural Scientists. New Orleans, Louisiana.

Sieber, Sam D., et al. (1972). The Use of Educational Knowledge. New York: Columbia University.

Snodgrass, Roland. (1982). Alaskan Agriculture, An Overview. Juneau: Legislative Services.

Steinfelt, Victoria E. and Iams, Donna R. (1985, Winter). "So You're Planning a Money Management Program!" Journal of Extension. Madison, Wisconsin: Extension Journal, Inc.

Thomas, Wayne. (1982). "The Role of Agriculture in Alaska's Rural Development." Alaska's Rural Development. Boulder, Colorado: Westview Press.

Thomas, W. C. and Lewis, C. E. (1980-81). "Alaska's Delta Agricultural Project: A Review and Analysis." Agricultural Administration. England: Applied Science Publishers Ltd. Vol. 8.

Uko, Okon E. and Miller, Larry E. (1987). "Perceived Farm Management Educational Needs of Part-Time and Small Scale Farmers in Selected Ohio Counties." Columbus, Ohio: Ohio State University, Department of Agricultural Education.

Vandre, Wayne. (1991, December). Letter regarding Cooperative Extension Service programs offered in Alaska.

Warmann, G.W. and Rice, Patricia. (1988, February). "The Market for Extension Information in Virginia." Paper presented to the Southern Rural Sociological Association at the Annual Meeting of the Southern Association of Agricultural Scientists. New Orleans, Louisiana.