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# Value-added agriculture producers: How they find, obtain and validate knowlege inputs

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# Value-added agriculture producers: How they find, obtain, and validate knowledge inputs

by

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## ABSTRACT

We live in the age of ubiquitous and readily accessible information, particularly due to electronic media. This raises the need to reassess traditional diffusion theory, sources of information, and delivery modes. Do agricultural producers favor or need personal human interaction and or analytical interpretation in this new mode? The study surveyed many of the producer grant recipients of a federal program; the Value-Added Agriculture Producer Grants (VAPG) to determine, "How do farmers and agribusinesses find, receive, and validate knowledge inputs in a world flooded with ubiquitous data and information?" The results of this study relate to agricultural educators who daily must question their own methods as clients or potential clients question the relevance of these educators. The results revealed the use of social networks among these producers is important in obtaining information and making decisions related to their businesses. Producers use networks (virtual and spatial) to learn from one another. They rely on trusted sources and interpersonal communication, which although may be virtual, is still about relationships. Such findings bring focus to the adage that "people do business with people." In this electronic age it appears the trust relationship is quite personal and highly valued. The participants indicated that agricultural educators and particularly Extension specialists can play a key role for them by helping them in facilitating social networks and by helping them to fit together what oftentimes appears to be disconnected or irrelevant information.

# CHAPTER 1
# GENERAL INTRODUCTION

From the earliest days, U.S. agricultural producers have explored ways to add value to crops and livestock, including creating businesses to capture higher profit margins by further processing or creating specialty markets for their products. Many American farmers have sought greater profitability by joining farmer cooperatives that may aid them with bulk purchases of inputs, help to aggregate products, or through economies of scale, provide better prices.

Some of these cooperatives have been in involved in further processing or aggregation of commodities. Consumers have come to know some of those farmer-owned brands and can readily purchase Sunkist Oranges, Sun-Maid Raisins, Land O'Lakes dairy products, Blue Diamond Walnuts, Ocean Spray Cranberries, among others. These examples of dominant, large, and well-known farmer-owned cooperatives have produced specialty products for many years, and generally this activity has occurred on the East or West coasts. With the exception of dairy processing cooperatives, Midwestern farmers tended not to be involved in value-added agriculture or further processing ventures until the late 1990s.

Since the late 1990s there has been surge in development of value-added businesses. This is indicated by the more than 3,100 grant proposals submitted to USDA and the more than 800 USDA Value-Added Producer grants awarded from 2001 thru 2008 (L. Oliver, personal communication, January 31, 2009; U.S. Department of Agriculture Rural Business-Cooperative Service, 2008). Table 1 shows the popularity of the program and that there are a number of firms and businesses being created in this arena who are eligible to access this program.

**Table 1. VAPG Recipients Since the Inception of the Program**

| Year | Total dollars awarded (millions $) | Total amount appropriated (millions $) | Number of recipients |
|---|---|---|---|
| 2001 | 58.156 | 19.9 | 63 |
| 2002 | 76.500 | 33.0 | 231 |
| 2003 | 76.500 | 28.7 | 186 |
| 2004 | 76.500 | 15.5 | 96 |
| 2005 | 74.182 | 15.5 | 172 |
| 2006 | 89.221 | 20.5 | 185 |
| 2007 | 89.164 | 19.3 | 162 |
| 2008 | 92.341 | 19.1 | 140 |

*Note.* Sources: Boland, Crespi, & Oswald (2008); USDA Rural Development (n.d.).

This recent surge of interest in farmer-owned business ventures that seek to capture additional value from commodities past the farm gate came about for several reasons:

- Chronic surpluses of commodities such as corn, soybeans, and wheat kept prices low for Midwestern farmers. These surpluses were available to be diverted to other uses which could add value.
- Biofuels, representing a new market and a new marketplace opportunity.
- Grants, special loan guarantees, tax credits, renewable fuel usage standards and other federally funded programs moved portions of business risk to the public sector.
- Legislation in many states created a mechanism to start new generation of cooperatives, which differ from traditional cooperatives. In a traditional cooperative

delivery rights are not limited, quality standards are broad, and payment is generally on a spot market.

- The new generation cooperatives were also used as a vehicle to raise capital for the project. Farmers invested in the new generation cooperation. As a return for their capital, they hoped their tradable shares would appreciate in value.

The new generation cooperatives limit delivery rights to the shares owned by the producer, quality is often more restricted, and price is usually contracted in some form. In the new generation cooperative a share unit of ownership buys a producer the right and obligation to deliver a specific amount of commodity. In other words a new generation ethanol cooperative would have shareholders committed to delivering x number of bushels per unit of ownership in the cooperative. Similar setups were developed in other value-added businesses as well. In theory, the commitment of commodities to the processing plant reduces competitive risks for the cooperative processor, thus making the investment less risky. Additionally, producers pooling their resources allows them create business ventures that they individually could not afford to do.

As a result of these factors, producers and others in rural communities could see a reasonable-risk vehicle for investment as well as value adding to commodities. The package could then be taken to banks and other financing venues to secure funding to start a business.

Particularly from the late 1990s, state and local development agencies and groups were becoming more aggressive with tax incentive programs, grants, and revolving loan funds to support value-added economic development in the rural areas. Growth and sophistication of these programs seemed particularly marked in the Midwestern states of Iowa, Minnesota, and Missouri. The corn surplus and the beginnings of a national tilt toward

biofuels, when coupled with various development efforts and interest, helped set a stage for value-added development more generally. This was this context in 2001 when Congress enacted legislation which created the Value-Added Agriculture Producer Grant (VAPG) program.

In 2001, Congress passed legislation authorizing, and later appropriating funds for, the VAPG program. The 2002 Farm Bill authorized the program for 6 more years with annual appropriations of $40 million. From fiscal year 2001 through fiscal year 2008 more than $170 million has been provided to qualified applicants of value-added agricultural products following announcements in the Federal Register (see U.S. Department of Agriculture, Rural Business-Cooperative Services, 2008, for the most recent announcement). The value of these grants given to value-added producers ranged from a minimum of $1,250 to a maximum of $500,000. These funds have been used to subsidize the development and marketing of value-added agricultural products, aid in the development of value-added businesses, and augment any other business related expenses including working capital.

The language in the 2002 Farm Bill authorizing the VAPG program, which was later used to create the Notice of Solicitations for Applications (NOSA) after Congress appropriated funds for the program, stated that the purposes of the program were:

1. To develop a business plan or perform a feasibility study to establish a viable marketing opportunity for a value-added agricultural product; or
2. To provide capital to establish alliances or business ventures that allow the producer of the value-added agricultural product to better compete in domestic or international markets.

The NOSA emphasized that a successful VAPG should "expand the customer base for the product or commodity, and result in a greater portion of the revenues derived from the value-added activity that is available to the producer." To do so, the product must then meet one of the following criteria to be eligible:

1. The changing of the physical state or form of the product (e.g., processing wheat into flour, corn into ethanol, slaughtering livestock or poultry, or slicing tomatoes);
2. A product produced in a manner that enhances its value, as demonstrated through a business plan (e.g., organically produced products);
3. The physical segregation of an agricultural commodity or product in a manner that results in the enhancement of the value of that commodity or product (e.g., identity preservation system for a variety or quality of grain desired by an identified end-user or the traceability of hormone-free livestock to the retailer); or
4. The term "value-added agricultural product" includes any agricultural commodity or product that is used to produce renewable energy on a farm or ranch (e.g., collecting and converting methane from animal waste to generate energy.

The VAPG Program awards grants to agricultural producers, businesses majority owned by agricultural producers, and organizations representing agricultural producers for business planning or working capital expenses associated with marketing a value-added agricultural product. Agricultural producers include farmers, ranchers, loggers, agricultural harvesters, and fishermen who engage in the production or harvesting of an agricultural commodity.

There are several steps to determining eligibility for the program. First, applicants must be eligible. Second, the product to be marketed must meet the definition of value-added

as noted above. Third, the project expenses must be for business planning activities or for working capital expenses. Finally, several other miscellaneous eligibility considerations must be met.

Iowa has had the greatest number of grant recipients (104), whereas Nevada and New Hampshire have had the fewest (1 each over the 2001 to 2008 time period). The average grant amount for all recipients was $153,576 and the average grant amount per recipient per state ranged from $5,638 in Maryland to $267,270 in Texas. Grant recipients were clustered in the Midwestern and Great Plains states, which have a strong commodity-focused agriculture. In addition, California, Michigan, and Washington, states with a great amount of diversity and value-added agriculture, were ranked in the top 10 as recipients. Other individual state statistics can be found in Appendix 1.

VAPG grants are awarded annually through a competitive process. The scoring formula is contained in the annual NOSA. Applicants are required to match one dollar of their own funds for one dollar of grant funds. The VAPG program is unlike most other federal programs in that the applicant is given cash to pay for any number of expenses including labor (e.g., personnel, accountants, legal), working capital (e.g., utility bills, commodity products), marketing expenses (e.g., advertising, promotional allowances), and similar expenses. The program is also designed to encourage business investments that might otherwise have remained unfunded due to risk and uncertainty.

## Purpose of the Study

Little research has been done to characterize this targeted sample of VAPG recipients or results of their utilization of the program. One study was conducted by Boland, Crespi, and Oswald (2008) to identify the determinants for success among USDA VAPG recipients.

Their focus was on business success and sustainability, and they analyzed factors such as increased market share of the recipients, greater sales, and the relative success of the business. The purpose of the study reported in this dissertation is to:

- Examine producers' and value-added agriculture businesses' sources of education and information, thus looking at the input side of the equation,
- Identify where organizations received information to base their decisions, and
- Evaluate the role of land grant institutions as a source of information and catalyst of change.

The economic and technological pressures faced by U.S. farmers are multi-faceted and often complex. Simple desire or some success in delivering product in demand does not ensure that the firm will remain viable and profitable. Even when capital can be raised, other issues can trip up the enterprise.

This study was conducted to determine where producers acquire knowledge and access information that may help their businesses to prosper and survive. The results may serve as a guide to service providers and administrators in developing relevant methods and modes for a rural producer clientele by highlighting their preferences concerning desired content and communications channels for receiving agricultural information.

The author is an Extension specialist with long experience working with this population. It has been her experience that these business owners appear to be more innovative and creative by virtue of their business development than are conventional commodity farmers. Given that value adding predisposes a differentiation in both methods and outcomes, their individual characteristics appear to differentiate them from the norm as well. Thus, the study looks at a target population that has self-selected for unique personal

tendencies. This study analyzes how to work most effectively with this unique set of producers in their new businesses, who are entrepreneurial and in most cases have been either early adopters or innovators of new products, technologies or markets.

**Author's Personal Motivation**

For several years, with a small staff and little funding, I was the program manager for the Iowa State University Value Added Agriculture Program (VAAP), which offers services to would-be value adding groups and individuals. In 2001, my colleagues and I responded to a Request for Proposal to fund an electronic virtual value-added agricultural center. We developed a consortium of the Iowa State University (ISU) VAAP and Center for Agriculture and Rural Development (CARD), Kansas State University, and the University of California. This consortium, called the Agriculture Marketing Resource Center (AgMRC), was funded initially for 3 years at $5 million. In addition to the initial funding, in 2002 this center received continuous funding with five percent of the amount allocated to VAPG to be used for AgMRC. The center attracts more than 2 million unique visitors per year. Because the VAPG recipients, and others like them who are starting and expanding value-added agricultural business, are the key user group of AgMRC, it is of value to me and my colleagues that we understand what type of information the producers need and how they go about discovering this needed information.

Funding was available to work on this study through AgMRC. In addition to the findings of this study, a business profile of each firm, with its permission, was written and posted on the website. These stories of VAPG recipients and their value-added agricultural activities were distributed across the business and agriculture media in the United States.

I have also served as a reviewer almost every year for the VAPG program. However, the opportunity to follow up with recipients has never been possible. The study afforded the opportunity to interview several of the firms, including some that I had evaluated for their initial grant proposal funding.

The Chair of the Senate Agriculture Committee (Senator Tom Harkin) has requested follow-up by AgMRC staff to determine "what are the informational needs of this clientele group and are they being met?" This study was designed to answer these questions.

## Objectives

The objectives of this qualitative research with the targeted audience were to:

- Determine how this group of entrepreneurial farmer-owned businesses access and utilize resources,
- Discover where producers go for market, technical, and management information, and
- Understand the resources producers utilize in developing their business strategies.

## Research Questions

The primary research questions explored are:

- What are the types of technical, business, and marketing assistance VAPG firms need?
- How do producers go about finding this information?
- What resources do they use to guide their business decisions?
- How do they like to receive information and education? Do they prefer to find information on the Web, or sit down with people, who can help guide them through the business decisions?

- Whom do they turn to? Do they use consultants? How do they qualify the expertise of the consultants?
- Do they use Web-based resources? If they do, how do they access those resources?

## Limitations

The study has the following limitations:

- Findings will be limited to an intentional sample of 80 businesses from a population of 800 overall recipients of the VAPG program.
- Limited time and funding to conduct the interviews were the reasons for selecting this small, but diverse population.
- Only those individuals who were willing to share their experiences and opinions were interviewed. Participants had to agree to be interviewed and find time for the interview process, which took up to 3 hours.
- Producers were asked open-ended questions and were not asked to rank one source over another. Therefore, unless participants stated it, one cannot infer that one method, or resource was better than another.

Steps taken to address internal and external validity are presented in chapter 3.

## Assumptions

It was assumed that the participants in the study would provide accurate information with a high degree of integrity. Ensuring that the study participants understood and interpreted correctly the questions asked by the interviewers was another assumption made.

## Dissertation Organization

Background information about the targeted audience, purpose, and objectives of the study has been the focus of this chapter. Chapter 2 provides empirical and theoretical background for a number of issues that surfaced during the research, including Internet usage by producers, communication preferences among farmers, and diffusion of technology. Chapter 3 focuses on methodology. Three papers developed for publication in scientific journals comprise Chapters 4, 5 and 6. Conclusions and recommendations are the subject of Chapter 7. Operational terms and definitions used in this dissertation are found in Appendix B.

Data collection responsibilities were shared by the author and six other employees of AgMRC or contract employees. Data analysis and the preparation of the text were the responsibility of the author. Business profiles of most of the firms providing interviews for this research study can be viewed at the AgMRC website ("Case Studies," 2009).

## References

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# CHAPTER 2
# LITERATURE REVIEW

This literature review covers theoretical and empirical information on agriculture diffusion and innovation, social learning, and use of communication channels deemed essential to better understand how value-added agricultural producers access information and methods; how they adapt new technologies and innovations; and what they use as resources.

Warmbrod (as cited in Radhakrishna & Xu, 1997) proposed if researchers are to make marked progress, they should make their highest priority understanding the relevance, significance, and issues they research. Crunkilton (1998) and Connors and Swan (2006) advocated that a research framework provides guidance for research that has occurred (i.e., the literature review) and the possibilities of where individuals, institutions, and the professional can go in the future. This philosophy guides the work here.

## Diffusion of Innovation Theory

The farming sector continues to provide an appropriate background for a study of the adoption and diffusion processes as it did in earlier research on the process of diffusion of innovation. Diffusion of innovation theory is based upon the early work of Bruce Ryan and Neal Gross (1943), who investigated the diffusion of hybrid seed corn among Iowa farmers and sought to explain why farmers were not using hybrid seed. Even though hybrid seed corn was first introduced in the 1920s, it was not until the late 1940s that the innovation was widely utilized by farmers (“Pioneer History,” n.d.). This was in spite of the fact that, compared to traditional seed, hybrid seed had compelling advantages, such as its vigor, resistance to drought and disease, and higher yield. However at the time, several barriers prevented Iowa farmers from adopting the hybrid seed corn. One problem was that the hybrid

seed corn would not make good seed the following year, so farmers had to buy new seed every year instead of holding some back from the previous year's crop. This meant the hybrid seed was relatively expensive for Iowa farmers—a hardship in the Depression. Thus despite the economic benefit of hybrid seed corn, its high price made adoption among Iowa farmers slow (Ryan & Gross, 1943).

Since that initial study, farmers have been one of the most researched groups on the adoption and diffusion of innovations in America. Decisions and what resources farmers used to make decisions have been the subject of research by sociologists (Rogers, 2003), economists (Gustafson, Nielson, & Morehart, 1990; Rahm & Huffman, 1984), geographers (Wallway, Black, Richard, & Mason, 1994), and others (Carter & Batte, 1993; Schnitkey, Batte, Jones, & Botomogno, 1992). These studies have identified characteristics of the adopter as well as types of innovations most likely to be adopted by farmers. For instance, in one study farmers indicated interest in income tax management, outlook for prices of agricultural inputs, and year-end farm financial analysis (Carter & Batte, 1993). A survey concerning agricultural policies found that farmer preferences varied according to characteristics such as age and education and size of the farm (Orazem, Otto, & Edelman 1989). The decision to adopt reduced tillage was found to vary by characteristics of the farmer and the farm (Rahm & Huffman, 1984).

Various criticisms have been raised regarding the continuing validity of diffusion research. One of these criticisms focuses on the rate and pattern of diffusion and adoption of innovations. Although Ormrod (1990) did not explicitly criticize this classic diffusion model, he suggested that previous research on patterns of diffusion may not be useful in today's world. Ormrod argued the pervasiveness of multi-media technology and aggressive

promotional efforts often make information about an innovation simultaneously available to all potential adopters. When information about an innovation is available to all at the same time the pattern of diffusion is affected by the receptivity of potential adopters to the innovation rather than by the communication of information about the innovation to potential adopters.

Yet the specific factors identified by Ormrod (1990) as related to receptivity—(a) the relevance of the innovation to local adopters, (b) the viability of the innovation within the local area, and (c) the availability of resources that allow the innovation to be adopted—are quite similar to those attributes identified by Rogers (2003) and others as the attributes that affect the rate of diffusion. The attributes identified by Rogers (2003) are: (a) relative advantage of the innovation, (b) compatibility of the innovation, (c) complexity of the innovation, (d) trialability, and (e) observability. In addition, Rogers (2003) argued that other variables, including the type of decision (optional, collective, or authority), the nature of communication channels diffusing the innovation, the nature of the social system in which the innovation is diffusing, and the extent of change agents' promotion efforts may affect the rate of diffusion. Ormod (1990) argued that focusing on characteristics of the adopter—such as those starting an value-added agriculture business—in addition to or rather than characteristics of the innovation, provides better information about the likelihood a particular innovation will be adopted.

**Nature of Communications Channels**

According to DeFleur (1987), Ryan and Gross (1943) sought to explain how the hybrid corn came to the attention of farmers and which of two channels (i.e., mass communication and/or interpersonal communication networks) led farmers to adopt the new

innovation. Each channel had different functions. Mass communication functioned as the source of initial information, whereas interpersonal networks functioned as the influence over the farmer's decisions to adopt. The adoption of innovation depended on some combination of well-established interpersonal ties.

Researchers have found that some people use multiple information channels during the adoption process (Rogers, 2003; Tucker & Napier, 2002). Thus, Extension and other educational providers, such as Small Business Development Centers, Future Farmers of America advisors, and trade groups, use multiple channels to deliver information for several reasons, including the different contributions each channel can make to the phases of the adoption process (Lionberger & Gwin, 1982, Rogers, 1995). For example, mass media channels are used to create awareness of issues, practices, and new technologies, whereas field days, demonstrations, and other direct one-on-one communications and networks are often used to help clients test and confirm information (Israel &Wilson, 2006). Rogers (2003) further asserted that educational providers who communicate with farmers and agricultural groups use both interpersonal and mass media communication channels to diffuse and collect information and to deliver programs, report research results, and engage in dialogue with constituents.

**Network Communication Theory Within the Diffusion Process**

The heart of the diffusion process is the modeling by near peers who have previously adopted a new idea. In deciding whether or not to adopt an innovation, individuals depend mainly on the communicated experience of others much like themselves who have already adopted it. These subjective evaluations of an innovation flow mainly through interpersonal networks (Rogers, 1995).

These communication networks consist of interconnected individuals who are linked by patterned flows of information. Networks have a certain degree of structure or stability. This communication structure is so complex that in any but a very small system even the members of the system are not fully cognizant of the communication structure of which they are part. Once an interaction takes place, it serves as an immediate and powerful context. As a relationship steadies over time more interdependence of perception and behavior develops (Salomon, 1981).

## Social Learning Theory

Most approaches to human learning look within the individual in order to understand how learning occurs. John Dewey is arguably the father of experiential learning, which undergirds social learning theory (Roberts, 2006). A central tenet to his educational philosophy was "amid all uncertainties there is one permanent frame of reference: namely the organic connection between education and personal experience" (Dewey, 1938, p. 25). Dewey proposed that learning from experience or formation of purposes involves:

1. observation of surrounding conditions;
2. knowledge of what has happened in similar situations in the past; a knowledge obtained partly by recollection and partly from information, advice and warning of those who have had a wider experience; and
3. judgment which puts together what is observed and what is recalled to see what they signify. (p. 69)

This process is instigated by an initial impulse. Dewey differentiated between activity and intelligent activity. In Dewey's opinion, intelligent activity or education is characterized by a postponement of action until observation and judgment have occurred. Furthermore, Dewey

stated that it isn't what we know that causes learning and ultimately adoption but what we value and feel toward what we know that spurs adoption (Roberts, 2006).

Social learning draws upon Dewey's approach and looks look outside of the individual at a specific type of information exchange with others in order to explain how human behavior changes. The central idea of social learning theory (Bandura, 1977, 1986) is that one individual learns from another by means of observational modeling. Social learning theory posits that psychological functioning can be explained in terms of the interaction of personal characteristics, previous behavior (learning), and environmental determinants (Chapman 1984). This psychological functioning involves valuing certain outcomes, discriminating among situations in terms of their potential to bring about these valued outcomes (Grady, 1990). Modeling allows the learner to adapt the observed behavior (Rogers, 2003).

This basic perspective of social learning theory is that the individual can learn from observation of other people's activities, so the individual does not necessarily have to verbally exchange information in order for his or her behavior to be influenced by the model. The individual can learn a new behavior by observing another individual in person or via mass media. Social modeling often occurs through interpersonal networks, but it can also occur through a public display by someone with whom one is unacquainted such as in a television program or web-based streaming video (Rogers, 2003, p. 342).

However, one of the criticisms of social learning theory and much communication theory is that it has not examined the emotional aspects of information processing for communication. This concept, called affect, examines the role of emotions in decision making (Forgas, 2008).

In studying behavior, Berkowitz (1993) proposed that three types of processes are likely to occur on exposure to a stimulus such as new information. First the information is subject to “relatively basic and automatic associative processes” (Berkowitz, p. 10), which occur before the onset of cognitive process, such as “appraisals, interpretations, schemas, attributions and strategies” (Berkowitz, p. 12). These crude and primitive preattentive processes occur relatively quickly and may give rise to lower-order affective reactions (approach or avoidance) based on a rapid assessment of the significance of the stimulus. Then he proposed the stimulus is subject to more deliberative, higher-order processing, the outcome of which may serve to strengthen or weaken the action tendencies arising from lower-order affective reactions. This model proposed by Berkowitz is consistent with those proposed by Epstein (1993), Leventhal (1984) and Zajonc (1980). This theory, cognitive-experiential self theory (CEST), proposes that two conceptual systems tend to operate in parallel in any given task: an experiential system, which is affective in nature and is associated with crude and rapid processing, and a rational system, which is cognitive in nature and is associated with a more refined and deliberative processing. Thus the challenge in diffusion of innovation, learning, and consumer choice is to affect both aspects of response (Shiv & Fedorikhin, 1999).

## Merging of Social Learning and Diffusion of Innovation

Social learning and the diffusion of innovation perspectives have much in common: Both seek to explain how individuals change their overt behavior as a result of communication with other individuals. Both theories stress information exchange as essential to behavior change and view network links as a main explanation of how individuals alter their behavior (Rogers, 2003, p. 342).

In a nonagricultural setting, Hamblin (1979); Hamblin, Jacobson, and Miller (1973); Kunkel (1977); and Pitcher, Hamblin, and Miller (1978) applied social learning theory to the diffusion of innovations to explain the rate of airplane hijackings. Their viewpoint was that diffusion models portray society as a huge learning system where individuals are continually behaving and making decisions through time but not independently of one another. Everyone makes his own decisions, not just on the basis of his own individual experiences, but to a large extent on the basis of the observed or talked about experiences of others (networks) (Hamblin, 1979, p. 802).

This perspective reflects the main idea of diffusion theory: that interpersonal communication with peers about an innovation drives the diffusion process (Rogers, 2003).

**Use of One Communication Channel: The Internet**

In the last decade, the Internet has become a core global communications technology for business (Kogut, 2003). The adoption and use of computers and the Internet by farmers and farm groups is related to anticipated positive impacts of these tools on performance and competitiveness. Such impacts could stem from various internal factors associated with computer use, such as better decision making and gaining information on processes and products (Holt, 1985). External factors, such as researching and marketing on the Internet, might play a key role through the accumulation of information that has competitive value (Feder & Slade, 1984). Purchasing and selling through the Internet may enhance efficiency by “increasing the accuracy with which prices reflect true market conditions” (Henderson, 1984, p. 851). Intensity of use, in terms of the amount of purchases made or the number of tasks carried out through the Internet, may also affect the returns from computer adoption (Feder & Slade; Putler & Zilberman, 1988).

Firms that use the Internet have greater access to information (Hall, Dunkelberger, Ferreira, Prevatt, & Martin, 2003). The adoption of the Internet by farmers is of special interest because the Internet can be used in multiple ways by a farmer as compared to other innovations, such as hybrid seed corn, the combine, or herbicide, which have only a single use.

A total of 55% of U.S. farms in 2007 had Internet access, compared with 51% in 2005 (USDA National Agriculture Statistics Service, 2007). Sixty-three percent of farms had access to a computer in 2007, compared with the 2005 level of 59%. In 2007, 80% of U.S. farms with sales and government payments of $250,000 or more had access to a computer, 78% owned or leased a computer, 66% were using a computer for their farm business, and 75% had Internet access. Stenberg and Morehart (2005) found that the largest farms had the highest share of individuals using the Internet to make both farm and household purchases, mirroring the pattern of all U.S. households.

In Iowa, 64% of farms had access to a computer, 42% were using computers for farm purposes, and 55% had access to the Internet. The same survey showed that farmers were using the Internet for a variety of purposes such as purchasing agricultural inputs, conducting marketing activities, and accessing selected government web sites (Lasley, Korsching, & Gruber, 2006).

Rural residents have long trailed their counterparts in the cities and suburbs in both Internet usage and broadband adoption. This may be because Internet infrastructure such as fiber optic lines is not available in many rural areas. One cannot adopt a technology that is not available. Thirty-eight percent of rural Americans have home broadband connections, compared with 60% of suburban residents and 57% of urban Americans. Rural broadband

penetration still lags considerably behind the levels in nonrural America, but rural broadband continues to experience strong growth rates. Internet usage in rural areas also trails the national average; 60% of rural adults use the Internet from any location, compared with the national average of 71% (Horrigan & Smith, 2008).

As a tool, the Internet provides an opportunity to examine the reasoning behind the decision to adopt it given that the decision to be made is not limited to whether or not to adopt the Internet—a farmer must also decide *how* to use it. One farmer may decide not to use the Internet at all either because it is not available or because of lack of knowledge about how to use it. Another farmer might decide to use the Internet for farm purposes but limit the use to checking grain prices. Still another farmer may decide to use the Internet to communicate with neighbors, check weather forecasts, and seek information for a business.

In a study by Smith, Morrison Paul, Goe, and Kenney (2004), of 141 farmers who used the Internet to obtain business information, only 30% reported that the information helped them increase their financial returns. A survey conducted in 2000 by the Economic Research Service (ERS) of the USDA asked farmers whether they were using the Internet and for what specified purposes. The results showed that, nationally, 82% were using the Internet to track prices, 56% were accessing agricultural information services, 33% were accessing information from the USDA, 31% were communicating with other farms, 28% were communicating with crop advisors, and 31% were conducting online record keeping and data transmission to clients and service providers (Hopkins & Morehart, 2001). More recent statistics from National Agricultural Statistics Service (2007) indicate that 35% of farmers nationwide were using computers for farm business, 11% were purchasing agricultural inputs using the Internet, and 10% were conducting agricultural marketing

activities such as direct sales of commodities, on-line crop, and livestock auctions, etc. Twelve percent of farmers in the U.S. access federal government Web sites over the Internet.

A 2004 survey of Iowa farmers found that 6% of Iowa farmers surveyed indicated that they used the Internet for e-commerce, another 6% had tried it, and 83% said they did not use the Internet for e-commerce (Lasley, Korsching, & Gruber 2005). A follow-up survey with the 2006 Iowa Farm and Rural Life Poll indicated that although the majority of Iowa farmers have internet access at home, use of the Internet appears to be personal in nature rather than farm-related. The majority of farmers who use the Internet for farm-related purposes use it to gather information on markets and weather. Other common farm-related uses are seeking information or advice from farm organizations and/or from other producers (Lasley et al., 2006).

The 2006 Iowa Farm Poll also found that many farmers were using the Internet for personal or general purposes. Categories that might require some type of online financial transaction were used least often by producers. These include any type of buying or selling of merchandise and paying of bills. Whereas the 2005 Iowa Farm and Rural Life poll found that 15% of Iowa farmers used the Internet for selecting computer equipment, one year later 46% indicated using the Internet as a source for selecting electronic equipment.

These surveys are useful to the extent that they show the Internet is an innovation that has been widely adopted and is used for multiple purposes. Although the surveys do provide some correlational data regarding use of the computer or Internet by farm size or type, they lack explanatory power, i.e., the surveys do not explain why some farmers are using the Internet while others do not and do not explain why the uses are so varied.

Shih, Dedrick, and Kraemer (2005) noted that, in addition to institutional confidence, e-commerce depends on availability of capital to invest, familiarity with and knowledge about conducting remote transactions, payment mechanisms, and level of technological readiness. Shih et al. suggested reasons why farmers may not be adopting the Internet for e-commerce purposes, but it is still not known what factors influence a farmer's decision to use the Internet or for what purpose to use it.

Beyond access and economic benefits, other research has suggested that social capital plays a role in Internet usage (Borgida et al., 2002). In areas where social networking is high, Internet use appears high as well. Although the Internet has become widely diffused in schools, businesses, and homes for personal use, little is known about why the Internet has been adopted in farm households specifically for farm purposes. Initially, many farmers were unable to adopt the Internet because of limited rural availability. That has changed in recent years so that most, if not all, farmers should have access to the Internet if they want that access.

## Diffusion Theory and the Internet

Traditional diffusion and adoption of innovation theory has hypothesized that diffusion of an innovation is a distinct process from adoption of the innovation. Traditional diffusion and adoption theory has also identified specific factors that affect the decision to adopt a specific innovation; these factors have focused on characteristics of the innovation. As noted earlier, Ormrod (1990) suggested that traditional research findings may no longer be valid in the current information technology-saturated age where information about an innovation is widely available at the same time.

With the advent of wide availability of the Internet, researchers are presented with a unique opportunity to study the diffusion and adoption of an innovation under circumstances described by Ormrod (1990)—the Internet is widely available and well known to adopters. Surveys confirm that the Internet is available and further confirm that it is widely available to farmers. Surveys also show that farmers are using the Internet for personal and farm-related purposes. These surveys, however, do not provide pertinent information regarding the decision to adopt the Internet or how to use it.

A study conducted by Gruber and Whitham (2007) provided some tentative insight into which characteristics of an innovation or of adopters affect the rate of diffusion. Convenience of the innovation, in this case the Internet, was a frequently cited factor in its adoption and use. Knowledge regarding how to use the innovation, however, negates convenience. Almost all of the farmers interviewed, when asked why they did not use the Internet for a specific purpose, either indicated they did not know how to use it for that purpose or had not thought of using it that way. The other factor affecting adoption of the Internet for a particular use was perceived need. Most of the farmers who had not used the Internet to buy or sell something explained that they had no need to do so. The authors found the Internet has greater potential, but is not being promoted for some purposes and more instruction is needed. University extension agencies, which have traditionally aimed to assist and educate farmers, appear to be missing an opportunity to help farmers gain proficiency in using the Internet. Several farmers also mentioned having difficulty finding sites with information appropriate for their needs. University Extension Web sites, which several farmers mentioned visiting, are a possible place for a list of reviewed sites farmers might find useful.

## Communication Preferences Among Farmer and Producer Groups

Communication and education are interdependent processes, each relying on the other for success (Boone, Meisenback, & Tucker, 2000; Salomon, 1981). Salomon explained the reciprocal relationship as "communication must occur for education to take place, and education must occur for communication to take place" (pp. 35-36). Boone et al. considered communication the basis of education in that "to educate, we must be able to communicate" (p. 115). Within the framework of the Cooperative Extension Service this reciprocal relationship is especially evident in the identification of client needs and the delivery or diffusion of information through communication channels (Boone et al.; McDowell, 2001; Rogers, 2003).

Previous literature addressing farm audiences has shown communication channel preference, use, and interest varied according to the audience researched. A few themes exist within the literature such as producers utilize and prefer a combination of communication channels when getting their agricultural information (Bruening, Radhakrislam, & Rollins, 1992; Dollisso & Martin, 1999; Duncan & Marotz-Baden, 1999; Israel, 1991; Kotile & Martin, 2000; Lasley, Padgitt, & Hanson, 2001; Licht & Martin, 2007b; Nelson & Trede, 2004; Radhakrishna, Nelson, Franklin, & Kessler, 2003; Richardson & Mustian, 1994; Rollins, Bruening, & Radhakrishna, 1991; Suvedi, Campo, & Lapinski, 1999; Trede & Whitaker, 1998; Vergott, Israel, & Mayo, 2005) and specifically prefer interpersonal communication methods, especially consultations (Gamon, Bounaga, & Miller, 1992; Lasley et al., 2001; Licht & Martin, 2007a; Richardson & Mustian, 1994; Riesenberg & Gor, 1989; Rollins et al.; Suvedi, Lapinski, & Campo, 2000; Vergott et al.).

In a study conducted in Iowa, corn and soybean producers said they believed interpersonal communication was more reliable than information from mass media. Overall, producers perceived interpersonal communication as a way to evaluate the quality of information and determine how or if it applies to their operations (Licht & Martin, 2007a).

## Land Grant and Cooperative Extension Service

There are numerous places and locations where farmers receive relevant and useful information. One often-listed resource is that of the Extension Service and the land grant university.

"Land grant" is a term used to describe a public university in each state which began as a land grant college of agriculture under the Morrill Acts of 1862 and 1890 (named after Justin Morrill, U.S. Senator from Vermont who played a critical role in ensuring the legislation was passed and became law). The purpose of the Morrill Acts was to allow a larger percentage of the population to have access to practical education and information useful in their daily lives. The Morrill Act permitted each state to receive public land to start a college where individuals could learn about agriculture and the mechanical arts. Over the years, the number of land grant institutions grew and were expanded to underrepresented populations such as those primarily serving African American populations and Native American populations.

In 1914 the Smith-Lever Act was passed, which established the Cooperative Extension Service at the land grant institutions across the country. The act provides federal funds for Cooperative Extension activities and also authorizes special Extension projects under section 3(d) (see "Grants," 2008). The Cooperative State Research Education and

Extension Service (CSREES) is a national system providing agricultural development information, among other topics, to U.S farmers.

The network of Cooperative Extension Services across the United States shares information among other land grant institutions. One example is a new program called eXtension which is described as an “interactive learning environment delivering researched knowledge from the land-grant university” (eXtension, 2008). Specific subject matters are delved into in depth, and a Web site is created to help answer questions. The subject matter is a collaborative effort of several to many land grant universities to provide researched-based content for various publics and customized answers to users’ specific questions. However at this time there is no value-added agriculture eXtension community of practice.

Producers have looked to Extension for assistance in evaluating information from other sources rather than as a source of information per se. Licht and Martin (2007b) suggested a burgeoning role for agricultural educators as that of informational filters. Given that producers consider interpersonal communication methods more reliable, even though they use mass media methods more often, Extension educators have the opportunity to influence producers more significantly than does mass media. Licht and Martin (2007a) contended this role is especially important as producers receive an increasing amount of information through an increasing variety of methods. They suggested that Extension educators could grow in their “information filtering” role to assist producers in reaching greater understanding of agriculture information presented in mass media in order to better their farm operation.

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# CHAPTER 3
# RESEARCH METHODS

This chapter describes the methodology used to conduct the study. The purpose of this study was to determine the agricultural information preferences for Value-Added Producer Grant (VAPG) recipients and assess the implications for the Agricultural Marketing Resource Center (AgMRC) and the larger agricultural extension education audience.

## Research Questions

The primary research questions explored were:

- What are the types of technical, business, and marketing assistance the VAPG firms need?
- How do producers go about finding out about this information?
- What resources do they use to guide their business decisions?
- How do they like to receive information and education? Do they prefer to find information on the Web, or sit down with business and Extension consultants, who can help guide them through the business decisions
- Whom do they turn to? Do they use consultants? How do they qualify the expertise of the consultants?
- Do they use Web-based resources? If they do how do they access those resources?

## Potential Value of Research

The Agriculture Marketing Resource Center (AgMRC), which the author directs, provides services to the value-added agriculture clientele in the United States. This research has a direct impact on what and how educational programming for AgMRC is conducted.

On a broader perspective, this study may help to provide a better understanding of what resources these farm groups use. This will help agricultural educators maximize the impact of their services and, thus, may enable farmers to improve their viability and profitability.

## Design and Methodology

Qualitative research design and methods were chosen because this study is exploring human behavior, which is complex and not as easily captured by quantitative techniques. Additionally the results are enriched by using the participants' words and responses.

### Sample Selection

Interviewers visited on-site or via telephone 80 VAPG recipients drawn from a relatively complete database of recipients of VAPG funding to-date (more than 800 farmers and firms) developed by the author. The sample was selected based upon the availability of VAPG recipients to meet with the interviewer and their willingness to speak openly about their business and where they receive information, as well as to provide the interviewer with business details so a short business profile of the firm could be written. Some of the firms in the database were no longer in business and/or USDA Rural Development officials in the various states could no longer locate the firms and provide business contacts and addresses. The business did not have to currently exist or be profitable to be selected. The sample represents a broad spectrum of sales, employment, value-added agriculture products marketing or manufacturing, firm locations, and recipients across the span of years of the VAPG program.

The interviewers attempted to speak with several individuals at each firm, and about half of the time they spoke to more than one person in the firm. Titles varied, but generally

individuals interviewed included Chief Operating Officer, Chief Financial Officer, President, or Manager. An attempt was also made to speak with farmer/owners if the firm was managed by paid employees with farmers sitting on the board of directors to allow for a broad perspective of viewpoints and data points for learning about the informational preferences and usages.

The VAPG recipients were chosen because there was funding through the AgMRC to conduct the interviews and to develop business profiles for posting on the AgMRC website. USDA saw value in developing the profiles to create awareness of the VAPG program administered by USDA Rural Development. The research questions were incorporated into the overall interview that queried about the business: successes and failures, opportunities and challenges, use of the USDA grant, and where and how they found needed business information.

The firms selected for study came from 20 states: Arizona, California, Delaware, Iowa, Illinois, Indiana, Kansas, Maryland, Minnesota, Missouri, Nebraska, North Carolina, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, and Wisconsin. The businesses represented different farming and business cultures and different regional perspectives (see Table 1).

The firms offered a variety of products and value-added agriculture businesses, including fruit and vegetable farms making products such as wine, juices, jams, jellies, etc.; livestock farms and products from sheep, goats, cattle, dairy cattle, hogs, and poultry, as well as most major agronomic crops in the U.S. (corn, soybeans, wheat, cotton, hay); and agritourism, energy and fuel production firms. The net was cast wide to help overcome any biases that may have come from selecting a particular industry sector or state. Firms were

**Table 1. Description of Sample Firms**

| Commodity | Products | State |
|---|---|---|
| Agritourism | Biobased/green village | Iowa |
| Alfalfa | Specialty hay | South Dakota |
| Apples | Juice, specialty products | Indiana |
| Beef | Specialty products | Indiana |
| Beef | Specialty networks | Tennessee |
| Beef | Direct markets | Texas |
| Beef | Network | Virginia |
| Blueberries | Wine | Oregon |
| Catfish | Specialty products | Texas |
| Chicken | Chicken specialty products | Nebraska |
| Citrus | Specialty products | Texas |
| Corn | Ethanol | Illinois |
| Corn | Tortillas | Indiana |
| Corn | Ethanol | Iowa |
| Corn | Specialty products | North Dakota |
| Cotton | Organic markets | Texas |
| Dairy | Natural products | Minnesota |
| Eggs | Organic | Washington |
| Figs | Figs | California |
| Forest | Specialty woods | Oregon |
| Fruits | Specialty products | North Carolina |
| Goat | Milk and Cheese | Texas |
| Goats | Chevre products | Arizona |
| Goats | Cheese, whey and milk | Nebraska |
| Goats | Cheese | Nebraska |
| Grapes | Raisins | California |
| Grapes | Wine | California |
| Grapes | Wine | California |
| Grapes | Wine | Iowa |
| Grapes | Juice | Kansas |
| Grapes | Wine | Maryland |
| Grapes | Wine | Maryland |
| Grapes | Wine | Oregon |
| Grapes | Wine | Texas |
| Grass | Energy | Texas |
| Hay | Specialty products | North Dakota |
| Hay | Hay | North Dakota |
| Lamb | Lamb cuts | North Dakota |
| Lamb | Specialty cuts | South Dakota |
| Manure | Methane digester | Iowa |
| Manure | Methane digester | Maryland |

**Table 1.** (continued)

| Commodity | Products | State |
|---|---|---|
| Milk | Milk | California |
| Milk | Cheese | California |
| Milk | Ice cream | Indiana |
| Milk | Specialty dairy | Iowa |
| Milk | On farm processing | Iowa |
| Milk | Dairy | Iowa |
| Milk | Cheese | Kansas |
| Milk | Cheese | Minnesota |
| Milk | Cheese | Nebraska |
| Milk | Specialty products | Wisconsin |
| Nuts | Black walnuts | Texas |
| Olives | Specialty products | California |
| Olives | Olive oil and olive products | Texas |
| Pork | High end pork products | Iowa |
| Pork | Niche products | Iowa |
| Pork | Pork processing | North Dakota |
| Pork | Specialty products | North Dakota |
| Pumpkins | Pumpkins | Kansas |
| Seed | Alfalfa seed | California |
| Shrimp | Farm raised | Iowa |
| Soy | Food grade products | Iowa |
| Soy | Biodiesel | Iowa |
| Soy | Biodiesel | Iowa |
| Soybean | Further processing | South Dakota |
| Soybeans | Specialty products | Iowa |
| Soybeans | Food grade and oil | Iowa |
| Soybeans | Processing | North Carolina |
| Sunflowers | Oil | North Dakota |
| Vegetables and Fruits | Direct marketing | Delaware |
| Vegetables and Fruits | Organic | Illinois |
| Wheat | Cookies | Kansas |
| Wheat | Pizza dough | Oklahoma |
| Wheat | Specialty products | South Dakota |
| Wind | Power | Iowa |

identified by state and commodity, but not by their legal names. Anonymity is frequently honored in qualitative studies, but the detail about state and commodity was central to understanding the breadth of educational reach and situational context revealed by the illustrative quotes.

Although it would have been easier to conduct interviews via telephone, whenever possible, face-to-face interviews were conducted in order to establish rapport with the VAPG recipients and yield a stronger and more effective interview and relationship. According to Glesne (2006), “rapport describes the character of effective field relationships,” (p. 109). This rapport helps if a follow-up telephone call is needed to verify information, because a personal relationship has been established; the research subject would trust the interviewer because he or she had met the interviewer and developed a personal relationship. Of the 80 interviews that were conducted, 31 interviews were conducted in person by the author and an additional 14 were conducted on site by the other interviewers. The remaining 35 interviews were conducted on the telephone. A total of 97 individuals were interviewed, at times, more than one person was involved in the interview. There was a cross section of ages ranging from 31 to 75. Fifty-nine men and 38 women were interviewed.

**The Interviews**

Prior to the site visit or telephone interviews, an interview protocol was created, which included information about the firm, company history, VAPG funding received, and the purported use of the funds (as revealed in Web and library research). On site or via the telephone, the interviewers queried VAPG recipients to learn more about their business and then delved into the specific research questions. The questions were open-ended, and the question sequence progressed from general and unstructured to specific questions.

Experienced interviewers and student interns conducted the interviews and developed the business profiles.

*Reg Clause*: Mr. Clause holds a B.S. from Iowa State University (ISU). He is a value-added agriculture specialist with the Value Added Agriculture Program at ISU. He conducts feasibility and business studies for clients and has extensive business writing experience with articles published in major agriculture and business publications.

*Caryn Lane*: Ms. Lane is a senior in Education at ISU. Ms. Lane made logistical arrangements for the interview team and was mentored by the author to support her work on several business profiles. She was trained in interview methods and conducted several interviews with the study's participants.

*Erin Morain*: Ms. Morain holds a B.A. in Journalism from Simpson College in Indianola, IA. She works as a writing consultant. Former employment included business writing with the *Des Moines Business Record* and local daily papers.

*Helen Randall*: Ms. Randall holds a B.S. and M.S. in Journalism from ISU, has a private consulting firm, and prior to starting her own firm, worked in public information for ISU and the *Des Moines Register* as a business writer.

*Mary Swalla Holmes:* Ms. Holmes holds a B.S. in Anthropology from ISU. She currently works with ISU's Department of Sociology conducting qualitative research for several projects. Ms. Holmes was with the Value Added Agriculture Program at ISU for 5 years.

*Erin Watson:* Ms. Watson is a recent graduate of ISU in Political Science. She began the project by making logistical arrangements for the interview team and was then mentored

by the author and worked on several business profiles. She was trained in interview methods and conducted several interviews with study's participants.

Permission to conduct the interviews and the questions were submitted to the Institutional Review Board at Iowa State University. All the interviewers had taken the required training and held valid certificates. However, the Institutional Review Board determined that this research project did not require its authorization.

Little research work has been done with this targeted sample beyond a study conducted by Boland, Crespi, and Oswald (2008) to identify the determinants for success among USDA VAPG recipients. They focused on business success and sustainability and analyzed increased market share of the recipients, greater sales, and the relative success of the business, but did not focus on where producers sought education and information.

A four- to five-page company profile was developed for each firm, highlighting information about the firm, sales, employment, product line, etc. and explaining how the firm utilized the money from the VAPG. These profiles, posted on the AgMRC website ("Case Studies," 2009), provide a more detailed understanding of each firm, thereby providing another data point for corroboration and a triangulation strategy (Ary, Jacobs, Razavieh, & Sorensen, 2006, p. 511).

The interviews were audio taped and supplemented by field notes taken by the interviewers. The audio tapes were recorded in a digital medium and downloaded to a computer to allow for easy access and playback. Each interview was transcribed by the interviewer who conducted that particular interview.

The notes were analyzed utilizing theme coding and qualitative data charts. Each major code selected identified a concept or a central idea. The author developed a code book.

Coding is a progressive process of sorting, defining, and sorting scraps of collected data (i.e., observation notes, interview transcripts, memos, documents, and notes from relevant literature (Glesne, 2006, p. 153). To analyze the data, an iterative coding and theme development approach began with open coding. In open coding, transcripts are coded based on the content of the interviews, not predefined concepts of what to look for. Initial codes were combined, recombined, and refined to develop themes and categories of themes, which reflected recurring sentiments expressed by value-added agricultural firm interviewees (Esterberg, 2002). The data analysis was iterative; codes and themes were revisited and refined as each interview was coded. To aid with data management and coding, the author used NVivo 7 (QSR International 2006), a qualitative data analysis software package. The initial coding process was conducted by the author; codes and themes were then confirmed as being consistent and reliable by other researchers.

**Design Validity**

To help ensure design validity, the following data collection strategies were incorporated into the data collection. There was prolonged and persistent field work. The field work spanned 11 months from December 2007 through October 2008. This allowed for interim data analysis and corroboration.

Multi-method strategies, including library and Web research on the firms as well as on-site and telephone interviews and discussions with VAPG participants and administrators, were used. This allowed for triangulation in data analysis and collection. These different strategies may yield different insights about the topic and increase the credibility of the findings (McMillian & Schumacher, 2006).

Literal statements of participants and quotations from their interviews are recounted in the analysis of this research. As McMillian and Schumacher (2006) stated, recording verbatim accounts of conversations and transcripts is essential. Direct quotations from the data illustrate participants' meanings and thus ensure validity.

To help ensure validity of the interview, an AgMRC colleague or one of the interviewers was either present at the meeting or read through the peer debriefing. Those not present at the meetings also had access to the digital audio tape to review what was said by the participant. As noted by McMillian and Schumacher (2006, p. 328), "A peer debriefer is a disinterested colleague who describes the researcher's preliminary analysis and subsequent strategies. The peer debriefer poses searching questions to help the researcher understand her own posture and its role in the inquiry." Additionally, the initial coding process conducted by the author, her codes and themes, were then confirmed as being consistent and reliable by other researchers.

The VAPG recipients reviewed the case study brief for their respective firms and the notes taken by the interviewer. Before any of the case studies were published on the AgMRC Web site, all the profiles were approved by the participants from the respective firms. This member checking helped to ensure the accuracy of the data (McMillian & Schumacher, 2006, p. 326). The member checking was done virtually, because the interviews were not transcribed nor the profiles completed until after the site visit or the telephone interview was completed.

Because the author had worked with many of the firms in Iowa, to prevent bias in the questions and interviews all the Iowa-based interviews were conducted by Helen Randall.

She was not familiar with the projects or the assistance (or lack thereof) that the firms may have received from the author in her duties as part of the AgMRC team.

The author also kept a reflectivity journal to help her gain insight into any biases that she brought to the interview and to trace her personal reactions throughout the field work. The reflectivity journal is recognized by qualitative researchers as a helpful aid in distinguishing changing approaches during the interview or to realize perceptions and recognize and address biases once analysis has begun (Glesne, 2006). Pillow (2003) suggested these four functions of reflectivity can strengthen validity:

- Reflectivity recognizes personal self awareness.
- Reflectivity is the recognition of the other—capturing the essence of the informant or "let them speak for themselves."
- Reflectivity is truth gathering—the researcher's insistence on getting it right or being accurate.
- Reflectivity as transcendence—the aim that the researcher, through transcending her own subjectivity and cultural context, can be released from the weight of (mis)representation for accuracy in reporting.

It was determined in October 2008 that sufficient data had been collected for complete analysis. Strauss and Corbin (1998) suggested that perhaps not until the work is far underway will the researcher know when additional analysis no longer contributes to discovering anything new. Prasad (2003, p. 285) warned qualitative researchers, though, not to assume that extensive periods of time spent in the field or a vast number of interviews are in and of themselves good indicators of well done qualitative research.

**Limitations of Design and Qualitative Research**

The qualitative research methodology has limitations, such as the inability to generalize to larger populations. In addition, the data collected could be affected by the author/moderator by moderator bias or manipulation; false consensus; and the difficulty of analysis and interpretation of research (Litosseliti, 2003).

Additionally qualitative research establishes meaningful contacts with people who are the subjects of the research. A qualitative researcher often calls for a high degree of personal involvement and direct engagement with people's lives and problems (Prasad, 2005, p. 292). It takes a disciplined researcher to report the findings and not delve into trying to find solutions for business problems outlined, providing advice, etc.

That said, qualitative design helps get information that cannot be obtained well with quantitative methods. Qualitative methods are used to study human behavior and behavior changes and help study the variations of complex, human behavior in context. Behavior is not captured well by quantitative techniques. Qualitative analysis techniques are therefore both inductive and interactive (Stevens, 2003).

It was determined that, despite the limitations of qualitative research, the goals of the study would be accomplished best utilizing qualitative methodology.

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# CHAPTER 4
# USE OF EXTENSION AND THE LAND GRANT SYSTEM BY VALUE-ADDED AGRRICULTURE PRODUCERS IN 20 U.S. STATES

A paper to be submitted to *Journal of Extension*

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## Abstract

The objective of this article is to analyze the use of Extension by recipients of the USDA Value-Added Agriculture Producer (VAPG) program. Clients think of Extension in local/personal terms. As they use the system, they learn of its breadth of information. Extension fills a void in services and does so in ways that are more objective and directly research based than the private sector. The study shows that when resources are not prioritized and maintained, relevance quickly erodes and the public moves on. The findings will help to guide Extension specialists and administrators to determine priorities. Suggestions are provided for improving the relevance of Extension programming for this clientele.

## Introduction

American farmers long and consistently have explored ways to add value to crops and livestock. In 2001, Congress passed legislation authorizing funding for a Value-Added Agriculture Producer Grant (VAPG). This program provides applicants grant money to originate or further develop a business by further processing or segregating a product; thus seeking to capture additional value from commodities past the farm gate. The VAPG is administered by USDA Rural Development.

The economic and technological pressures faced by U.S. farmers are complex. When farmers move beyond traditional production competency into lesser competent areas of processing and marketing, complexities rise. As one participant in this study said,

> There's a real gap in the concept of participating in value-added agriculture and then what it really takes to play the game. There are not a lot of materials and information out there of what it takes to build that capacity and knowledge or share those experiences with other farmers of what it takes to build the bridges and investment it takes. (Pepper, Organic Marketing Cooperative)

The population for the current study consisted of individuals representing farmer-owned businesses that had received money from the federal VAPG program. Those individuals, who had applied for and received funding, used their grant for a feasibility study examining a new market, process, or product, or for capital expenditures related to their value-added agriculture business (U.S. Department of Agriculture Rural Business-Cooperative Service, Announcement of Value-Added Producer Grant Application Deadlines, 2008).

This population was chosen for study because:

- Resources were available to do hands-on qualitative research appropriate to this population and study objective. This study was funded by the Agricultural Marketing Resource Center, a resource also funded by USDA, which is providing needed planning and guidance tools to value-added enterprises.
- These individuals have shown that they are interested in pursuing a business beyond the typical commodity production, making them unique and in general a vanguard. By virtue of their entrepreneurship, these business owners tend to be more

innovative and creative than are typical farmers. In their new businesses many of them have been either early adopters or innovators of new products, new technologies, or differentiated markets.

## Design and Methodology

Qualitative research methodologies were chosen. The authors and hired interviewers visited 80 VAPG recipients on-site or via telephone. These recipients were chosen based upon their availability to meet with the interviewer and their willingness to speak openly. The interviewers attempted to speak with several individuals at each business. Titles varied, but generally individuals interviewed included chief operating officer, chief financial officer, president, or manager.

The firms with which the interviewees were associated were located in 20 states and offered a variety of products. Examples of businesses included fruit and vegetable farms making products such as wine, juices, jams, jellies, etc.; livestock farms and products from sheep, goats, cattle, dairy cattle, hogs, and poultry, as well as most major agronomic crops in the U.S. (corn, soybeans, wheat, cotton, hay); and agritourism and bioenergy firms. The net was cast wide to overcome biases that may have come from selecting a particular industry sector or state. The firms are identified by state and commodity, but not by their legal names. Anonymity is frequently honored in qualitative studies, but the detail about state and commodity was central to understanding the breadth of the educational reach and situational analysis and making the most of the illustrative quotes.

Whenever possible, interviews were conducted face-to-face. Of the 80 interviews conducted with 97 people, 31 interviews were conducted in person by the authors and an

additional 14 were conducted on-site by other interviewers. Of the 97 individuals interviewed 59 were men and 38 were women, with ages ranging from 30 to 75.

The interviews were analyzed utilizing theme coding and qualitative data charts (Esterberg, 2002). To aid in data management and coding, NVivo 7 (QSR International, 2006), a qualitative data analysis software package, was used. The lead author conducted the initial coding process; codes and themes were then confirmed as consistent and reliable by other researchers.

Participants were not asked specifically if they received information from universities. If they offered universities and Extension Services as a resource they had used, then the participants may have been queried in greater detail such as what type of information they received from those entities.

**Design Validity**

To help ensure design validity, the following strategies were incorporated into the data collection (Glesne, 2006).

- Persistent field work spanning 11 months from December 2007 through October 2008.
- Completing field work only when it was determined there were enough data and remarks and comments became redundant (Prasad, 2005).
- Using literal statements of participants and quotations from their interviews.
- Peer debriefing.
- Member checking by interviewees for accuracy.
- Using a third party to conduct the Iowa-based interviews where the author had worked.

- Keeping a reflectivity journal (by the lead researcher) to help highlight biases (Pillow, 2003).
- Use of multi-method strategies, including library and web research on the firms, as well as on-site and telephone interviews, producing triangulation in data analysis and collection.

These different strategies helped to yield different insights about the topic and increase the credibility of the findings (McMillian & Schumacher, 2006).

**Limitations of the Study**

The findings cannot be used to generalize to larger populations. In addition, the data collected could be affected by the author/moderator bias or manipulation, false consensus, and the difficulty of analysis and interpretation that is inherent in any research (Litosseliti 2003).

## Findings

The study sought to determine if VAPG recipients were using Extension and university-based services. If they were, then the study tried to determine how they were using the services, where they were accessing them, and their level of fulfillment from the information provided.

The universities and Extension services are perceived as the source for non-biased information. Also, as one individual indicated, even though university individuals may not have been knowledgeable initially, they utilized the various resources available to help them to retool and upgrade their skills. Some other comments made by participants are included in Table 1.

**Table 1. Participant Comments Regarding the Use of a University Resources**

| State | Illustrative quotes |
|---|---|
| Nebraska | I get it from the university. The lady there helped me quite a bit. There really isn't any other competition out there. The university—that's what they're paid to do is help you. If the USDA wants to continue this value-added thing they need to see to it that these universities, that some of these places are funded properly because they are the ticket. That's your only ticket, really. They'll tell you how to approach people. They tell you everything. The person from the university who helped us worked in a distributorship, so she knew how foods distributed. She was a very sharp person. She knew how to do your label. You've gotta have that barcode a certain size or the stores don't want it. You've got to be able to read the nutrition facts panel. They have guidelines on the size of the labels and the size of the package. You have the greatest thing in the world but if you don't take that package to your distributor and they say, 'There's no barcode on it,' you're out the door. Without the university help we would have been out the door. |
| Iowa | When we first started the Extension people didn't know a lot. They were nice—just not helpful. But the National Research Initiative grants have been a good thing—now there is training for veterinarians and Extension people. Extension people are getting better and better trained, better equipped to help groups like ours. [Extension] people are getting better and better every year. |
| Tennessee | The role of the university is important. On our project—well it was Extension centered and they rode herd on the marketing project. They had the producer contacts and respect in some of the counties that got the marketing project going. Without them I am not sure the project would have succeeded or gotten as far as it has today anyway. |

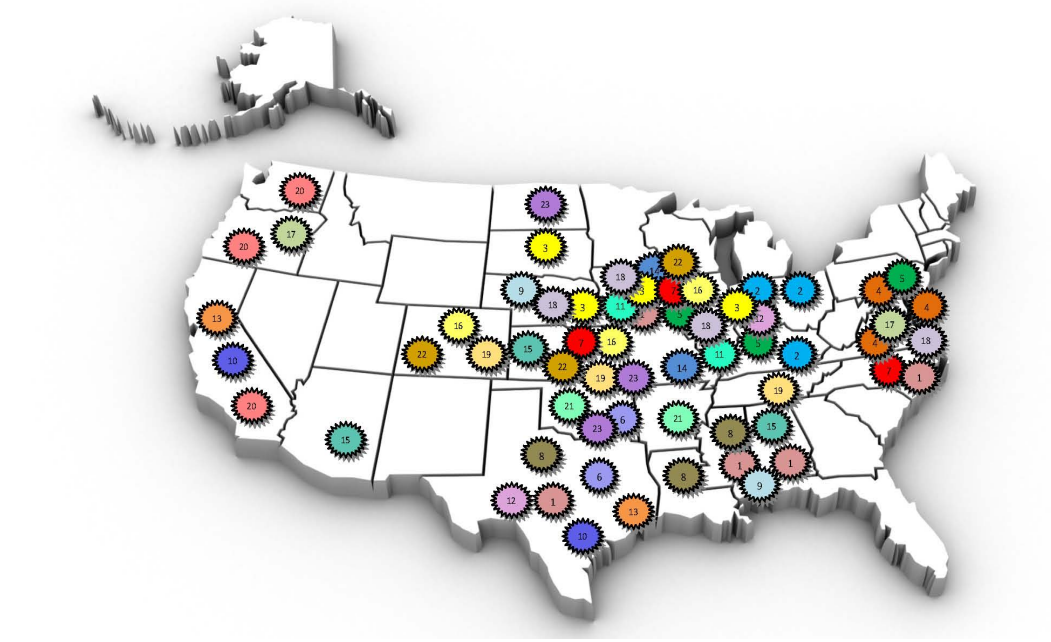
The individuals interviewed were generally quite positive in their comments about Extension assistance across an array of business development decisions. Responses varied with the location in the country, the specific help the firms needed, and the commodity for which they were looking to add value.

**The Land Grant System**

The land grant system of the United States ensures that information that has been developed by one state is readily accessible to constituents in other states. Throughout the

interview process, the interviewers often heard of instances when an individual's home state did not have information, and he or she used the resources of another land grant institution.

Figure 1 indicates where each value-added agriculture firm was located, and the corresponding number indicates where the value-added agriculture firm sought additional information from a corresponding land grant university. Table 2 provides illustrative examples of firms using sources outside their home state.



STATES

| | |
|---|---|
| 1 | Iowa-- Mississippi State, Texas A&M, Alabama and North Carolina State University |
| 2 | Indiana—Ohio and KY Extension Services |
| 3 | South Dakota-- U of Illinois, Iowa State and University of Nebraska |
| 4 | Maryland --Virginia and Pennsylvania |
| 5 | Indiana---Pennsylvania and Iowa |
| 6 | Oklahoma—Texas A and M |
| 7 | North Carolina—Kansas State and Iowa State |
| 8 | Texas—Mississippi, Louisiana |
| 9 | Nebraska—Mississippi State |
| 10 | Texas—California |
| 11 | Iowa-U of Illinois |
| 12 | Indiana—Texas A and M for corn processing |
| 13 | Texas—California |
| 14 | Missouri—Iowa |
| 15 | Arizona—Kansas and Alabama |
| 16 | Iowa—Kansas State and Colorado State |
| 17 | Oregon—Virginia |
| 18 | Virginia—U of Illinois, Iowa State and Nebraska |
| 19 | Tennessee—Kansas State and Colorado State |
| 20 | Washington—California and Oregon |
| 21 | Oklahoma—U of Arkansas |
| 22 | Iowa—Colorado State and U of Kansas |
| 23 | North Dakota—Kansas and Oklahoma |

Figure 1. Value-added agricultural grants

**Table 2. Examples of Outside Sources Used**

| Location/description of VAPG interviewee | Source(s) used | Illustrative quotes |
|---|---|---|
| Texas olive grower | University of California—Davis | The technical part of growing olives, in Texas—well it doesn't exist. To my knowledge nobody has ever done it. And so I used the Internet find the data. I got a lot from the University of California-Davis. |
| Indiana apple farmer | Various land grants | I have always used other university's printed materials. I can't survive without these [university] people. Sometimes the problem is new to us, so I google up the questions and bingo—there are things from five other universities that answer my question. |
| South Dakota lamb producer | University of Illinois, Iowa State University, University of Nebraska | The pork industry was smart enough to get the technology at university level and then capitalize on it by doing what they said. We are trying to use that same model for lambs. We are going to the universities and trying to find out the latest and best and then trying to put the knowledge to work. |
| Iowa dairy producer | University of California System | We do work with the UC–Davis Extension for on-farm stuff. Cal Poly has more stuff for processors. It depends on the question where the producer goes—lot of times they come to us (the value-added agriculture firm) but if I think UC can give a better answer. |

**How Do Firms Use Extension Service and the Land Grant System?**

Firms used the land grant system for a number of different services and expertise related to value-added agriculture. Information utilized ranged from technical questions related to a specific crop or commodity to business development and marketing assistance. A respondent from a firm in a western state said, “We use them [the university] for technical questions and production questions. We used them for about everything really. Just kept their number handy. In fact, I still have it right here.” A lamb producer indicated that they hoped to use the university in the way he felt the poultry and pork industry had utilized the expertise from the universities to develop profitable industries. He hoped to emulate their success.

> Extension is important because its scientific objectivity modulates dynamic information flows. For example when you’ve got army worms, wheat aphids, and cutworms, the rumors and press reporting explode the problem. Extension specialists brought it back to reality on geography, scope, thresholds, etc. They helped quantify what it really means.

**Business Development Questions**

The VAPG program creates financial incentives to properly develop a business with feasibility studies, business plans, and marketing plans. If the business is perceived to be feasible, the business plan will be developed. Interviewees frequently expressed the need to analyze the feasibility of a project and to write business plans. They also indicated they honed information from university sources into usable aspects and drew upon a variety of university resources to address their needs. Table 3 provides illustrative quotes.

**Table 3. Examples of Responses Regarding Business Plans**

| State | Use of university | Illustrative quotes |
|---|---|---|
| Texas | University of Texas business resource center on a business plan | There is so much information out there you can really suffer from information overload. The university people help you make it into a usable and understandable piece. |
| Indiana | Purdue on a feasibility study | She examined how much people will buy, etc. She was so easy to work with—took complex, marketing material, sat down, and hammered out things with us. |
| North Carolina | North Carolina State Extension Service for a business plan. | They really knew where to go to get information and did a good job of helping us ask the right questions. |
| Iowa | Iowa State University Extension and the Agriculture Marketing Resource Center on a feasibility plan | Without them, I don't think we could have asked the right question. We had a couple of the people from the center who kept asking questions and making me sort of grumpy—but they helped us get to where our business needed to go. |
| Nebraska | University of Nebraska. and the – Nebraska Business Development Center (NBDC) on a business plan | They've also been very helpful helping me with updating my business plan and another accountability partner to make sure my business is successful. They kept asking and asking—making sure we had conviction for what we were doing. |
| Virginia | Virginia Tech on a feasibility study | If you want something out of Tech you ask the agents who do you recommend and how can I find that information. They cut right to the chase. They get right to the stuff you need, and I would still be wading through it ten days later. |

**Table 4. Examples of Reasons Why Interviewees Used Extension**

| State | Illustrative quotes |
|---|---|
| Iowa | We used our Extension Service to help with the business planning and in our state they are beefing that up. They are trying to train their people more in this area. Our farmers are already familiar with Extension. I think our state Extension is their first choice. Farmers are using them for production things so we are comfortable for using the university people for our business plans and feasibility studies. |
| Nebraska | Familiarity is pretty important. Our people already trust their agent. It helps if your Extension agent can be the transmitter to the producers. |

Interviewees indicated they used Extension because they were familiar with the services Extension provided and had already developed a relationship with Extension personnel (see Table 4).

**Technical Questions About Food/Feed Processing**

Value-added agriculture firms often are involved in technical aspects of food or feed processing. In several states (Oklahoma, Nebraska, and Oregon) there are food processing centers that assist firms with questions and assistance about manufacturing and marketing a food product. Requirements vary from federally mandated food labels and ingredient requirements to sanitary processing requirements. Questions are often specific and technical. Interviewees often cited their food processing center as an important source of information and help (see Table 5).

**Table 5. Examples of Responses Regarding Food Processing Centers**

| State | Food processing center | Illustrative comments |
|---|---|---|
| Oregon | Oregon Food Processing Center | They helped us with business planning, loan applications, allergy testing and a lot of things. They were really helpful and a good resource. |
| Nebraska | University of Nebraska Food Processing Center | The food processing center program was great, their entrepreneurial program is a program you take for a day or two workshop and they continue connecting with you, and they have all these years, because I took that way back in 1990. But they continue connecting with you and offering you services as simple as designing your label or teaching you about packaging. |
| Oklahoma | Oklahoma State Food Processing Center | Wow where would I be without the food processing center at OSU? I would still be out in the field instead of marketing cookies—they were a big help. |

**How Farmers Use the University Resources**

Some of the producers were asked to provide greater detail about the type of university resource being utilized. Others freely offered that information. One producer indicated that he started by using a search engine to see what was available. However, he indicated that he often looked at the citations to see who else has been involved in the studying the topic.

Several participants indicated that they use email updates and weekly electronic newsletters provided by a university. Others indicate they use the printed publications that the universities provide to them as well as the articles that are in magazines, etc. Specific comments are in Table 6.

**Table 6. Comments About the Use of University Resources**

| Interviewees' state | Illustrative quotes |
|---|---|
| Nebraska | But I usually go to the University of Nebraska–Lincoln web site and then branch off from there. I get a paper and we go to the bottom of that and look at what they used for resources and see if any of those might expand in an area that you know more about and look that up. I haven't found the holy grail that has all the stuff. |
| Iowa | I get weekly emails from the University of Illinois, Iowa State University and other universities and five different grain buyer groups on prices. These weekly and daily updates from the university are helpful to trying to understand the big picture. |
| Oklahoma | The OSU Publications are great. I am a big user of Extension publications. |
| Indiana | I couldn't survive without all the printed information and publications that the universities give us on apple production. |

**On-Site Classes**

Continuing education courses and workshops proved popular with producers entering the unfamiliar territory of new crops and markets. Individuals who were beginning grape production often indicated that they took classes to become familiar with technical issues. Continuing education for producers embarking in new areas included classes in growing other horticultural crops, pork niche production, grassland beef systems, wine making, food processing and on-farm dairy processing. These educational opportunities were offered to producers at the various universities, and two people indicated they acquired this knowledge through their community colleges. Table 7 provides additional thoughts.

**Table 7. Examples of Education Opportunities**

| Interviewee's state | Illustrative quotes |
|---|---|
| Oklahoma | I've been up to Manhattan and taken classes from the Food Science. Good stuff. |
| Iowa | I went to Extension Basic Grape Management Course before I planted one grape vine. It just seemed like the smart thing to do. |
| Texas | I went ahead and took some courses at UC–Davis in viticulture and I went out to Davis and took the courses and then continued online on the distance learning program that UC-Davis has. So I still have another half a year to go to complete the certificate in winemaking from Davis, which will be nice to have if I ever wanted to go and be a full-time winemaker. |

**Some Don't Use Extension**

A preponderance of the negative responses came from one particular state that has experienced significant budget revisions and declining state services including reduced public allocations for education. Illustrative quotes are found in Table 8.

**Table 8. Examples from Interviews Who Don't Use Extension Resources**

| VAPG business | Illustrative quotes |
|---|---|
| Wine | We simply don't have enough support. We only have one (viticulturist) for the whole state! (Private business) hired one of the other guys away from Extension two years ago and they have not replaced him. The farm advisor for us is in the largest crush area of the state, and he also has to do almonds, grapes and other berries. In just grapes alone he had 75,000 acres. |
| Olives | We had an olive specialist at the university. He was accessible and I talked to him all the time. But he retired and was not replaced; the guy that handles citrus is suppose to do olives, but we rarely hear from him. We used to get newsletters and that kind of stuff, as a result. However none of that happens anymore. We do not deal with the university at all. |

**Table 8. (continued)**

| VAPG business | Illustrative quotes |
|---|---|
| Milk | No one in Extension and within the university systems knows anything about our process and technology. |
| Milk | A lot of this is a new area for them as well, so they—the Extension offices—aren't geared for answering questions from producers such as ourselves. We get as much info as we can, appreciate any help we can get from them. But really they are not geared for us. |
| Agritourism | I normally would have gone to [ the university] and worked with tourism studies there, but we have found that size of the community mattered in whether or not there would be assistance there. [The university] didn't take on the last three community projects because it said they were too small. |
| Soybeans | I don't receive any support from Extension economists. They tend to have programs for other things but not for us. They are good on production but don't seem to know much about the marketing. I feel there is a gap there. It is truly disappointing to me. Most land grants have more, but our state doesn't. |
| Goats | Yeah, I would love classroom or Extension office people being able to sit down and educate us but it hasn't been that available. |
| Manure | Unfortunately, the place we don't get a lot of information is from the various land grant universities, in terms of education and also fact-finding. They just don't know much about methane digesters. |

## Conclusions and Implications

Most of the clients interviewed indicated that Extension providers are respected for their content knowledge and the ability to ferret out answers. Extension specialists are perceived as in touch with the industry and respected for the content they provide and their experience. While this may not seem profound, it is in fact important as both a strategic and tactical factor. If Extension is to be relevant and grow in relevance, these key Extension

specialists must be nurtured, supported, and ultimately replaced as retirement comes. Gaps in a specific expertise were shown to erode the perception of the Extension system as a whole.

Individual clients do not begin with a notion of Extension as a national system. They tend to think of it in local/personal terms. Although individuals may grow in sophistication and widen their view on a subject, the entrée to the land grant system and top technical research is still a key Extension individual.

This research indicates that both Extension clients and Extension specialists need to be trained in how to use the national land grant system most effectively. Avoiding parochial tendencies and overt pride in one's home university is likely a very important aspect in the needed training. Sophisticated clients eventually will bypass local Extension staff if Extension specialists and county directors are not out front in sourcing the best information from wherever it is. So, "staying ahead of the client" is crucial. But, this "staying ahead" includes both the information and the sources of information. It is a significant service aspect to be able to meet the client's needs quickly. Offering a pre-sorted source list or contact information is a significant value to today's Extension client. As many clients said, Extension helped them sort through the process much faster and more efficiently than they otherwise would have known how.

The breadth of the land grant system was highlighted in this study. Clients in the Midwest used the expertise of universities on the coasts of the United States and East Coast firms used findings from the West Coast, etc. Maintenance and funding for a core land grant system is key for continued economic and business development across the nation. However base level federal funding for Extension has been virtually flat since the 1970s. This level

funding, combined with the impact of inflation, has resulted in a significant decline in actual dollars available to fund the national system.

Experience matters to the value-added agriculture client. When a well respected Extension person is recruited and hired by private industry it speaks well for the quality of that person as an industry consultant. This also reinforces the need for Extension management to anticipate such moves, as well as retirement. The need, therefore, is to adequately pay, support, and recognize such people. The additional need is to consistently nurture the replacement/backup person(s) in these key roles. This is where the nugget lies. Extension as a brand should represent “the source” or the “go to.” To do so indicates that the Extension specialist must have sufficient experience to gain respect and to deliver in a constant manner. It is incumbent upon Extension administrators to provide adequate and consistent professional development to their staff to ensure Extension specialists are up-to-date in their expertise.

Local client experience is what will support the Extension brand. Although marketing specialists will talk about the Extension brand and offer logos, brochures, and awareness programs, the essence of branding this system is in the delivery. Each client’s perception of the system is based upon very local and personal experiences with the system through specific Extension staff. In the eyes of the participants, relevance and expectations are connected to their localized experiences.

The experiences noted by clients who were dissatisfied with their Extension services offer much to consider. The industry in this particular state is advanced and extensive, but varied; and not all operations are large enough to have in-house research and expertise. Private consultants tend to fill these gaps. However, public sector assistance can offer

objective, research-based information, and Extension is often the main source for the private consultants. When great research is delivered by an experienced person of respect, the results are powerful and offer great push for progress in a sector.

As business and technology evolve in our society, it is important to see technology transfer in two modes. Hard technology is the usual equipment-, genetics-, or chemistry-type solutions. Soft technology includes management and marketing. As an agent of technology transfer in both modes, Extension has the potential to excel given that it is attached to and the heart of the land grant system. Many of the solutions offered will ultimately be pre-competitive in nature. This means that Extension can be the tide lifting all boats.

Although responses suggest a very mixed bag for Extension relevance, the potential for growth and improvement, as noted by clients, bodes well for the assistance Extension can provide when specialists retool. Retooling is a key to relevance, as areas of priority will shift over time. Two aspects of retooling emerged. First, the method and breadth of sourcing information for clients must be addressed. Second, a redundancy of experience within the staff capacity of Extension must be created. This last point must always be based upon priority trends of the Extension organization.

Relevance is clearly a very personal perception and correlated almost solely with specific interpersonal relationships. Extension specialists must be equipped with training that keeps them ahead of the client in both information and sources of information. Extension may have operated timidly in pushing the technology envelopes in some arenas with this clientele. However, as the interviewees indicated, Extension was one of the few consistently respected sources capable of fearlessly pushing research conclusions and analyzing applied technology. The responses showed a perception that Extension was good on production

issues but not as effective on marketing or management issues. The evolution of clients into value-added or niche marketing roles, for example, has tended to leave Extension either scrambling or fading. Although Extension management may find comfort in good responses regarding specific staff, this leaves the cold reality that no organization can survive long term under the risk of losing the "key person." The responses did show that when the key person left the Extension system and they were not replaced, that the clients were often left in the lurch and frustrated.

States in which clients did not feel their Extension organization is serving them well will require prioritizing where and what specialists should do. Perhaps industry can help to fund some of the positions important and relevant to the agricultural sector. This study implies there is a "public good perspective" to apply to Extension relevance initiatives. Relevance is measured highly by clients if Extension specialists can answer their questions. It is important that strategic planning be ongoing and not sporadic. These exercises must look both back and forward. Advisory councils must be fully engaged to keep the priorities assessments on track so that scarce resources go to priority sectors.

The implications of this study suggest that Extension, in fact, fills voids in services and does so in ways that are clearly more objective and research-based than in the private sector. The study also demonstrates that when resources are not prioritized and maintained, relevance quickly erodes and the public moves on.

In this manner, Extension operates as a public utility. People draw on it as needed and expect to find a working "outlet" when they want to "plug in" to specific information or facilitation. To extend this analogy: Without this utility available on demand, meeting the demand will be ad hoc and more inefficient, if met at all. Entrepreneurs, producers,

community activists, or whoever the client may be would be left to fend for assistance in a world not easily navigated or evaluated. This detracts from their productivity and is a net negative to society.

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# CHAPTER 5
# USE OF EXTENSION AND THE LAND GRANT SYSTEM BY VALUE-ADDED AGRICULTURE PRODUCERS IN 20 U.S. STATES

A paper to be submitted to *Journal of Applied Communications*

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## Abstract

The objective of this article is to analyze the informational sources and communication channels used by recipients of the USDA Value-Added Agriculture Producer (VAPG) program. The study shows that universities and Extension are trusted and preferred sources of information. The Internet is the most widely used channel of communication for receiving that information. Reponses further suggest that no single source of information has both the capacity and capability to meet all their current needs, but rather it takes a number of sources to do so. This study also reveals how and some of the reasons why this client group is using the Internet. This information may help educators maintain relevance to their clients by better understanding the sources and channels of information used.

## Introduction

American farmers have long explored ways to add value to crops and livestock. In 2001, Congress passed legislation authorizing funding for a Value-Added Agriculture Producer Grant (VAPG). This program provides applicants grant money to originate or further develop a business by further processing or segregating a product, thus seeking to capture additional value from commodities past the farm gate. The VAPG is administered by USDA Rural Development.

The economic and technological pressures faced by U.S. farmers are complex. When farmers move beyond competency in traditional production into less competent areas of processing and marketing, complexities rise. As one participant in this study said, “There’s a real gap between the concept of participating in value-added agriculture and then having what it really takes to play the game.” There is not a lot of material and information out there about what it takes to build that capacity and build the knowledge or share those experiences with other farmers about what it takes to build the bridges and the investment it takes.

The population for the current study consisted of individuals representing farmer-owned businesses that had received money from the federal VAPG program. Those individuals, who had applied for and received funding, used their grant for a feasibility study examining a new market, process, or product, or for capital expenditures related to their value-added agriculture business (Department of Agriculture Rural Business-Cooperative Service, Announcement of Value-Added Producer Grant Application Deadlines, 2008).

We chose this population for study because:

- Resources were available to do hands-on qualitative research appropriate to this population and study objective. This study was funded by the Agricultural Marketing Resource Center (AgMRC), also funded by USDA, which provides needed planning and guidance tools to value-added enterprises. The results would inform AgMRC staff how to more effectively communicate with their clients and others, including recipients of the VAPG grants and value-added agricultural producers
- These individuals have shown that they are interested in pursuing a business beyond the typical commodity production, making them unique and in general a vanguard.

> By virtue of their entrepreneurship, these business owners tend to be more innovative and creative than are typical farmers. In their new businesses many of them have been either early adopters or innovators of new products, new technologies, or differentiated markets.

## Design and Methodology

The authors and hired interviewers visited 80 VAPG recipients on site or via telephone. These recipients were chosen based upon their availability to meet with the interviewer and their willingness to speak openly. The interviewers attempted to speak with several individuals at each business. Titles varied, but generally individuals interviewed included the Chief Operating Officer, Chief Financial Officer, President, or Manager.

The firms with which the study participants were associated were located in 20 states and offered a variety of products. Examples of businesses included fruit and vegetable farms making products such as wine, juices, jams, jellies, etc.; livestock farms and products from sheep, goats, cattle, dairy cattle, hogs, and poultry, as well as most major agronomic crops in the U.S. (corn, soybeans, wheat, cotton, hay); and agritourism and bioenergy firms. A wide net was to overcome biases that may have come from selecting a particular industry sector or state. The firms are identified by state and commodity, but not by their legal names. Anonymity is frequently honored in qualitative studies, but the detail about state and commodity was central to understanding the breadth of the educational reach and situational context as revealed in the illustrative quotes.

Whenever possible, interviews were conducted face to face. Of the 80 interviews conducted with 97 people, 31 interviews were conducted in person by the authors and an additional 14 were conducted on-site by other interviewers. Of the 97 individuals interviewed

59 were men and 38 were women, with ages ranging from 30 to 75. Participants were asked specifically where they received information and were further queried if the interviewers were not familiar with the resource. They were also asked how (through what channel) they received information.

The interviews were analyzed utilizing theme coding and qualitative data charts (Esterberg, 2002). To aid in data management and coding, NVivo 7 (QSR International, 2006), a qualitative data analysis software package, was used. The lead author conducted the initial coding process; codes and themes were then confirmed as consistent and reliable by other researchers.

**Design Validity**

To help ensure design validity, the following strategies were incorporated into the data collection (Glesne, 2006).

- Persistent field work spanning 11 months from December 2007 through October 2008.
- Completing field work only when it was determined there were enough data and remarks and comments became redundant (Prasad, 2005).
- Using literal statements of participants and quotations from their interviews.
- Peer debriefing.
- Member checking by interviewees for accuracy.
- Using a third party to conduct the Iowa-based interviews where the authors had worked.
- Keeping a reflectivity journal (by the lead researcher) to help identify biases (Pillow, 2003).

- Use of multi-method strategies, including library and Web research on the firms, as well as on-site and telephone interviews, producing triangulation in data analysis and collection.

These different strategies helped to yield different insights about the topic and increase the credibility of the findings (McMillian & Schumacher, 2006).

## Findings

The sources of information that farmers have used to make decisions have been studied by a number of different disciplines. Sociologists (Rogers, 2003), economists (Gustafson, Nielson, & Morehart, 1990; Rahm & Huffman, 1984), geographers (Wallway, Black, Richard, & Mason, 1994), and others (Carter & Batte, 1993; Schnitkey, Batte, Jones, & Botomogno, 1992) have all examined where farmers go for information.

O'Keefe, Boyd, and Brown (1998) and Stone, Singletary, & Richmond (1999) distinguished between two communication elements that Rollings, Bruening, and Radhakrishna (1991) and others (Tucker & Napier, 2002; Vergot, Israel, & Mayo, 2005) have defined:

- A source: an individual or institution that originates a message.
- A channel: the means by which the message gets from the source to the receiver; magazines, radio, and the Internet are channels of information.

Individuals may use a single channel to obtain information from a single source, a single channel to obtain information from multiple sources, or multiple channels and sources (Israel & Wilson, 2006). Lin (1999) determined that farmers select channels based on their expected or past usefulness in meeting their needs.

**Land Grant Universities and Extension**

This study reveals that the most frequently cited source of information for value-added agriculture businesses is the land grant university/Extension. Participants representing 69 of the 80 firms in the study answered in response to the open-ended question, "Where/who do you use as a source of information?" that they utilized a university source to provide them information. If they offered a university and/or Extension Services as a resource they had used, the participants were then queried in greater detail as to what type of information they had received from those sources.

The universities and Extension Service are perceived as a source for nonbiased information. And, as one individual indicated, even though the university staff may not have been knowledgeable initially, they utilized the various resources available to them to retool and upgrade their skills. Some illustrative comments made by participants are found in Table 1.

In addition to university and educational resources, governmental agencies such as the Resource Conservation and Development agencies, state departments of agriculture and USDA were also noted by study participants as sources of information (Table 2). These resources were mentioned by 10 of those interviewed. Because the producers were not asked to rank which of the sources were most used or helpful, it is not possible to project that the university resources were more or less useful than the other resources.

**Table 1: Comments Regarding University/Extension as Information Sources**

| State | Illustrative quotes |
|---|---|
| Nebraska | I get it from the university. The lady there helped me quite a bit. There really isn't any other competition out there. Yeah, the university – that's what they're paid to do is help you. That is very important. If the USDA wants to continue this value-added thing they need to see to it that these universities, that some of these places are funded properly because they are the ticket. That's your only ticket, really. They'll tell you how to approach people. They tell you everything. The person from the University who helped us worked in a distributorship, so she knew how foods distributed. She was a very sharp person. She knew how to do your label. You've gotta have that barcode a certain size or the stores don't want it. You've got to be able to read the nutrition facts panel. They have guidelines on the size of the labels and the size of the package. You have the greatest thing in the world but if you take that package to your distributor and they say, There's no barcode on it, you're out the door. . Without the University help we would have been out the door. |
| Iowa | When we first started the Extension people didn't know a lot. They were nice—just not helpful. But the National Research Initiative grants have been a good thing – now there is training for veterinarians and Extension people. Extension people are getting better and better trained, better equipped to help groups like ours. They (Extension) people are getting better and better every year. |
| Tennessee | The role of the university is important. On our project—well it was Extension centered and they rode herd on the marketing project. They had the producer contacts and respect in some of the counties that got the marketing project going. Without them I am not sure the project would have succeeded or gotten as far as it has today anyway |
| Oklahoma | We use them (university) for technical questions and production questions. We used them for about everything really. Just kept their number handy. In fact, I still have it right here. |
| Virginia | We have a good rapport with Extension in Virginia. If you want something out of Tech you ask the agents who do you recommend and how can I find that information. They cut right to the chaste. They get right to the stuff you need, and I would still be wading through it ten days later. |
| South Dakota | The poultry and pork industry had utilized the expertise from the universities to develop profitable industries. We are going to use them too for our lamb business. |

**Table 2: Comments Regarding Other Public (Federal, State or Locally Funded) Sources of Information**

| State | Illustrative quotes |
|---|---|
| Delaware | Our Department of Agriculture in Delaware was helpful. |
| Texas | I also use the resources of the USDA and their Foreign Agriculture Service (FAS ) program and SUSTA, which is the Southern U.S. Trade Association. These help businesses take their products into the export market. |
| Iowa | I used the USDA people, but [what] I find is that too often they're focused on macro data and not micro data. So that's been frustrating with some of the USDA stuff. |
| Nebraska | RC and D people were really good. |
| Oregon | We used the cooperative development center and the Oregon Innovation Center. |

**Other Sources of Information**

*Commodity Groups, Farm Organizations and Other Nongovernment Organizations*

Commodity group organizations (such as the blueberry, corn, cattlemen, pork, soybean or wine associations), professional trade groups, and nongovernmental organizations, including farm bureaus, farmers unions, and special farm organizations such as the Practical Farmers of Iowa (see Table 3), were noted as sources of value-added agriculture information for producers. These groups generate information, studies, and other relevant work. The trade associations and these specialty organizations often provide very specific industry sector information about the particular and unique markets. For example, one producer said:

> I've been very fortunate because I joined the National Association of Specialty Food Product Producers—they're the ones that put on the food shows in San Francisco and

New York—and utilizing their resources for market awareness, product diversification, governmental information. They know all the details because they are in the marketplace all the time. Many of the Extension or governmental sources just would not have the day-to-day access to this type of information.

**Table 3: Organizations from Which Producers Receive Information**

| |
|---|
| American Wind Energy Association |
| American Farm Bureau |
| California Farm Bureau |
| International Aquaculture Association |
| Iowa Farm Bureau Federation |
| Iowa Wind Energy Association |
| Kansas Wheat Commission |
| Missouri Cattlemen's Association |
| National Association of Specialty Food Product Producers |
| National Pork Producers Council |
| North American Farmers Direct Marketing Association |
| North Carolina Meat Packers Association. |
| Oregon Blueberry Growers |
| Oregon Wine Board |
| Practical Farmers of Iowa |
| Produce Marketing Association |
| South Dakota Corn Growers Association |
| Snack Food Association |
| Specialty Food Product Producers |
| United Fresh Produce Association |

*Consultants as a Source of Information*

Participants in the study were queried to determine if they had used consultants to assist them in the process of developing their business or product. Representatives from more than 30 of the firms indicated they had indeed used consultants as a source of information for a myriad of expertise needed in the business. For example, one firm had hired a head maintenance man from a competing plant to work with their company on development of the plant layout and operations. Others had hired consultants to help them develop their business and marketing plans, and some had used consulting expertise to assist them in technical issues. Said one participant,

> There are 10,000 [consultants] out there—there are 10,000 comedians out of work—I don't put a lot of credibility in business consultants. I think that they are a necessary evil. I think there are some people that do have the knowledge, but I think resources like SCORE—the Service Corps of Retired Executives are a good source of information —the biggest one thing I do is I pray I have found someone who can help me.

Locating consultants who have expertise in a specific area can be a challenge for some of the value-added agriculture producer groups. Some indicated they called trusted advisors who suggested people who may be good consultants. Several participants' sentiments are reflected in this statement by one participant:

> Mostly it is knowing someone who knows someone. You make the call, you vet them to see if they know anything. Then you talk to another one and another one, until you found someone who you think gets what you want to do. The good ones ask you lots of questions to make sure you know what you are doing and that you are going to

follow through. In that regard it is really a mutual conversation. They have to decide if they want to work with us too.

Others contacted people who were in similar businesses and asked them whom they had used for their feasibility studies, etc. A wine producer said he relied on referrals and called around getting referrals on people: “When you start hearing the same name over and over again—that is usually a pretty good sign you’ve come across a good consultant.”

Some participants indicated that, when trying to locate consultants, they used search engines or Web sites such as the Agriculture Marketing Resource Center (AgMRC), which maintains a listing of value-added ag consultants. Others did Web research and then made contact with the person who had done something in the area in which they were going to be working. Others indicated that for both locating a consultant and finding an appropriate consulting helper on the project, they used word of mouth and phone calls to verify the expertise of a person: “We just called around to check this guy out.”

Some participants were able to use their relationship with large central cooperatives such as Cenex, Harvest States, or Land o’ Lakes to help in both the consulting aspect of the business as well as in the training. For example, “When we needed to offer education to a seed team, we used someone from Cenex, who is a supplier. We did it in-house in that regard since we are a member of the cooperative.”

*Alternative Sources*

Alternative sources of information noted by participants were learning journeys, conferences, and meetings, as revealed in the illustrative quotes in Table 4. Trade shows were used by some of the VAPG recipients as a source of information. They would attend the relevant trade show to learn about what their competition was doing; new products on the

horizon; and new developments in the industry, including trends in packaging, marketing, and alliances (see Table 5). Vendors, businesses, and manufacturer representatives often served as valuable sources of information for the VAPG businesses. Oftentimes, as noted by the comments in Table 6, VAPG recipients need information that is very technical and specific to their industry.

**Table 4—Alternative Sources of Information Producers Used**

| State | Illustrative quotes |
|---|---|
| Kansas | We go to conferences like the one in North Carolina. We go on trips too to see what others are doing. |
| Oregon | The last two or three years the Oregon Wine Board has very good tours and good things on running the tasting tour room, doing the marketing. |
| Tennessee | The tour brought individuals together to start operating as a group and it identified leaders. I would recommend that producer groups use study tours to get producers on site for face to face learning about operations and so much of what they need to hear. |
| Illinois | Myself and some of our board members went and interviewed and visited with some of the major fresh cut retail folks, and I mean there's a lot to be said for getting the help and the technical information from folks who are in the business. It's a combination of those things, I guess. |

**Table 5: Use of Trade Shows**

| State | Illustrative quotes |
|---|---|
| Washington | We go to trade shows, find out what others are doing and learn about our competitors that way. |
| Texas | We go to trade shows like the National Slow Food Showcase in San Francisco |
| Iowa | We went to the World Aquaculture Society annual conference sand trade show several times. We learned more about who was doing what by going there. |

**Table 6: Use of Vendors**

| State | Illustrative quotes |
|---|---|
| Iowa | We used the wind turbine manufacturers for advice. |
| California | We work with companies that are technology providers for the pharmaceutical products. We generally work with our current supplier a lot. We learn a lot from them. |
| North Carolina | We use our vendors and the inspectors when they come through. We use vendors more than consultants. |
| North Dakota | The tech and sales reps call on us quite often. We get much information from them. From competitive prices to all types of information that we need. Everyone is after your business, so why not get something from them too? |
| Kansas | Mostly it is recommendations for suppliers and the vendors that call on us. It is all word of mouth. |

**Channels of Information**

In addition to where VAPG recipients find information (their sources), it was important to learn the channel(s) used by this group of producers. Rogers (2003) and Tucker and Napier (2002) found that people use multiple information channels during the adoption process for several reasons, including the different contributions each channel can make to the phases of the adoption process (Lionberger & Gwin, 1982; Rogers) For example, mass media channels create awareness of issues, practices, and new technologies, whereas field days and demonstrations help to test and confirm information (Israel &Wilson, 2006). The use of a particular channel is affected by differential access by specific client groups (Brown, 1981; Hall, Dunkelberger, Ferreira, Prevatt, & Martin 2003).

Licht and Martin (2006) determined that Iowa crop producers used primarily radio and consultations for gathering agriculture information, used mass media channels for

general information, and used interpersonal communication channels for specific and applicable information.

*The Internet*

In the last decade, the Internet has become a core global communications channel for business (Kogut 2003). The adoption and use of computers and the Internet by farmers and farmer groups depends on its anticipated impacts on performance and competitiveness. Researching and marketing on the Internet might play a key role through the accumulation of information that has competitive value (Feder & Slade, 1994). Purchasing and selling through the Internet may enhance efficiency by "increasing the accuracy with which prices reflect true market conditions" (Henderson, 1994). Intensity of use, in terms of the number of purchases made or tasks carried out through the Internet, may also affect the extent of computer adoption (Feder & Slade; Putler & Zilberman, 1998). Hall et al. (2003) asserted that there are major shifts in the way farmers access information with the more frequent and widespread use of the Internet.

This study revealed the Internet was the most frequently noted channel of information Reasons given for the use of the Internet by this group varied. Among the responses given were:

- Availability of information
- Immediate access and success in finding information
- Creation of a community of like-minded people
- New information that had not been available to them previously

Table 7 provides illustrative quotes representative of many study participants.

**Table 7: Use of the Internet as a Communication Channel**

| |
|---|
| I use the internet to gain access to weather stations, supplies, things, farming implements that weren't easily found, things that particularly pertained to the olive harvest and harvesting equipment. It helped from a technical point of view. I find things that would not have been available to me five years ago. |
| I use the Internet for everything. I probably spend 65 hours per week on the Net. |
| And I got that online pretty much – just punch in a word or two on a search engine. |
| I use a lot of on-line, web-based resources, in particular to read a lot about oil. I need to be educated on competitive aspects and get science based information. I would prefer to get new information notice by e-mail. It's hard to get a hold of me –Phone is not the best way and sometimes I forget to check voice mail. But I do go through my e-mails. I decode by whether it is referred to me by someone I trust, if it is info I've been looking for or if it is from a credible source. It would work if universities and other such groups had a database of e-mails like mine and I could be notified of something that is of interest to what I do. |
| The Internet is always the first place I go to find information. |
| You can get market trends and there is different kinds of services that you can subscribe to that let you know what's going on in grocery non-foods. You can get a specific report that hadn't been there previously because of the technology or there wasn't enough critical mass to be collecting that information. Now it is worth collecting information and getting it. Just six years ago this would not have even been anything that would have happened. |
| We are constantly looking for new information and use the Internet to help us find things. |
| For starters I get Google alerts and I search different things or someone would give me a lead. Like initially while we knew a lot about organic production, we didn't know a lot about some of the markets so the ATTRA web page was certainly a place where we went to for a lot of information for organic production, specifically, and the Sustainable Ag Research and Education the SARE program – so we interfaced with them quite a bit by using the web pages. |

Firms that use the Internet have greater access to information (Hall et al., 2003). This adoption and use of the Internet by farmers and farm businesses is of special interest because the Internet can be used in multiple ways by a farmer as compared to other innovations, such as hybrid seed corn, the combine, or herbicide, which have only a single use.

Not only are farmers making a decision to use the Internet, but they must also decide for what purposes to use it. This study provides insight into how these producers are currently using the Internet for their value-added agricultural businesses. The Internet is being used by farmer groups as a channel to:

- Communicate information with their producer/suppliers via email and with Web pages.
- Disburse business documents
- Aggregate product
- Provide individualized performance and transaction information such as quality control data (somatic cell counts, beef cattle grid kill sheets, etc)
- Facilitate dialogue on topics through the use of blogs and on-line forums

*Internet Use for Communication.* The Internet has proven to be a useful channel for a variety of types of communication. Producers groups, suppliers, and other providers of services and information are using the Internet to communicate with individual producers and farmers and vice versa (see Table 8 for specific comments). In addition, producers are using the Internet to communicate with others. Some of the ways they are connecting is through the use of list serves, electronic newsletters, direct one-on-one interaction with emails, and social networking, such as Facebook and My Space, as can be seen in Table 9.

**Table 8: Use of the Internet for Group Communication**

| |
|---|
| [Farmers] can access all their information over the web site. They can tailor it so their banker can see their payments, their nutritionist can see their components, and their bacteria person can see their results. But less than half of the producers use it, mostly their nutritionist and bankers use the information. You see more use of [the website] with the second generation. |
| We send out the quarterly newsletter to our producer members on the Internet. We quit printing and mailing it, since almost all of our producers either check their email every day or have someone in their family who does. The Internet has made the remoteness of our location no longer an issue. |
| Our producers came up with the idea of using the Internet to aggregate product for delivery into our market. They go on line and indicate what they have available and then we figure out the pickup routes by what they tell us they have for sale into the fresh vegetable market every day. So they came up with the idea and that is the way our products get aggregated and delivered every day. |
| We talk to the producers every day. Every week's production so they can go over those. They get them by e-mail and text messages on their cell phones. They are not very e-mail friendly farmers, much more cell phone friendly with text messaging. |
| On the secured Web sites we provide the individual data for each producer. We list all of the farmers' payments and have all the needed forms such as direct deposit forms, contractor labor forms, approved chemical lists, etc. Additionally we have calendar of meetings, seminars and events of grower interest for our value-added producer members. |
| We use the Internet to create blogs among our producers for our business. They communicate with one another about problems, concerns, etc. This gives us an opportunity to interact with them all the time or I should say when they want to interact with us. They get busy and they are hard to catch, but most of our producers check Internet sometime during the day, so we respond right away to them. We created a forestry forum and websites for them to have for this way to talk with one another. |
| Well there is no question that things and the use of the Internet have changed. It is a different world out there. We use to think that only the young people used the Internet. Not anymore. Every one of our clients is either connected or someone in their household searches for them and gives them the pertinent stuff from us. Most of the time anymore though – it is the person going on-line and doing their own work, even the old guys. |

**Table 9: Producers Internet Use for Communication**

| |
|---|
| We use the Internet for Blogging. It is good to have a network out there of people, so that you can exchange ideas and thoughts with them. We use it (Internet) for refuting stuff that isn't true about organics (the market we sell into). Sometimes we use the blogging network also to learn more about something we want to know about. I will post questions on the blogs to try to learn about a specific topic or ask people to comment on things that I don't know much about and can't find information. |
| I now have a MySpace and a Facebook page. This is a tool that someone else suggested to me but it is great---I get feedback from an audience --- younger people, that are consumers of what I make too, but I would never have thought to interact with them this way. I always thought MySpace and Facebook were just a thing kids did to talk to their friends and stuff. I didn't realize you could utilize that for your business as well. |
| I get an electronic newsletter everyday, a specialty foods e-mail that I see what's going on in the specialty food markets and what the trends are. |

*Multiple Channel Uses: The Use of the Internet and Interpersonal Communication Channels.* The Internet has made information pervasive and accessible. This access to information is no longer a precompetitive factor among innovative agricultural entrepreneurs. Our study reveals that, despite extensive use of the Internet, innovators and entrepreneurs still rely on proven and trusted interpersonal channels to help them sort out good information from the bad that they access on the Internet. For example, one producer in this study indicated he had seen information on a specific technology on the Internet, but didn't realize it would have application to his field until he spoke with a university specialist: "He helped me understand how this related to me. I knew about [the technology] but he helped me understand how I could use this." Another participant indicated he wished he had found someone to help him sift through the process: "I spend hours on the Internet. I really need someone to help me get to where I need to go and tell me what it means once I'm there."

*Why Producers Use the Internet.* Reasons why producers use the Internet varied, but the most pervasive theme was that the Internet channel provides timely information. Much of the information retrieved from Internet sources would not have been available to producers in prior years. Table 10 provides illustrative quotes about how the use of the Internet helps in the dissemination of information that is timely and time sensitive.

**Table 10: Use of the Internet for Timely Information**

| |
|---|
| We send out text message on the bids that we have for our producers every day. All of them have cell phones and we send it email, Some get it on email and some on text messages that go right to their phones. They carry them with them all the time. They know what we are buying and selling and can respond immediately if they want to sell to us. |
| Where to get info? Some print and some Internet. On the Internet it comes quicker and seems more pertinent. It follows changes quicker. |
| Access to the web and the way the information technology is being shared is a double-edged sword. It helps you move quickly and have information quickly, but that also means you need to move quickly as well. |

*Why Producers Don't Use the Internet.* There were some participants who indicated that they did not use the Internet as a channel to communicate or find information. However, this was a small group out of the 80 who responded. The rationale for why they did not use the channel in their business varied. For instance, one participant commented, "Now, I'm so busy, I rarely go searching on the Web. Everyone in the organization, however, is out there gleaning information as part of their jobs." Another participant gave this rationale:

> When we communicate with our members—they just call us if they want to find out something. We do have a Web site that they can drop into with a password—but nobody has asked me for a password yet and we have had it there for three years.

> They are all computer savvy, but they don't have the time or need for what's there on our website I guess. Maybe since we are a small industry they just think –we will call and get that.

*Other Channels of Communication*

*Magazines.* Magazines were a source of information for several value-added agriculture firms and preferred particularly by people in the wine and grape industry. Magazines such as *Food & Wine, Winery and Vineyard Management, Wine Business Daily, Wine Business Monthly* were specific publications noted by wine and grape growers throughout the United States. Value-added agriculture producers also accessed magazines such as *Hoard's Dairyman, Iowa Farmer Today, Grass Farmer,* and *Capital Press*.

*Radio.* In a 2007 study of Iowa corn farmers, Licht and Martin (2006, 2007) found radio to be the most frequently used communication channel. However, in this study and with this specific clientele, this was not a preferred channel noted by producers.

**Limitations of the Study**

These findings cannot be used to generalize to larger populations. In addition, the data collected could be affected by the author/moderator bias or manipulation, false consensus, and the difficulty of analysis and interpretation that is inherent in any research (Litosseliti 2003).

Producers were asked open-ended questions and if they responded, their replies were noted. They were not asked to rank which of the sources and channels of communication were most used or helpful. Thus, from these findings it is not possible to project if one resource was more important than another.

## Discussion and Implications

Adoption of the Internet for practical use among farmers and/or within their value-added businesses is evolving with increased velocity. Where information technology is more slowly adopted, it seems not to be because they aren't aware or aren't interested. In many cases they have all the tools in place with Web sites and e-mail. The issue appears to be a matter of familiarity and, often, no current need to switch to new methods. Even innovative farmers are quite pragmatic about staying with what works. An Extension service and other information providers must recognize comfort levels and meet clients on their terms. If this means by telephone or face to face instead of by e-mail, then that should be the channel to use. Internet technology can be part of a delivery system, but it is the personal relationship, established either virtually or in person and built on competency, trust, and capacity to deliver, that will determine relevancy for an Extension service and other information providers.

### Sources of Information

With the ready availability of many sources of information for the farmer, it becomes the responsibility of the source to help clients understand the relevance of the information. The information providers need to help transfer the concepts or innovations from one industry sector to another or help the client see the relevance of a particular concept in that particular marketplace.

Receptivity among clientele appears connected to a personal and trusted source of information. Information is ubiquitous and access is hardly limited. But the client values trusted sources for evaluating and sorting through this sea of potential information. The old adage, "I'm drowning in data and dying for information," is more important than ever to

understand. The people interviewed indicated they needed help getting focused and gaining efficiency in evaluating information or data. Their goal was knowledge and the trusted person became indispensible in many of these cases.

The findings suggest that the original vision of the Extension agent providing information either on the ground or virtually is still an effective method. Some level of specialization by practitioners is required to meet client needs. Practitioners gain trust and bring value if they are ahead of the client in knowledge and insight.

**Channels of Information**

The results indicate that it is important that Extension educators and other information providers use the Internet channel. But, more than choosing the correct channel, the educator needs to consider positioning. In order to be relevant, the practitioner must be positioned at the "evaluation and trial" point on the adoption curve or potential clients will look elsewhere for help. The population studied tended to be somewhat innovative by nature; their awareness and interest in technology or innovative practices was already present. In the cases where Extension and educational practitioners stepped up to the challenge and brought effective, objective evaluation, they seem to have brought value to the client.

The responses about using Internet channels for reaching new market demographics through virtual venues such as Facebook pose a challenging new area of understanding for educations providers such as those in Extension. Although Extension personnel and other practitioners may focus on using Internet tools to make their delivery systems efficient and up-to-date, with the value-added clientele the issue may be more about how to make his or her business shift gears at the same velocity as the marketplace. This positioning is about thinking within the client's realm and determining offerings as a content provider based upon

that objective reality. Marketing to virtual communities is vastly different than the mass marketing techniques of the past 50 years.

The findings suggest that Extension and educational providers focus on positioning with regard to these aspects:

- Personal service and trust relationships
- Appropriate evaluation and translation of information
- Objective trial validation of information, innovation and technology.

These results of this study have special implications for Extension educators as they select communication methods to use for delivering educational programs to producers, especially when increasingly limited resources force them to choose between the most effective communication channels with which to deliver programming to their audiences.

The authors recommend that Extension administrators consider more regional and national Extension sharing through programs such as eXtension. eXtension, a national program, is a virtual community of practice, where Extension professionals combine all their knowledge of a particular area (such as value-added agriculture) and collectively post frequently-asked questions and answer questions from clients. The authors also suggest that more resources be devoted to helping Extension specialists become more adept at both ferreting sources of information for producers and determining the most appropriate channel by which to deliver that information.

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# CHAPTER 6
# HOW VALUE-ADDED AGRICULTURE PRODUCERS IN 20 U.S. STATES FIND, RECEIVE, AND VALIDATE KNOWLEDGE INPUTS

A paper to be submitted to *Journal of Agriculture Education*

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## Abstract

We live in the age of ubiquitous and readily accessible information particularly due to electronic media. This raises the need to reassess traditional diffusion theory, sources of information, and delivery modes. Do agricultural producers favor or need personal human interaction and or analytical interpretation in this new mode? The study surveyed many of the producer grant recipients of a federal program; the Value-Added Agriculture Producer Grants (VAPG) to determine, "How do farmers and agribusinesses find, receive, and validate knowledge inputs in a world flooded with ubiquitous data and information?" The results of this study relate to agricultural educators who daily must question their own methods as clients or potential clients question the relevance of these educators. The results revealed the use of social networks among these producers is important in obtaining information and making decisions related to their businesses. Producers use networks (virtual and spatial) to learn from one another. They rely on trusted sources and interpersonal communication, which although may be virtual, is still about relationships. Such findings bring focus to the adage that "people do business with people." In this electronic age it appears the trust relationship is quite personal and highly valued. The participants indicated that agricultural educators can play a key role for them by helping them in facilitating social networks and by

helping them to fit together what oftentimes appears to be disconnected or irrelevant information.

## Introduction

In 2007 and 2008 the present team of researchers set out to meet with a large and well-defined group of entrepreneurial farmers and farmer-led agri-marketing organizations. The overarching question driving the study was: “How do farmers and agribusinesses find, receive, and validate knowledge inputs in a world flooded with ubiquitous data and information?” The results of this study relate to agricultural educators who daily must question their own methods as clients or potential clients question the relevance of these educators.

The implications of the study will be explored by relating the findings to prior study work done by Rogers (1983, 1995, 2003,) regarding diffusion of information. Additionally, other applicable learning theories will be looked at as foundations for understanding the results.

The results from the study will be presented by breaking down the data into the following:

- Networks and word of mouth
- Use of the Internet
- Personal relationships
- Peer modeling

## Theoretical Framework

To understand how producers access information and fit together the relevant aspects to their business, one should explore the theoretical work and understanding of the diffusion

of innovation and social learning theories. Early work on these topics goes back into the late 1930s and generates explanations about behavior modeling and learning of farmers, among others (Roberts, 2006).

**Social Learning Theory**

Most approaches to human learning look within the individual in order to understand how learning occurs. Social learning theory looks outside of the individual at a specific type of information exchange with others in order to explain how human behavior changes. The central idea of social learning theory (Bandura 1977, 1986) is that one individual learns from another by means of observational modeling. Social learning theory posits that psychological functioning can be explained in terms of the interaction of personal characteristics, previous behavior (learning), and environmental determinants (Chapman, 1984). This psychological functioning involves valuing certain outcomes, discriminating among situations in terms of their potential to bring about these valued outcomes (Grady, 1990). This modeling allows the learner to adapt the observed behavior (Rogers, 2003).

**Diffusion of Innovation Theory**

Diffusion of innovation theory is based upon the early work of Bruce Ryan and Neal Gross (1943), who investigated the diffusion of hybrid seed corn among Iowa farmers. They sought to explain why farmers were not using hybrid seed. Hybrid seed, compared to traditional seed, had compelling advantages, such as the seed's vigor, resistance to drought, disease, and higher yield. However at the time there were several barriers preventing Iowa farmers from adopting the hybrid seed corn. One problem was that the hybrid seed corn would not make good seed the following year, so farmers had to buy new seed every year instead of holding some back from the previous year's crop. This meant the hybrid seed was

relatively expensive for Iowa farmers; a hardship in the lingering Depression. Thus, despite the economic benefit of hybrid seed corn, its high price made adoption among Iowa farmers slow (Ryan & Gross, 1943).

According to DeFleur (1987), Ryan and Gross (1943) sought to explain how the hybrid corn came to farmers' attention and which of two channels (i.e., mass communication and/or interpersonal communication networks) led farmers to adopt the new innovation. Each channel had different functions. Mass communication functioned as the source of initial information, whereas interpersonal networks functioned as the influence over the farmer's decisions to adopt. The adoption of innovation depends on some combination of well-established interpersonal ties.

**Network Communication Theory within the Diffusion Process**

The heart of the diffusion process is the modeling by peers who have or have not chosen to adopt a new technology. In deciding whether or not to adopt an innovation, individuals depend mainly on the communicated experience of others much like themselves who already have adopted this innovation. These subjective evaluations of a particular innovation flow mainly through interpersonal networks (Rogers, 1995). These communication networks consist of interconnected individuals who are linked by patterned flows of information. Once an interaction takes place, it serves as an immediate and powerful context. As a relationship steadies over time more interdependence of perception and behavior develops (Salomon, 1981).

In a study of Iowa corn and soybean farmers conducted by Licht and Martin (2007), producers said they believed interpersonal communication was more reliable than was information from mass media. Overall, they perceived interpersonal communication as a way

to evaluate the quality of information and determine how or if it applies to their operations. The operative aspect of these findings is that trust is the objective in seeking information and knowledge. Verification of trustworthiness is achieved by interpersonal networks and the communication within them.

### Merging of Social Learning and Diffusion of Innovation

The social learning and the diffusion of innovation perspectives have much in common. Both seek to explain how individuals change their overt behavior as a result of communication with others. Both theories stress information exchange as essential to behavior change and view network links as a main explanation of how individuals alter their behavior (Rogers, 2003).

Rogers (2003) suggested that the Internet has created increased interest in the study of diffusion and particularly the role of communication networks in the diffusion process. In the pre-Internet era, interpersonal networks were ethereal and thus difficult to understand. “Now people communicate over hard wires (and signals) that link computers, which capture a record of human message exchange and thus can illuminate the nature of networks” (Rogers, 2003, p. 348).

## Design and Methodology

### Population for the Study

The population for the study consisted of farmers, ranchers, and farmer-owned businesses that received money from the federal VAPG program. Individuals who applied for and received funding used their grant for a feasibility study examining a new market, process, or product or for capital expenditures related to their value-added agriculture

business (U.S. Department of Agriculture Rural Business-Cooperative Service, 2008. We chose this population for study because:

- Resources were available for hands-on qualitative research appropriate to this population and study objective. This study was funded by the Agricultural Marketing Resource Center (AgMRC) at Iowa State University, which is a Web-based value-added agriculture center that holds information, templates, case studies, etc. for farmers interested and engaged in value-added agriculture. Funding for AgMRC comes from the same program as the VAPG.
- These farmers have shown they are interested in pursuing a business beyond the typical farm gate and commodity production, making them unique and, in general, vanguards. These businesses owners tend to be innovative and creative as evidenced by their businesses differing from those of other farmers who simply sell their undifferentiated products into the market place. These farmers are engaged in specialty marketing such as farmstead cheeses, organic preserves, special curing processes, etc.

**Interviews**

Utilizing qualitative research methodologies, interviewers visited with 80 VAPG recipients on site or via telephone. These recipients were chosen based upon their availability to meet with the interviewer and their willingness to speak openly. The interviewers attempted to speak with several individuals at each business. Business titles varied but generally individuals interviewed included the Chief Operating Officer, Chief Financial Officer, President, or Manager.

The firms with which the study participants were associated were found in 20 states and offered a variety of products. A wide net was cast to overcome any biases that may have come from selecting a particular industry sector or state. The firms are identified by state and commodity, but not by their legal names. Anonymity is frequently honored in qualitative studies, but the detail about state and commodity was central to understanding the breadth of the educational reach and situational analysis and making the most of the illustrative quotes.

Whenever possible, interviews were conducted face to face. Of the 80 interviews conducted with 97 people, 31 were conducted in person by the authors and an additional 14 were conducted on-site by other interviewers. Of the 97 individuals interviewed 59 were men and 38 were women, with ages ranging from 30 to 75.

The interviews were analyzed utilizing theme coding and qualitative data charts (Esterberg, 2002). To aid in data management and coding, NVivo 7 (QSR International 2006), a qualitative data analysis software package, was used. The lead author conducted the initial coding process; codes and themes were then confirmed as consistent and reliable by other researchers.

Participants were not asked specifically if they received information from universities. If they offered the universities and Extension Services as a resource they had used, then the participants may have been queried in greater detail about, for instance, what type of information they received from the universities.

**Design Validity**

To help ensure design validity, the following strategies were incorporated into the data collection (Glesne, 2006):

- Prolonged and persistent field work spanning 11 months from December 2007 through October 2008.
- Completing field work only when it was determined there was enough data and remarks and comments became redundant (Prasad, 2005).
- Literal statements of participants and quotations from their interviews.
- Peer debriefing.
- Checking by interviewees for accuracy.
- Using a third party to conduct the Iowa based interviews where the author has worked.
- The lead researcher keeping a reflectivity journal to help highlight biases (Pillow, 2003).
- Multi-method strategies, including library and Web research on the firms, as well as on-site and telephone interviews, producing triangulation in data analysis and collection.

These different strategies helped to yield different insights about the topic and increase the credibility of the findings (McMillian & Schumacher, 2006).

**Limitations of the Study**

One of the limits of the analysis is the inability to generalize to larger populations. In addition, the data collected could be affected by the author/moderator bias or manipulation, false consensus, and the difficulty of analysis and interpretation that is inherent in any research (Litosseliti, 2003).

## Findings

Participants were asked an open ended question about where they received information. Altogether, they generally responded with three primary and one secondary source:

- Networks of people who had a similar or like business, or had some specific expertise (primary source);
- University resources such as Extension agents, university Web sites, Experiment Station reports, etc. (primary source), which often came about through referrals;
- Internet research (primary source);
- Magazines, newspapers, radio, and other mass media outlets (secondary source).

### Networks and Word of Mouth

VAPG recipients indicated that word of mouth and "talking directly with individuals who knew more than they did," was their primary method of learning about new ideas. They utilized a network of people who they had discovered or who aided other people in finding the resources they needed. The following direct quotes from interviews illustrate the VAPG recipients' use of networks:

- "And it's amazing how many people are willing to help you and answer questions that you can find information. Apparently nobody talks to scientists, so when you do get a hold of them they love to talk to you. I don't know how anybody can do business in today's environment without that information. Or people in the industry would say you need to talk to so and so at University of _____, and you go online and find the information they had published, then e-mail them and get more

information. Farming of a particular variety of crop is a very small-knit community with people. Everybody kind of shares information."

- "I ask a lot of questions of the people. Once I have located the person I need to talk with, I'll talk your ear off until I find out what I want to hear or need to know."
- "I cannot not give them enough credit to the people at ____ University, because they really were there and you form relationships and friendships. So they would e-mail about this event. It wasn't a matter of money, it was a matter of friendship and helping us network, so it was a valuable thing for me. And being close to the university, where I can just buzz in there and talk to them, that was great, too."

As Licht and Martin (2007) discovered, overall, producers perceive interpersonal communication as a way to evaluate the quality of information and determine how or if it applies to their operation. The following illustrative quotes from the present study's participants lend support to their findings.

- "Networking within industry sector—talking to someone in business and then someone who does work on it at the university, and then getting a tip or idea and then talking to someone else."
- "When you are conducting business—you go from one person to another and keep talking until you are pretty sure you know what is going on."

Rogers (2003) coined this interaction a communication network, which consists of interconnected individuals who are linked by patterned flows of information. Individual links are important determinants of one's adoption of innovations, as evidenced by the following comments from participants.

- "Sometimes I feel like I can pick up the telephone and be on it all day long and learn more than reading. Like I get on the phone and find out what is happening with white marble pork, corporate farm pork. It is knowing who to call, talk with them and listen to them."
- "It's like being an investigator. You call a person and they know a little bit, and they say, "Have you talked to so and so?"
- "I found that people try to help people. And if they perceive that you're serious and very interested . . . a person who might be cool and collected to another person, but when you start talking to them and telling them what you're doing than very often they get interested and then they give suggestions and ideas and places to go. It's a people to people thing and it worked well for me. You have to make a starting point somewhere and you do need some professional type stuff, but beyond that, it was pretty much a matter of searching things out and getting information from people about other things and going from there. It kind of grows.

**Use of the Internet**

Rogers (2003) suggested that the Internet has created an increased interest in the study of diffusion and, in particular, the role of communication networks in the diffusion process. Participants confirmed the use of the Internet as part of interpersonal networks:

- "In the early years, we did it on the phone and now you can do it on the Internet via email because we know the people –but our initial work about finding out—well it started on getting to know the people."
- "You know the network. You still have to do that leg work and read up and dig for that information and try to cover the different angles. And now fortunately because

of the web some of that leg work isn't as hard as it used to be. It is still a network, just virtual instead of one-on-one."

**Personal Relationships**

The personal contact and personal relationships were important for producers to determine answers to their questions about specific technologies, markets, or products or to inquire about aspects affecting their business. Likewise personal contacts were also important for VAPG grant recipients who worked directly with farmers. These farmers were member suppliers to a VAPG business, such as farmers who supplied milk to a dairy or a cattle producer who sells cattle to the value-added farmer cooperative of which he is a member. The following comments from study participants suggest that the personal networking is the most effective method for diffusion for these firms:

- "Effective communication is hands-on and face to face. The kitchen table talks work really well for us. We go into someone's house and that is when you know when they've got it. It takes a lot of time but it is effective. [The farmers who are part of the cooperative] work so hard, it is hard to get them off the farm, so we go there. They like the face to face; it means they are valued. It is not just business for them, it is their life. They really want to know who you are, just like a family connection. It is really a relationship building process. They get insulted if they get a 'cold' letter, it's like, 'What's going on? You're changing, I'm just a number.' They want to be known as a person."
- "Face to face works best with producers on sealing final decisions to act. They have to see us face to face to know we can be trusted. When you are trying to help people make changes, they have to trust you."

- "We have to do things face to face when we start a relationship with our farmer members. They have to know they can trust us. Need producer face to face. It isn't just producers though—the people that we sell too also need to have contact with us."
- "We found out that growers want to see a person—they do not want to go on line, they want a person out there."

**Peer Modeling**

Many producers interviewed indicated that when they were exploring business ventures, they would locate a similar business or firm that was doing something similar to what they had in mind. They or their agricultural educator would make arrangements to visit the firm and learn more on site from the business. These learning journeys serve several functions.

- They help clarify issues
- They provide a venue for to asking questions and learning more from a similar or like business.
- If the proposed business ensues, it also helps to create a business network for producers to further explore the questions as they arise with like-minded peers.

As Rogers (2003) indicated, "The heart of the diffusion process is the modeling and imitation of potential adopters of their near peer's experiences who have previously adopted a new idea" (p.304). In deciding whether or not to adopt an innovation, individuals depend mainly on the communicated experience of others much like themselves who have already adopted that innovation. "These subjective evaluations of an innovation mainly flow through interpersonal networks."(p. 307). This technique was used, for instance, with a 5-day tour of

Tennessee cattle producers so they could experience other parts of the beef supply chain and understand their market better. “Our Extension agent helped us line up a tour. I would recommend that producer groups use study tours to get producers on site for face-to-face learning about operations and so much of what they need to hear.”

Furthermore, Rogers (2003) suggested that individuals tend to be linked to others who are close to them in physical distance and who are relatively similar in social characteristics. Communication network links with neighboring and similar partners are relatively easy and require little effort. The following quote from a member of a California cooperative that works directly with farmer members summarizes Rogers’ generalization:“From a specific region [farmers] know each other and what each other is doing and pass the word. They have a trust and relationship.”

In contrast to similar links, differing links are with socially and spatially distant others and are usually stronger in carrying information about new ideas to an individual. Rosen (2000) suggested that connecting with these “weak ties” has been made much easier for most individuals in recent years because they can find each other on the Internet.

Comments from producer groups highlight and emphasize this concept of network diffusion. As noted in the following comments, information flowing from an interlocking network from outside provides energy for further information exchange.

- “With the grant, part of the money we spent was to visit some producers and things that are already doing some things that we want to be doing so we talked to them and to be honest that’s the great thing about working in this area. Everybody is very friendly. If you’re not getting answers—it’s because they don’t know—it’s not because it’s a trade secret and they’re hoping you fail. So all of the producers of the

small kinds of operations that we've been through have been great to work with. They've been more than willing to share where they get all their equipment, where they're getting all of their feed stock, where they're getting their animals—anything at all that they can do to help—names and contacts and things like that. That's been very helpful to us in getting us started."

- "Just visiting with them and talking to them—that's kind of how we get a lot of our information, or get the ideas for our information. . . . Taking those trips makes all the difference."
- "We went to Kansas and learned from them. They were really open with us and explained what had worked okay in their process and what didn't work so well. Maybe because we are more than 1,000 miles apart they thought—well they are not going to compete with us, so we might as well help them. They are just farmers like us."

**Implications and Recommendations of the Study for Agricultural Educators**

The study highlighted that, even with the advent and popular use of the Internet, diffusion of technology and information follows the work and theories outlined by Rogers (1983, 1995, 2003). Producers use networks (virtual and spatial) to learn from one another. They rely on trusted sources and interpersonal communication, which although it may be virtual, is still about relationships. They indicated that agricultural educators can play a key role by helping them facilitate social networks and helping to fit together what sometimes appears to be disconnected or irrelevant information.

**Helping to Facilitate Social Networks**

The study revealed that social networks are important for obtaining information and helping producers make decisions related to their businesses. Thus, a role for agricultural educator is to help make those networks happen. As these businesses and groups explore new ventures, agricultural educators need to encourage and facilitate a much broader and more difficult "reaching out." This reaching out may take the form of assisting producers to locate and connect with resources via telephone calls to others in the network, e-mail conversations, or facilitating a learning journey.

Although the commitment to assisting significant learning journeys can be costly, both in time and money, it should be viewed as offering a high return on the investment. As participants in the study indicated, as spatial distance expands between producer groups, the conversations and sharing appear to become more open and frank. This could be related to how the individuals being visited perceive the visiting group, or perhaps making a large and expensive effort suggests seriousness and commands respect. On the other side of that coin is that the receptivity of the individuals making the journey is likely enhanced by the extraordinary commitment of time and treasure.

Peers come together to form a business but often know far less about one another than is first perceived. The learning journey and other social network opportunities facilitate interpersonal dynamics. As closer trusting relationships are formed within the group, the members of the group are better able to analyze what they observe, and knowledge embeds experientially. Farmers and entrepreneurs are experiential learners and they respond to models they can experience. The strongest learning response is in situ. Removing them from their immediate surroundings appears to reduce a constraint to receptivity.

Extension providers should make liberal use of learning journeys to get producers out of the constraints of their home territory. The face-to-face communications and the opportunity to personally view a model are shown in this study to be highly effective learning tools. The experience also brings groups together in trust and better understanding of one another.

Exposing producer groups to other venues, case studies, and profiles of successful businesses can help to expand their network. Web sites, such as that provided by AgMRC, make extensive use of real life models through case studies and profiles. When combined with contextual materials, analysis, and contact information, this becomes a powerful portal to networking for producers. Expansion of virtual networks can help producers learn of value-added agricultural opportunities outside of their immediate regions and state.

**Helping to Fit the Pieces Together**

Agricultural educators can help fit together disparate and perceived "disconnected thoughts and ideas." They can act as a bridge and provide additional context and experience to reveal a broader learning dynamic. They can act as facilitators. As a member of a one producer group indicated,

> Early on we were looking at an ethanol plant, so when it was suggested by our Extension guy that we visit a soda bottling facility, we at first thought, "Why?" We were just pretty dumb about the whole chain and didn't know that carbon dioxide was one of the co-products from ethanol production.

As the network dynamic expands through geography and diversity of individuals and businesses involved, what are apparently unconnected pieces start to fit together.

Adoption of Internet technology for practical use among farmers and/or within their value-added businesses is evolving with increased velocity. Where information technology is more slowly adopted, it seems not because individuals aren't aware or aren't interested. In many cases producers have the tools in place with Web sites and e-mail. The issue appears to be a matter of familiarity and, often, no current need to switch to new methods. Even innovative farmers are quite pragmatic about staying with what works (as witnessed by the slow adoption of hybrid seed corn). Extension Service personnel and agricultural education providers must recognize comfort levels and meet clients on their terms. If this means telephone or face-to-face interaction instead of e-mail, then that should be the channel to use. Internet technology can be part of a delivery system, but it is the personal relationship built on competency, trust, and capacity to deliver that will determine relevancy for an Extension Service and other educational providers.

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# CHAPTER 7
# CONCLUSIONS AND RECOMMENDATIONS

## Sources of Information

### Extension is an Important Service Provider

Farmers and indeed many stakeholders in the food, fiber, and energy production chain are today "going back to the future." The early conception of the land grant system and later the Extension system understood the importance of a strong and continually improving production, processing, and marketing sector. The challenges of those early days are exactly as now. *The farmer needs access to well-interpreted, analyzed, and modeled information if he or she is to be expected to readily adopt and adapt new technology and techniques.* To somehow suggest that an Extension service has outlived its relevance because of ubiquitous information and cheap access due to the Web is to somehow ignore the previous statement. Although farmers, and virtually everyone, are drowning in data and information, none of this is knowledge until it is understood and applied. Nearly 100 years after its inception, Extension remains the primary facilitator of this function, according to this study.

In the past, as now, the most effective facilitators bringing information into practice are those who walk the byways and sit personally with their client. The study shows that receptivity among this farming client set is connected to a relationship with a trusted and personal source. The people interviewed indicated they needed help getting focused and gaining efficiency in evaluating information or data. Their goal was knowledge, and the trusted person became indispensible in many of these cases, not only in bringing the information but also in providing opportunities to observe models or simply showing where to begin properly.

The findings suggest that the original vision of the Extension agent providing information, whether on the ground or virtually, is still an effective method. A significant level of specialization by practitioners is required to meet client needs. Practitioners gain trust and bring value if they are ahead of the client in knowledge and insight.

Extension providers are particularly respected for their content knowledge and the ability to ferret out answers. Extension specialists are perceived as in touch with the industry. Practitioners are respected for the content they provide and their experience. Although this may not seem profound, it is in fact important as both a strategic and tactical factor. If Extension is to be relevant and grow in relevance, these key Extension specialists must be nurtured, supported, and ultimately replaced as retirement comes. Gaps in a specific expertise were shown to erode the perception of the Extension system as a whole.

Individual clients do not begin with a notion of Extension as a national system. They tend to think of it in local/personal terms. Although individuals may grow in sophistication and widen their view on a subject, the entrée to the land grant system and top technical research is still a key Extension individual. The client's knowledge of the scope of Extension and land grant research is a secondary discovery for them particularly if the initial touch is an effective Extension educator.

This research indicates that both Extension clients and Extension specialists need to be trained in how to use the national land grant system most effectively. Avoiding parochial tendencies and overt pride in one's home university is likely a very important aspect in the needed training. Sophisticated clients eventually will bypass local Extension staff if Extension specialists and county directors are not out front in sourcing the best information from wherever it is. So, "staying ahead of the client" is crucial. But, this "staying ahead"

includes both the information and the sources of information. Being able to meet the client's needs quickly must be a significant service objective. Offering a pre-sorted source list or contact information is a significant value to today's Extension client. Many clients said Extension helped them sort through the process much faster and more efficiently than they otherwise would have known.

Experience matters to the value-added agriculture client. When a well-respected Extension person is recruited and hired by private industry it speaks well for the quality of that person as an industry consultant. This also reinforces the need for Extension management to anticipate such moves as well as retirement. The need, therefore, is to adequately pay, support, and recognize such people. Extension's brand equity in the knowledge market is about the quality of its applied research and the quality of its educators. The additional need is to consistently nurture the replacement/backup person(s) in these key roles; given that some level of service appears in continual demand from the private sector, an education service system should operate as seamlessly as possible over time. This is where the nugget lies. *Extension as a brand should represent "the source" or the "go to."* The Extension specialist must have sufficient experience to gain respect and deliver in a constant manner. It is incumbent upon Extension administrators to provide adequate and consistent professional development to their staff to ensure Extension specialists are up to date in their technical expertise *and* their educational technique.

Local client experience is what will support the Extension brand. Although marketing specialists may talk about the Extension brand and offer logos, brochures, and awareness programs, the essence of branding this system is in the delivery. Each client's perception of the system is based upon very local and personal experiences with the system through

specific Extension staff. In the eyes of the participants, relevance and expectations are connected to their localized experiences.

The experiences noted by clients who were dissatisfied with their Extension services offer much to consider. The study discovered this condition in a particular state. Farming there is advanced and extensive but broadly varied; and not all operations are large enough to have in-house research and expertise. Private consultants were tending to fill these gaps. However, public sector assistance can offer objective, research-based information, and Extension is often the main source for the private consultants. Applied research is a key element of the land grant system. When great research is delivered by an experienced person of respect, the results are powerful and offer great push for progress in a sector.

As business and technology evolve in our society, it is important to see technology transfer in two modes. Hard technology is a term describing the usual equipment, genetics, or chemistry-type solutions. Soft technology includes management and marketing. As an agent of technology transfer in both modes, Extension has the potential to excel given that it is attached to and the heartbeat of the land grant system. Many of the solutions offered by Extension professionals will ultimately be pre-competitive in nature. This means that Extension can bring the tide lifting all boats.

Although responses suggest a very mixed bag for Extension relevance, the potential for growth and improvement, as noted by clients, bodes well for the assistance Extension can provide when specialists retool. Retooling is a key to relevance, as areas of priority will shift over time. Two aspects of retooling emerged. First, the method and breadth of sourcing information for clients must be addressed. Second, a redundancy of experience within the

staff capacity of Extension must be created. This last point must always be based upon priority trends of the Extension organization.

Relevance is a very personal perception and connected almost solely with specific interpersonal relationships. Extension specialists must be equipped with training that keeps them ahead of the client in both information and sources of information. Extension may have operated timidly in pushing the technology envelopes in some arenas with this clientele. However, as many interviewees indicated, Extension was one of the few consistently respected sources capable of fearlessly pushing research conclusions and analyzing applied technology. The responses showed a perception that Extension was good on production issues but not as effective on marketing or management issues. The evolution of clients into value-added or niche marketing roles, for example, has tended to leave Extension either scrambling or fading. Although Extension management may find comfort in good responses regarding specific staff, this leaves the cold reality that no organization can survive long term under the risk of losing the "key person." The responses did show that when a key person left the Extension system and was not replaced, the clients were often left in the lurch and frustrated. This should not be viewed as a prior co-dependency. These responses indicate a need that appears difficult to fill in the private sector was being filled by Extension.

States in which clients did not feel their Extension organization is serving them well may first consider prioritizing where and what specialists should do. Perhaps industry can help to fund some of the positions important and relevant to the agricultural sector, creating the classic public/private partnership. This study implies there is a "public good perspective" to apply to Extension relevance initiatives. Relevance is measured highly by clients if Extension specialists can answer their questions. It is important that strategic planning be

ongoing and not sporadic in looking at capacity and capability in specialists. These exercises must look both back and forward. Advisory councils must be fully engaged to keep the priorities assessments on track so that scarce resources go to priority sectors.

The implications of this study suggest that Extension, in fact, fills voids in services and does so in ways that are clearly more objective and research-based than in the private sector. The study also demonstrates that when resources are not prioritized and maintained, relevance quickly erodes and the public moves on to new sources.

In this manner, Extension operates as a public utility. People draw on it as needed and expect to find a working “outlet” when they want to “plug in” to specific information or facilitation. To extend this analogy: Without this utility available on demand, meeting the demand will be ad hoc and more inefficient, if met at all. Entrepreneurs, producers, community activists, or whoever the client may be would be left to fend for assistance in a world not easily navigated or evaluated. This detracts from their productivity and is a net negative to society.

**Land Grant System**

The breadth of the land grant system was highlighted in this study. Clients in the Midwest used the expertise of universities on the coasts of the United States, and East Coast firms used findings from the West Coast, etc. Maintenance and funding for a core land grant system remains important for continued economic and business development across the nation. However base-level federal funding for Extension has been virtually flat since the 1970s. This level funding, combined with the impact of inflation, has resulted in a significant decline in actual dollars available to fund the national system. Going into this study, if one

had analyzed funding it could well have been expected to find Extension not delivering the uniform level of valued assistance that was actually discovered.

## Internet Usage Among Clientele

As Extension and agricultural educators look to how to deliver programs and content, they are increasingly relying on the use of the Internet as a communication channel. Adoption of the Internet for practical use among farmers and/or within their value-added businesses is evolving with increased velocity. The study revealed where information technology is more slowly adopted, it seems to be not because they aren't aware or aren't interested. Many value-added companies surveyed have all the tools in place with Web sites and e-mail. The issue appears to be a matter of familiarity and, often, no current need to switch to new methods. Often there was no immediate need to change; such as timeliness or cost. Even innovative farmers are quite pragmatic about staying with what works (as witnessed by the slow adoption of hybrid seed corn years ago). An Extension Service and other information providers must recognize comfort levels and meet clients on their terms. If this means telephone or face-to-face interaction instead of e-mail, then that should be the channel to use. Internet technology can be part of a delivery system, but the dominant modifier of modes is the personal relationship established either virtually or in person. Relationships built on competency, trust, and capacity to deliver will determine relevancy for an Extension service and other information providers.

## Channels of Information

The results indicate that it is important that agricultural educators and other information providers use the Internet channel. But, more than choosing the correct channel, the educator needs to consider positioning. In order to be relevant, the practitioner must be

positioned at the “evaluation and trial” point on the adoption curve or potential clients will look elsewhere for help. The population studied tended to be somewhat innovative by nature; their awareness and interest in technology or innovative practices was already present. In the cases where agricultural educators and practitioners stepped up to the challenge and brought effective, objective evaluation, they seem to have brought value to the client.

The responses about using Internet channels for reaching new market demographics through virtual venues such as Facebook pose a challenging new area of understanding for Extension educators. Although Extension personnel and other practitioners may focus on using Internet tools to make their delivery systems efficient and up to date, with the value-added clientele the issue may be more about how to make his or her business shift gears at the same velocity as the marketplace by applying clever use of pervasive technology. This sort of positioning by the agricultural educator is about thinking within the client’s realm and determining offerings as a content provider based upon the client’s objective reality. Marketing to virtual communities is vastly different than the mass marketing techniques of the past 50 years.

The findings suggest that agricultural education providers focus on positioning with regard to these aspects:

- Personal service and trust relationships
- Appropriate evaluation and translation of information
- Objective trial validation of information, innovation, and technology.

These results of this study have special implications for extension educators as they select communication methods to use for delivering educational programs to producers, especially

when increasingly limited resources force them to choose between the most effective communication channels with which to deliver programming to their audiences.

## Helping to Facilitate Social Networks

The study revealed that social networks are important for obtaining information and helping producers make decisions related to their businesses. Thus, a role for agricultural educators is to help make those networks happen. As these businesses and groups explore new ventures, agricultural educators need to encourage and facilitate a much broader and more difficult "reaching out." This reaching out may take the form of assisting producers to locate and connect with resources via telephone calls to others in the network, e-mail conversations, or facilitating a learning journey.

Although the commitment to assisting significant learning journeys can have a high cost, both in time and money, it should be viewed as offering a high return on the investment. As participants in the study indicated, as spatial distance expands between producer groups, the conversations and sharing appear to become more open and frank. This could be related to how the individuals being visited perceive the visiting group, or perhaps making a large and expensive effort suggests seriousness and commands respect. On the other hand, the receptivity of the individuals making the journey is likely enhanced by the extraordinary commitment of time and treasure.

Peers come together to form a business but often know far less about one another than is first perceived. The learning journey and other social networking opportunities facilitate interpersonal dynamics. As closer trusting relationships are formed within the group, the members of the group are better able to analyze what they observe, and knowledge embeds experientially. Farmers and entrepreneurs are experiential learners and they respond to

models they can experience. The strongest learning response is in situ. Also, removing the farmer clients from their immediate surroundings appears to reduce a constraint to receptivity.

Agricultural education providers should make liberal use of learning journeys to get producers out of the constraints of their home territory. The face-to-face communications and the opportunity to personally view a model are shown in this study to be highly effective learning tools. The experience also brings groups together in trust and better understanding of one another. Where cost or time simply won't permit a learning journey, a virtual tour can be provided through various production and Web delivery techniques and offers significant modeling and receptivity benefits.

Exposing producer groups to other venues, case studies, and profiles of successful businesses can help to expand their network. Web sites, such as that provided by the Agricultural Marketing Resource Center (AgMRC), make extensive use of real-life models through case studies and profiles. When combined with contextual materials, analysis, and contact information, this becomes a powerful portal to networking for producers. Expansion of virtual networks can help producers learn of value-added agricultural opportunities outside of their immediate regions and state.

## Helping to Fit the Pieces Together

Agricultural educators can help fit together disparate and perceived "disconnected thoughts and ideas." They can act as a bridge and provide additional context and experience to reveal a broader learning dynamic. They can act as facilitators. As a member of a one producer group indicated,

Early on we were looking at an ethanol plant, so when it was suggested by our Extension guy that we visit a soda bottling facility, we at first thought, “Why?” We were just pretty dumb about the whole chain and didn’t know that carbon dioxide was one of the co-products from ethanol production.

As the network dynamic expands through geography and the diversity of individuals and businesses involved, what are apparently unconnected pieces start to fit together.

**APPENDIX A.**
**NUMBER OF VAPG RECIPIENTS AND TOTAL DOLLAR AMOUNT BY STATE, 2001 TO 2008**

| State | Number of recipients | Total dollars awarded | Dollars per recipient |
|---|---|---|---|
| Alabama | 2 | 102,500 | 51,250 |
| Alaska | 4 | 225,327 | 56,332 |
| Arizona | 6 | 392,750 | 65,458 |
| Arkansas | 7 | 1,115,900 | 159,414 |
| California | 55 | 11,429,135 | 207,802 |
| Colorado | 20 | 2,539,711 | 126,985 |
| Connecticut | 3 | 212,500 | 70,833 |
| Delaware | 3 | 575,000 | 191,667 |
| Florida | 13 | 1,376,838 | 105,910 |
| Georgia | 19 | 2,888,985 | 152,051 |
| Hawaii | 13 | 1,157,547 | 89,042 |
| Idaho | 23 | 3,659,082 | 159,090 |
| Illinois | 24 | 3,543,963 | 147,665 |
| Indiana | 14 | 1,208,300 | 86,307 |
| Iowa | 104 | 18,209,621 | 175,092 |
| Kansas | 23 | 817,500 | 35,543 |
| Kentucky | 20 | 2,031,927 | 101,596 |
| Louisiana | 4 | 150,632 | 37,658 |
| Maine | 11 | 780,777 | 70,979 |
| Maryland | 15 | 532,228 | 35,481 |
| Massachusetts | 20 | 3,623,289 | 181,164 |
| Michigan | 36 | 4,783,253 | 132,868 |
| Minnesota | 51 | 10,383,316 | 203,594 |
| Mississippi | 14 | 1,259,824 | 89,987 |
| Missouri | 69 | 1,123,215 | 16,278 |
| Montana | 9 | 1,592,557 | 176,951 |
| Nebraska | 66 | 8,865,982 | 134,333 |
| Nevada | 1 | 57,312 | 57,312 |
| New Hampshire | 1 | 40,362 | 40,362 |
| New Jersey | 16 | 902,200 | 5,638 |
| New Mexico | 3 | 136,510 | 45,503 |
| New York | 25 | 2,230,628 | 89,225 |
| North Carolina | 16 | 2,228,323 | 139,270 |
| North Dakota | 23 | 5,675,225 | 246,748 |

| | | | |
|---|---|---|---|
| Ohio | 15 | 2,005,200 | 133,680 |
| Oklahoma | 8 | 1,569,825 | 196,228 |
| Oregon | 45 | 4,052,997 | 90,066 |
| Pennsylvania | 16 | 2,046,461 | 127,903 |
| Puerto Rico | 3 | 275,000 | 91,666 |
| Rhode Island | 3 | 122,500 | 40,833 |
| South Carolina | 6 | 1,192,350 | 198,725 |
| South Dakota | 15 | 2,652,598 | 176,839 |
| Tennessee | 6 | 862,213 | 143,702 |
| Texas | 45 | 12,027,174 | 267,270 |
| Utah | 6 | 1,452,200 | 242,033 |
| Vermont | 13 | 1,144,481 | 88,037 |
| Virginia | 15 | 1,446,997 | 96,466 |
| Washington | 37 | 4,582,702 | 123,856 |
| West Virginia | 2 | 149,075 | 74,537 |
| Wisconsin | 59 | 9,919,544 | 168,127 |
| Wyoming | 5 | 523,000 | 104,600 |

# APPENDIX B
# OPERATIONAL TERMS AND DEFINITIONS

*Agriculture Innovation Centers (AIC)*: Centers that were funded at 12 geographic locations across the United States by the USDA from 2003-2005. The centers provided specialized assistance with marketing and business plan development for value-added agriculture producer groups.

*Agriculture Marketing Resource Center*: USDA center funded by USDA Rural Development in 2001 and continuous since then to provide farmers and ranchers value-added agriculture and business development information.

*Consultant*: An individual who assists firms with specialized knowledge or information. It is assumed the consultants are paid for their services, unless otherwise noted.

*Extension*: An arm of a land grant institution that is part of the USDA Cooperative Research Extension and Education System (CSREES).

*Small Business Development Centers (SBDCs)*: Funded by the U.S. Small Business Administration, assist firms in the development of feasibility, marketing and business planning.

*USDA*: United States Department of Agriculture.

*Value-Added Agriculture Business*: As defined by the USDA creates a higher value for products or differentiates a product in the marketplace through different channels, attribute marketing, or a special certification process such as organic.

*Value-Added Producer Grant Program (VAPG)*: Farmer or farmer-owned businesses that received a grant from USDA Rural Development to assist in market development or

feasibility of a new product, process, or business venture. The grant can also be used for working capital for a value-added agriculture business.

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The poem by Linda Ellis, entitled "The Dash," asks us to think about how we spend and live our lives. The dash between the date of our birth and date of our death represents our life:

> For that dash represents all the time
> that she spent alive on earth . . .
> and now only those who loved her
> know what that little line is worth.
>
> For it matters not, how much we own;
> the cars . . . the house . . . the cash.
> What matters is how we live and love
> and how we spend our dash.

My life has been enriched and blessed by many people who have served as mentors and friends, helping to make "my dash" full and meaningful. I thank you.