Who Are Today's Farmers and What are Their Educational Needs?

Jeffrey E. Tranel, Tauhidar Rahman, John P. Hewlett, Randolph R. Weigel,
Trent Teegerstrom, and Cole Ehmke[1]

Introduction

The rural West has experienced dramatic demographic and economic transformations over the past decade. Although a great deal is known about agriculture's contribution to the economy, much less is known about the changing makeup of farm and ranch operators. A better understanding of farm operators, including what they perceive to be the greatest challenges for their operations, is important to effectively design outreach and Extension education efforts.

Census of Agriculture data show the profile of western farm operators to indeed be changing. However, more in-depth information is necessary to address the questions: Who are today's farmers and ranchers? What are their preferences for learning? What are their perceived threats? What information do they believe would be helpful to them as they manage their agricultural operations? And finally, what role might Extension play in answering these questions?

Extension is the forum for land-grant institutions to "extend" their resources to the citizens of each state. Congress created the extension system nearly a century ago to address exclusively rural, agricultural issues through non-formal, non-credit programs. Despite the sharp decline in the size and economic importance of rural America, the national Cooperative Extension System has adapted to changing times and landscapes. It continues to address a wide range of human, plant, and animal needs in both urban and rural areas in all 50 states. Colorado State University Extension's mission statement reflects the purposes and values of many state Extension systems: "to provide information and education, and encourage the application of research-based knowledge in response to local, state, and national issues affecting individuals, youth, families, agricultural enterprises, and communities of Colorado."

In the earlier years of Extension the transfer of knowledge occurred primarily through face-to-face education. While face-to-face education continues to be an effective method, other delivery mechanisms have been used to keep pace with the emerging communication technologies, increased time constraints of both the producers and Extension personnel, and the structural change in the U.S. agricultural sector in general. These changing methods of education delivery include public radio in the 1930s, television in the 1950s and more recently satellites in the 1980s and the internet in the 1990s.

[1] Tranel is an Agricultural and Business Management Economist with Colorado State University. Rahman is Assistant Professor and Extension Specialist and Teegerstrom is Associate Specialist, both with the University of Arizona. Hewlett is Senior University Extension Educator, Weigel is Professor and Extension Human Development Specialist, and Ehmke is Assistant University Extension Educator, all with the University of Wyoming. Tranel is corresponding author: jtranel@colostate.edu.

Western Agriculture

According to the 2002 Census of Agriculture, there are 48,085 farms in Arizona, Colorado, and Wyoming. Seventy eight percent of all farms have annual gross sales of less than $50,000. Most farm operators own and live on their own properties and operate them as sole proprietorships. Farms and ranches are increasingly being operated by females, and most farm operators have off-farm employment, many working off-farm 200 or more days per year. The average age of farm operators in Arizona and Wyoming declined from 1997 to 2002, while the average age of farm operators in Colorado increased during the same period. Farms reporting between 1 to 49 acres of harvested cropland totaled 10,204. This represents 45% of farms across the three-state region. A total of 4,982 farms reported 1 to 9 head of cattle or 23% of all farms (12,228 farms reported 1 to 49 head or 57%) reporting cattle and calves in the three states (NASS 2002).

Smaller operations constitute a sizable portion of those involved in crop and livestock production across the three states. While current census data do not provide details about the type or scale of smaller agricultural enterprises, it seems likely that smaller operators might engage in a wider diversity of animal and crop enterprises than larger operators. Smaller operators also may manage those enterprise activities in a manner unlike commercial operators.

Methodology

A statistically valid survey of farmers and ranchers in Arizona, Colorado, and Wyoming was conducted in 2006 by university Extension educators and researchers (the authors) in cooperation with the National Agricultural Statistics Service of the United States Department of Agriculture. The target population consisted of farm operations with annual sales of less than $50,000. To ensure a representative sample from each state, the numbers of survey instruments were allocated based on the population of small farm operators in each state. A total of 2,645 surveys were completed for a total response rate of 53.6% (Table 1). Data were collected on small operator's demographics, sources of risks, information sources and preferences, resource management, and income status. Multi-variate statistical analysis including cluster analysis, and classification techniques were employed.

Table 1. Survey response rates by state.

	Surveys Mailed	Surveys Returned		Surveys and Interviews Returned [1]	
State	**Number**	**Number**	**Percent**	**Number**	**Percent**
Arizona	742	319	43.0%	353	47.6%
Colorado	3,298	1,662	50.4%	1,798	54.5%
Wyoming	899	466	51.8%	494	54.9%
Total for 3 States	4,939	2,447	49.5%	2,645	53.6%

[1] Following the survey mailing, a post card reminder was sent to those people not yet returning their surveys. Telephone interviews with non-respondents were conducted by NASS personnel.

Results

Preliminary analyses provide insight into the characteristics of small farmers and ranchers in the states of Arizona, Colorado, and Wyoming. The results present a first look at the descriptive statistics derived from responses by all survey respondents. Further investigation will likely reveal additional insight into underlying factors only briefly outlined here. Also, data from survey respondents outside the target audience will be eliminated to help clarify the implications for extension education and the sustainability of small scale agricultural business activities. Following is a summary of the make-up of farmers and ranchers in the three states.

Demographics

The majority of small farm operators have lived many years within their communities and on their farms and ranches. Small farm operators are typically male, older than 54 years of age, and Caucasian. These operators' spouses help manage the business. About one-half of the two primary farm operators have at least a two-year college degree.

The survey found that 77% of the first operators (operator 1) are male, and the remaining 23% are female. On the other hand, 68% of the second primary operator (operator 2) are female; indicating they manage the operation as a couple. More than 45% of both operators (operator 1 and operator 2) are in the age group 55 years and over. Summary statistics indicate that on average operator 1 has lived for 19 years on their property.

Survey recipients were asked whether the primary farm operators or their family members hold off-property jobs, and if they do, how far does the individual who travels the farthest commute to work. Responses indicate that 71% of operator households have off-property jobs. The average distance traveled by an individual holding an off-property job is approximately 29 miles, while most travel only 10 miles.

Farm properties in the western United States were classified into five categories: completely rural, mostly rural, mix of rural and urban, mostly urban, and completely urban. The survey data suggest that 63% of all properties are identified as completely rural and only 1% is completely urban. In between, 19% are mostly rural and 2% are mostly urban. In other words, 82% of all properties can be identified to be either completely or mostly rural. An overwhelming majority (84% of operators) have their primary residence on their property.

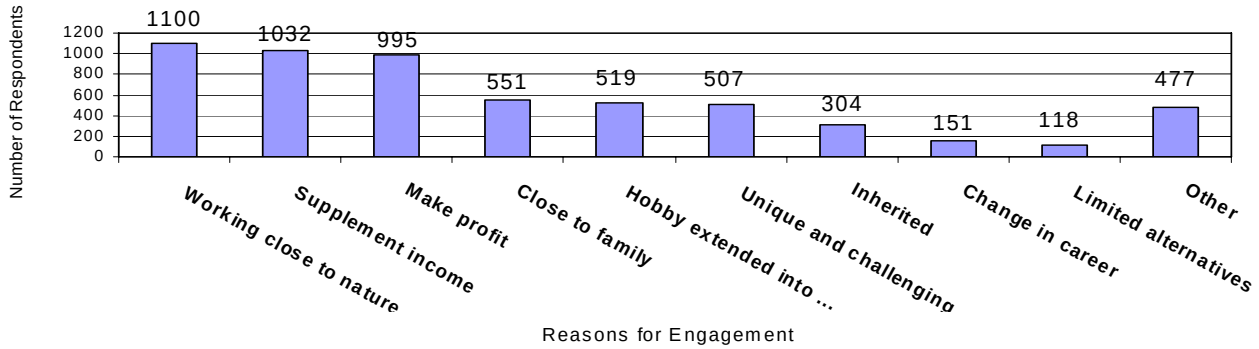
Attitudes

Just as there is no one-type of family business, the reasons people are involved in rural family businesses vary. When asked to indicate why they engaged in their particular enterprise (Figure 1), respondents indicated that "working close to nature" was the most frequently stated reason for engaging in their particular enterprise. Respondents also indicated a prime reason for family businesses is to earn money and support the family income. Though it was hypothesized that factors such as rural isolation, lifestyle changes, and inheritance would be significant reasons for owning/operating a rural family business; "limited alternatives", "change in career", and "inherited" were not seen by the respondents as major reasons for engaging in their rural family business.

For many, living and working in a rural family business is more than being in business. Some would say it is almost like a calling. The general impression is that family business owners are totally committed to the family business. The researchers wanted to know how committed the farmers were to their businesses. Would certain developmental or lifestyle conditions lead rural

family business operators to leave their business? But, the results of this survey (Figure 2) clearly illustrate that respondents overwhelmingly expect to manage their property, “until I can no longer do the work”.

Figure 1. Reasons small operators in Arizona, Colorado and Wyoming are engaged in their particular enterprise.



Perception of Risk

The USDA has identified five primary sources of risk for agricultural operations: production, marketing, legal or institutional, financial, and human. Respondents were asked to rate the importance of each risk to their operation. As Figure 3 shows, a majority of respondents ranked financial risk higher than any other area of risk.

Figure 2. Planned length of property management by small operators in Arizona, Colorado, and Wyoming.

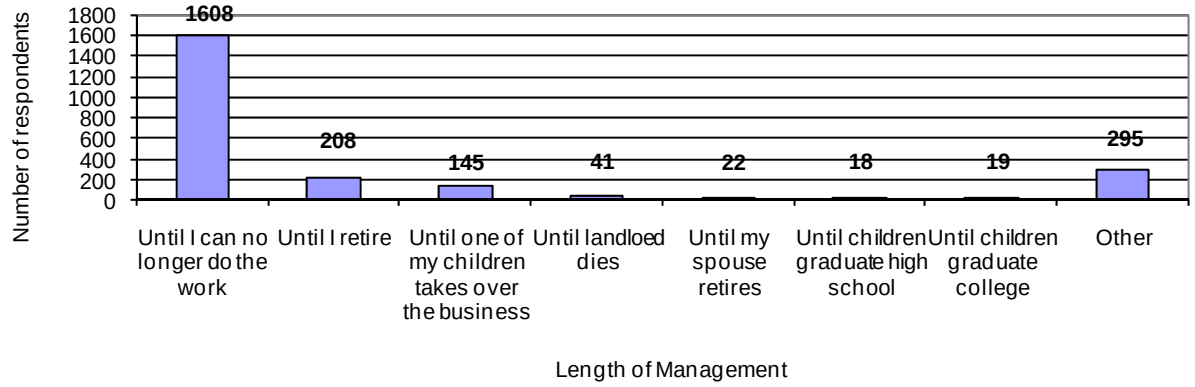
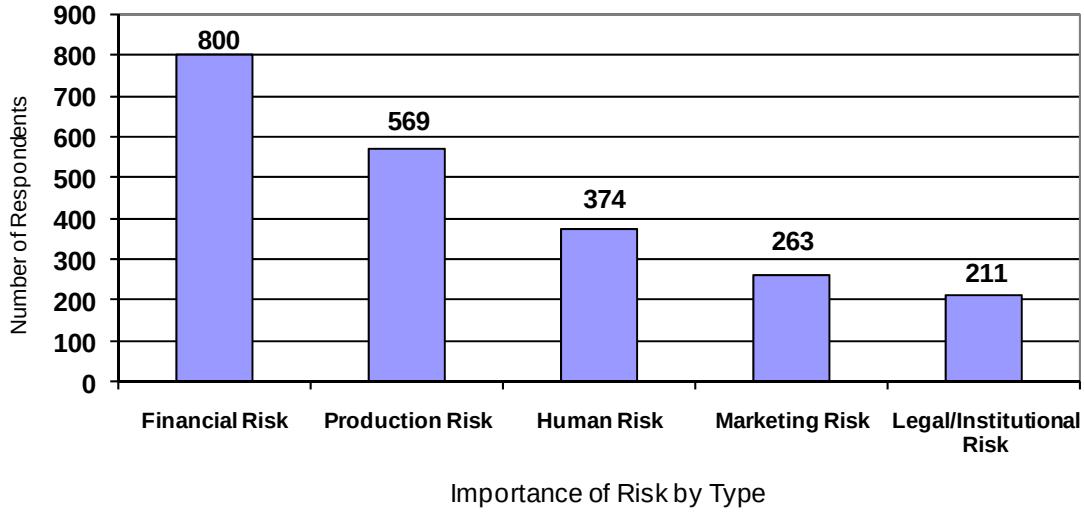


Figure 3. Importance of risk by type to small agricultural operators in Arizona, Colorado, and Wyoming.



Regarding their attitudes toward their operations, western producers are confident in their abilities to manage their family businesses and to achieve their goals; however, they are somewhat less confident in dealing with changes in the business environment. They appear optimistic about the future of the business, but they are not very comfortable balancing work and family demands.

Income

Two-thirds of the operators reported less than $10,000 in annual farm sales and file agricultural revenues and expenses via the Schedule F income tax form. For more than 80% of the operators surveyed, the income generated on-farm accounts for less than 20% of total household income. Fully 71% of operator households also work off-farm. To accomplish this, the average household commuted 29 miles to the jobsite. Most, however, traveled only 10 miles. Paid employees are not typical for small operations in Arizona, Colorado, and Wyoming. Many respondents from small agricultural operations do not see themselves as farm and ranch operators.

Operational

Operators of smaller acreages constitute a sizable percentage of the total number of operators across the three states in the study area. Characteristics of the operations include:

- Average number of acres owned was 265 with a mode of 40 acres.
- Wells are the most common source of water, but surface water on or bordering the properties is also typical.
- Less than half of the property owners use some type of irrigation on their pastures.
- Many of the operators use agricultural chemicals, but only 56% reported holding a chemical applicator's license.

Table 2. Primary enterprises generating income in 2005 for small operators in Arizona, Colorado, and Wyoming.

Primary Income Generating Enterprise	Number of Survey Respondents
Beef Cattle	698
Hay Farming	400
Sheep and Goat Production	125
Grain and Oilseed Farming	52
Aquaculture and Other Animal Production	28
Other Crop Farming	27
Specialty Products	27
Tourism and Recreation	20
Hog and Pig Production	20
Vegetables and Melon Farming	13
Hunting	13
Cattle Feedlots	10
Dairy Cattle and Milk Production	9
Greenhouse, Nursery, Floriculture	7
Other	820

Beef cattle, hay, sheep, and goats are the primary livestock enterprise on small farms. However, enterprise types for small operations are just as diverse as for larger operations. Just over half the animal producers indicated they have beef cattle, and the average herd size is 39 head. About 20% indicated owning horses, irrespective of purpose. Approximately one-third of livestock owners raise their own feed, while the other two-thirds purchase their feed within a short distance of their farms. Table 2 shows the primary enterprises generating income in 2005 for small operators in Arizona, Colorado, and Wyoming and the numbers of respondents indicating such.

Respondents also tend to heavily graze their own property. They reported typically grazing pastures 7.5 months a year and leaving none or almost none of the forage. Their pastures have a 50/50 chance of being managed with a pasture management system. If they have a grazing management plan, respondents are also likely to have a 4-pasture rotation. Very few have public land leases to supplement production from their own land.

The small acreage managers who reported crop production tend to be irrigated crop producers, with a majority of the acres in alfalfa or hay production. The typical alfalfa producer grows about 60 acres, and the typical hay (not pure alfalfa) producer grows about 51 acres. Small operators usually do not participate in government programs such as the Conservation Reserve Program.

Information Sources

In order to provide relevant Extension information, the researchers were interested in the farmers' preferred sources of information and preferred forms for information. Figure 4 shows that when seeking information relevant to their operations, survey respondents reported they primarily prefer receiving information from peer/support groups or networks. After peers, producers look to Internet websites, trade magazines, and Extension. The producers were not likely to seek information from commodity groups, consultants, nor community colleges. Regarding most preferred forms to receive information (Figure 5), the overwhelming preference was print media followed by two other types of printed information – newsletters and direct mailings. Workshops, email, and video/DVD were not preferred forms for information.

To determine Extension's role in useful and practical information dissemination, the researchers wanted to know if small scale farmers were actually receiving Extension information and participating in Extension programs. Most survey respondents (1,830) indicated they had received information form Extension. But when asked if they had participated in an Extension program (other than 4-H) in the last 12 months, more than 80% of the respondents reported not participating in any Extension program during the last year. Understandably, given the average age of producers, most small farm families have not had any family members participate in 4-H for at least two years.

Figure 4. Sources of information preferred by small farmers in Arizona, Colorado and Wyoming.

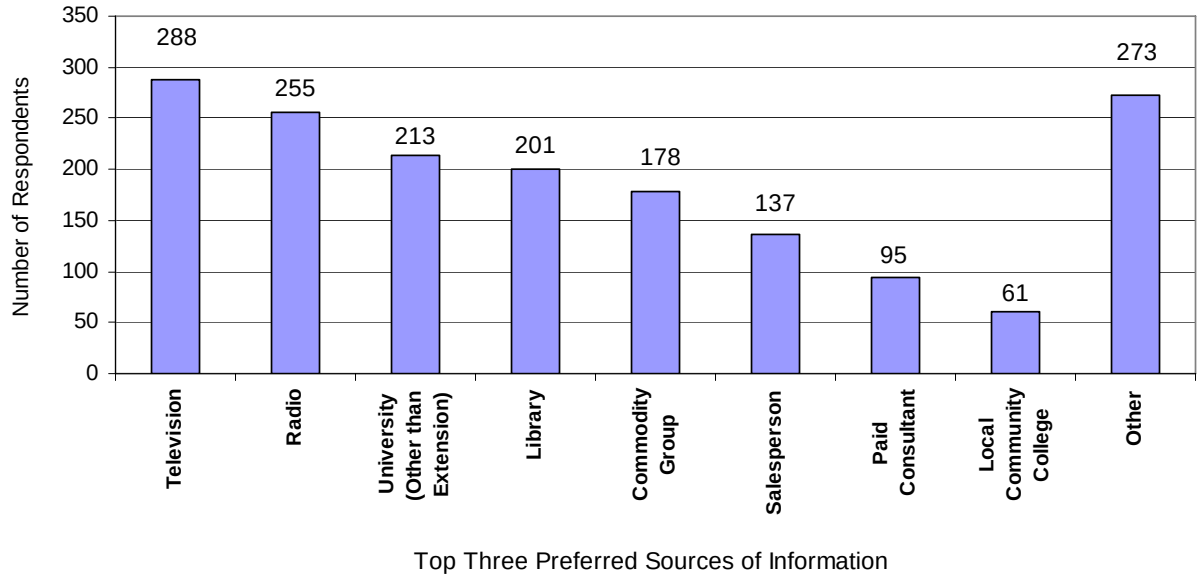
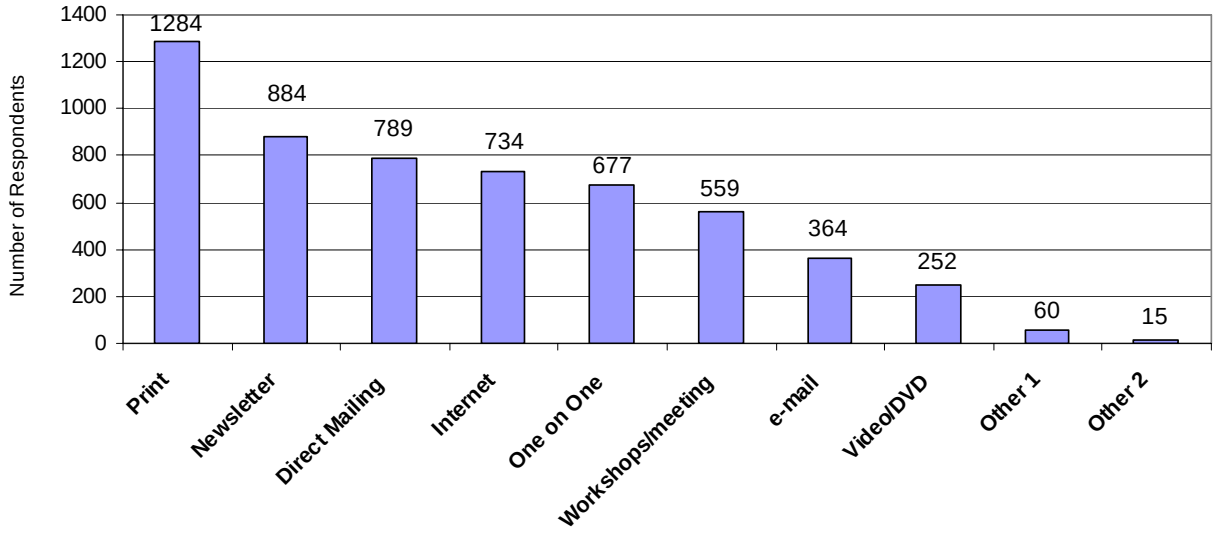


Figure 5. Most preferred forms to receive information by small operators in Arizona, Colorado and Wyoming.



Implications

Results of this study provide a profile of a large segment of agricultural producers – the 78% of all farms and ranches with annual sales less than $50,000 – in Arizona, Colorado, and Wyoming. Potential differences in the characteristics of "traditional" farm and ranch clientele and today's farmers and ranchers for Extension education programs are highlighted in Table 3. Though the characteristics of Extension's traditional clientele are still relevant, the characteristics of "today's" clientele provide new educational opportunities. The results of the survey indicate that today's clientele would benefit from information on managing the demands of off-farm employment and farming tasks, health and farming adaptations as one ages, farming as a couple, and opportunities for profit on small acreage.

Extension should consider application of its resources to address the educational needs of smaller farmers on topics such as the financial risks associated with beef cattle, hay, and sheep and goat production. Such consideration is consistent with the mission of at least three western land-grant universities and the purpose of the Extension system as indicated by the Cooperative State Research, Education, and Extension Service. Expanding their knowledge of irrigation, other water issues, and chemical application would not only allow small producers to better manage such resources but would enhance safe water supplies on an each farm within a water system.

In recent years, Extension has decreased one-on-one interactions with clientele and expanded use of video and group education methodologies with the intentions of improving efficiency of program delivery. However, new educational methodologies may not appeal to smaller farm operators. Extension administrators and faculty must develop relationships with small farm and ranch operators, study their needs and choices for education, and deliver high quality programs

addressing specific clientele needs. Delivery may have to occur in atypical settings and times and using formats desired by an aging, educated, and increasing female audience.

Table 3. Characteristics of farmers and ranchers in Arizona, Colorado, and Wyoming as traditional extension clientele and today's extension clientele.

Traditional Farm and Ranch Clientele	Today's Farm and Ranch Clientele
Commercial Agriculture	Small Acreage
Full-time Farming	Off-Farm Employment
Workshop Education	Print/Technology Education
Livestock and Crop Production	Health and Adaptation
Increasing Production	Balancing Work and Family
Marketing and Legal Risk	Financial and Production Risk
Employee Supervision	Farming as a Couple

From this study comes a better understanding of western producers' educational needs and the threats facing their operations. Researchers are cautiously optimistic that the end result may be twofold: a more efficient use of already scarce Extension resources and an enhanced adoption of risk management strategies by agricultural producers across the three states. University and Extension administrators across the West may want to revisit the relationship Extension has with its clientele. Survey responses to questions pertaining to the value of extension as a source of information have far reaching implications for Extension's ability to fulfill its mission and for the long-term sustainability of small farms and ranches. Though it is difficult to predict how Extension will respond to meet the educational and informational needs of today's small farm and ranch operators, the potential for engagement is great.

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