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Agricultural Needs in the Tri-County Area of Utah: Results from a Needs Assessment Survey

Abstract

An agricultural needs assessment was conducted in Utah to identify priorities for Extension programming in Uintah, Daggett, and Duchesne counties. Results showed that profitability, business development, and land use were high-priority needs. Gaps in producers' access to information were found, highlighting the need for targeted education programs to address agricultural challenges. Data was collected using a structured questionnaire based on Witkin and Altschuld's three-phase needs assessment model and analyzed with the Ranked Discrepancy Model to identify gaps between perceived importance and access to information. Findings will guide targeted Extension efforts to address these knowledge gaps. By addressing the identified gaps in access to crucial agricultural information, Extension programming can better support local producers, improving their ability to manage key areas like profitability, business development, and land use.

Abbreviations: Institutional Review Board (IRB), Ranked Discrepancy Score (RDS), Utah State University (USU)

Keywords: access to information, agriculture, extension programming, gender-specific needs, needs assessment, public value

Introduction

Agriculture remains a significant part of the culture in Daggett, Duchesne, and Uintah Counties of Utah, with 3,741 producers managing approximately 1,973 farms in total (National Agricultural Statistics Service, 2024). Alfalfa and cattle are the highest-value agricultural products produced in the area. The average farm size is 1,104 acres, bringing in an average of $17,064 net income every year. Among producers, 39% (1,453) are female, reflecting gender diversity in agricultural communities. The number of beginner farmers in Utah has increased about 20% since 2017, totaling 10,991 of the 33,270 producers in the state. These farmers have 10 or fewer years of experience (National Agricultural Statistics Service, 2024).

A needs assessment was conducted in 2023 to understand the needs of producers in Daggett, Duchesne, and Uintah Counties of Utah. The last needs assessment performed in the area was completed in 2008 under a former county faculty. New faculty were hired in 2022 and the first task assigned was to complete a new needs assessment for the area to help guide new programming. The purpose of this study was to investigate the priorities of farmers and ranchers to identify educational gaps that can be addressed via Extension. The key objectives of the study were to determine (a) access to information, (b) perceived importance of the topic areas, and (c) gaps in education based on access to information on important topics.

Methods

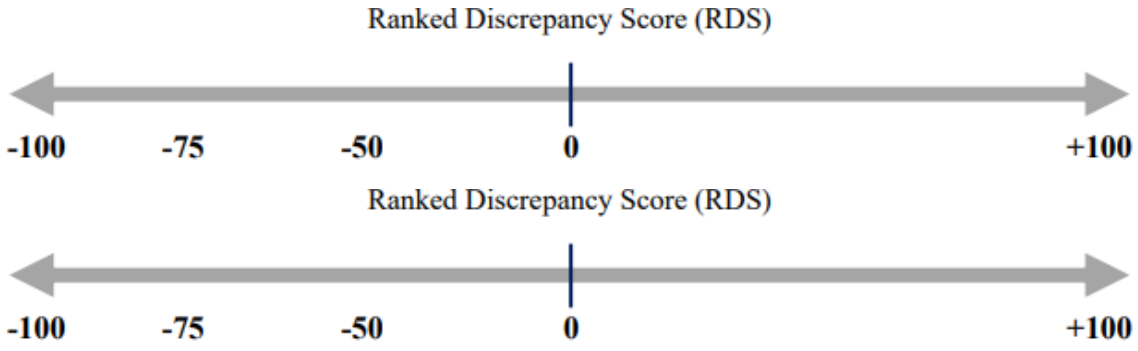
The needs assessment was approved by Utah State University's (USU) Institutional Review Board (IRB). The assessment was guided by Witkin and Altschuld's (1995) three-phased approach. The first phase is a pre-assessment, second is an assessment, and third is a post-assessment. In the pre-assessment phase, we reviewed secondary data from agricultural reports to understand the economic outlook of the counties. In addition, we reviewed existing data and reports on the issues affecting agricultural production in the area. In the second phase, assessment, we created a structured questionnaire based on our review of the secondary data. Primary data were gathered

from producers and ranchers in the second phase, data were analyzed, and needs were ranked based on observed discrepancies. Lastly, in the post-assessment, we examined patterns and possible solutions to address the discrepancies. Program planning typically starts in the post-assessment phase (Witkin & Altschuld, 1995). The needs assessment was distributed through an extensive contact list, including emails, provided by former county faculty (*n*=516). Links to the survey were also shared on social media and distributed at community events with a QR code held throughout 2023. Events included the annual Crop and Livestock School, Conservation District meetings, and other related events. The link to the survey was in monthly emails sent out to the producer contact list for six months. The survey included 17 questions, with six on demographics and eleven focused on agricultural needs. Topic-based questions were grouped into three matrices, covering 20 key issues such as water management, pesticide use, succession planning, and mental health. The survey followed a logical flow, helping identify local priorities to guide future USU Extension programming.

Questions were crafted to elicit the needs of farmers and ranchers and their access to information. The survey was designed to gather repeated-measures data following the Ranked Discrepancy Model (Narine & Harder, 2024). The survey (Appendix 1) consisted of 17 questions in Qualtrics (Silver Lake, Seattle, WA). Agricultural producers in Daggett, Duchesne, and Uintah Counties were the primary target population for the assessment. A total of 38 respondents completed the survey, representing a 7% response rate. Table 1 shows the demographic characteristics of respondents. Respondents were asked to rate their level of access to education on topic areas on a three-point scale (No access to Easy access), and their perception of how important the topic was to their operations on a three-point scale (Not important to Extremely important).

The Ranked Discrepancy Model (RDM) was used to analyze the data (Narine & Harder, 2024). Following Witkin and Altschuld's (1995) needs assessment framework, the RDM was used to measure the gap between a current and desired condition. The current condition was operationalized as farmers current access to information on a topic, and the desired condition was elicited from farmers' perception towards the importance of a

topic. In practice, the RDM measures the gap between farmers' access information on important topic areas. The RDM produces a Ranked Discrepancy Score (RDS) that ranges from –100 to 100. Negative scores indicate a gap between the current and desired states; i.e., farmers' lacked access to education on an important topic. A wider gap is signaled by a larger negative RDS. Figure 1 provides an interpretation of the RDS. The data were analyzed using Excel and SPSS, and missing data, while very few, and missing completely at random (MCAR), were replaced with a median.



Gap/Discrepancy: Individuals do not have sufficient access to education on important topics

Equilibrium: No gap in access

Excess: Too much information already exists on the topic area

Figure 1. Interpretation of the RDS.

Results

Table 1 shows the characteristics of the sample's respondents. Most (79%) resided in Uintah County, while a few lived in Daggett and Duchesne counties. Most participants in the needs assessment were between the ages of 35 and 44 (26%) and 45 and 54 (24%). Many were males (70%) and White/Caucasian (97%).

Table 2 shows the needs of farmers and ranchers ranked by priority level. The Ranked Discrepancy Score (RDS) is used here to compare the importance of a topic to farmers/ranchers with their level of access to information on that topic. An RDS value

ranges from -100 to 100, with negative scores indicating farmers do not have adequate information on important topics (Narine & Harder, 2024). As seen in Table 2, the top five needs were (1) Farm/Ranch Profitability, (2) Farm/Ranch Business Development, (3) Land Use, (4) Herd Health, and (5) Agricultural Water Management and Farm/Ranch Succession Planning (tied for fifth).

A closer look at the top two needs showed that most farmers/ranchers believed farm/ranch profitability was very important. However, only about one in every three respondents had no access to information on the topic area. Many respondents also stated that farm/ranch business development was very important, yet only about a third of respondents indicated they had no access to information on the topic.

Table 1. Demographic characteristics of participants

Characteristic	**Category**	***n***	**%**
County of residence in Utah	Daggett	2	5
	Duchesne	6	16
	Uintah	30	79
Age	25-34	6	16
	35-44	10	26
	45-54	9	24
	55-64	7	18
	More than 65	6	16
Gender	Male	26	70
	Female	11	30
Ethnicity	Not Hispanic or Latino	36	97
	Hispanic or Latino	1	3
Race	American Indian or Alaska Native	1	3
	Asian	0	0
	Black or African American	0	0
	Native Hawaiian or Other Pacific Islander	0	0
	White/Caucasian	36	97

Table 2. Ranked needs of farmers and ranchers (n = 38)

Rank	Topic	% Very Important*	% No Access to info^	RDS**
1	Farm/Ranch Profitability	84	37	-82
2	Farm/Ranch Business Development	68	32	-74
3	Land Use	71	21	-71
4	Herd Health	84	11	-66
5	Agricultural Water Management	97	16	-63^{T}
5	Farm/Ranch Succession Planning	71	21	-63^{T}
7	Drought Management	92	13	-61^{T}
7	Agricultural Product Marketing	58	26	-61^{T}
9	Agricultural Water Quality	66	26	-55^{T}
9	Pasture Management	76	3	-55^{T}
11	Fertilizer Use	68	16	-53
12	Herd Genetics	58	18	-50
13	Agricultural Risk Management	50	29	-45
14	Record Keeping	66	13	-39
15	Environmental Damages	37	29	-37^{T}
15	Farmer/Rancher Mental Health	42	26	-37^{T}
17	Pesticide Use	42	29	-32
18	Breeding Stock Development	53	18	-29
19	Farm Safety	47	21	-18

Note. *The percentage of individuals who stated the topic was very important.

^The percentage of individuals who stated they had no access to information on the topic.

**The Ranked Discrepancy Score (RDS) is based on a discrepancy between the importance of a topic and farmers/ranchers' level of access to information on the topic. E.g., the RDS is closer to -100 when a topic is very important, *and* individuals do not have any access to information on the topic (Narine & Harder, 2024). *T* = Tied Rankings

Figure 2 compares the needs of male and female farmers/ranchers. The top five needs for male respondents were farm/ranch profitability, herd health, farm/ranch business

development, land use, and farm/ranch succession planning. The top five needs for female respondents were farm/ranch business development, land use, farm/ranch profitability, agricultural water management, drought management, and pasture management.

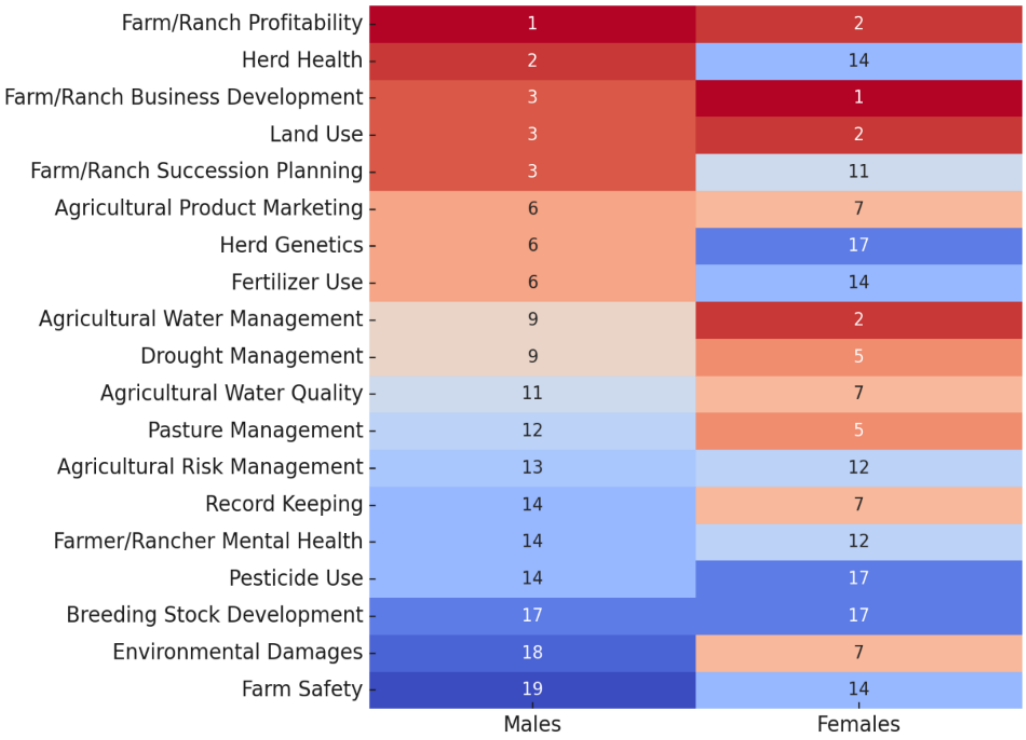


Figure 2. Priority ranking of topics (heatmap) based on the RDS by sex.

Additional insights gathered from open-ended responses further highlight the challenges and support needs of local farmers and ranchers. These include concerns about sustainable practices, environmental pressures such as drought and cold/wet winters, and limited resources, particularly regarding capital. Respondents expressed a strong interest in learning more about managing pests and diseases without chemicals, as well as gaining access to financial assistance for conservation practices and improvements in water management. Many are also navigating challenges with water rights and leasing issues, indicating a need for more accessible programs and support to help address these difficulties. The steep learning curve for beginning farmers and ranchers was a common concern, along with a desire for more training on available resources

and programs. Fifteen respondents provided contact information to learn more, showing a clear interest in further engagement and resources to help address these challenges.

Discussion

The needs assessment results provide valuable insights for developing targeted educational programs that address the specific needs of the local producers. Based on the results, the areas where producers lack access to information include farm/ranch business profitability and agricultural risk management. The topics that producers find the most important include agricultural water and drought management, herd health and farm/ranch profitability. Areas that have the biggest gaps in access to information on important topics farm/ranch business and profitability.

Results were also arranged by importance segregated by gender, to identify specific topics of interest to women in agriculture programming and their needs. Educational workshops and fact sheets will be created to focus on priority topics. Programs can be tailored for gender-specific needs based on the unique priorities of the male and female producers. To improve access to information, Extension faculty in the Tri-County area will develop their public website and social media presence to increase access to the information farmers and ranchers need to operate a successful agricultural enterprise based on these results. Results can be utilized to see trends in different areas and help build collaborations on topics by tracking changes over time. Follow-up evaluations after events will assess the progress made toward fulfilling the identified need.

Although the survey response rate was 7%, it aligns with findings from other agricultural outreach and reflects conversations had with producers at meetings and events. Postal surveys receive nearly twice the response rate compared to online surveys among producers (Zahl-Thanem, Burton, and Vik, 2021). We chose to use an online survey because it is cost-effective, efficient, and allowed us to reach a broader audience beyond our existing contact list. However, distributing the survey during the busy summer months may have contributed to the low response rate. Future assessments

may consider offering both online and paper survey options during the winter months to improve participation and reduce potential non-response bias.

Conclusion

The agricultural needs assessment conducted in Uintah, Daggett, and Duchesne counties of Utah highlights the critical priorities for producers in the area. New programming fitting the needs of the area can be developed. The top priorities included farm/ranch profitability, farm/ranch business development, land use, herd health, agricultural water management and farm/ranch succession planning. These findings emphasize the importance of addressing gaps in access to information through educational programs and resources. Efforts should focus on creating workshops, fact sheets, and online resources tailored to the specific needs of the community including gender-specific priorities. By addressing these needs, Extension faculty can better support producers and the challenges they are facing in the Tri-County area.

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Appendix 1

Tri-County Community Needs Assessment

Dear resident, Utah State University Extension provides research-based programs and resources with the goal of improving the lives of individuals, families and communities throughout Utah. The purpose of this survey is to assess the needs of farmers and ranchers in Uintah, Duchesne and Daggett Counties in order to provide programs and information to meet those needs. Programs developed from this survey will help farmers and ranchers in each county gain access to much needed information to benefit their agricultural operations. This survey will approximately take 5 minutes to complete, and all answers will remain anonymous. An optional question collecting personal information will aid in the dispersion of extension material pertaining to agriculture.

If you have any questions, please contact:

Uintah/Daggett Counties: Cheyenne Reid Office: 435-781-5452 Email: cheyenne.reid@usu.edu

Duchesne County: Katelyn Barsnick Office:435-738-1140 Email: katelyn.barsnick@usu.edu

Q1 Which county do you live in?

- Daggett
- Duchesne
- Uintah

Q2 What area of the county do you live in? List the closest town to your residence.

Q3 Are you involved in agriculture?

- No
- Not right now, but would like to in the near future
- Yes, part-time
- Yes, full-time

Q4 What is your age?

- Less than 18 years old
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- More than 65 years old

Q5 What is the current scope of your operation? (Select all that apply)

- Sheep Production
- Swine Production
- Goat Production
- Horses
- Beef Production
- Crops (Please Specify)
- Other (Please Specify)
- N/A

Q6 What is the size of your operation? (In acres)

This section asks about your access to training and education on agricultural issues. Please think about each issue in the list below and rate each issue on the following:

Q7

1. How **important** is the issue to your agricultural operation?
2. How much **access** do you have to training and education on the issue?

	Rate the importance of the issue to your operation.			Rate your level of access to training on this issue		
	Not Important	Somewhat Important	Very Important	None at all	Some Access	Easy Access
Agricultural Water Management	○	○	○	○	○	○
Agricultural Water Quality	○	○	○	○	○	○
Farm Safety	○	○	○	○	○	○
Agricultural Risk Management	○	○	○	○	○	○
Drought Management	○	○	○	○	○	○
Pesticide Use	○	○	○	○	○	○
Fertilizer Use	○	○	○	○	○	○

Q8

1. How **important** is the issue to your agricultural operation?
2. How much **access** do you have to training and education on the issue?

	Rate the importance of the issue to your operation.			Rate your level of access to training on this issue		
	Not Important	Somewhat Important	Very Important	None at all	Some Access	Easy Access
Herd Health	○	○	○	○	○	○
Herd Genetics	○	○	○	○	○	○
Record Keeping	○	○	○	○	○	○
Pasture Management	○	○	○	○	○	○
Agricultural Product Marketing	○	○	○	○	○	○
Environmental Damages	○	○	○	○	○	○

Q9

1. How **important** is the issue to your agricultural operation?
2. How much **access** do you have to training and education on the issue?

	Rate the importance of the issue to your operation.			Rate your level of access to training on this issue		
	Not Important	Somewhat Important	Very Important	None at all	Some Access	Easy Access
Breeding Stock Development	○	○	○	○	○	○
Farm/Ranch Succession Planning	○	○	○	○	○	○
Farmer/Rancher Mental Health	○	○	○	○	○	○
Farm/Ranch Business Development	○	○	○	○	○	○
Land Use	○	○	○	○	○	○
Farm/Ranch Profitability	○	○	○	○	○	○

Q10 If applicable, please describe any other issues or problems affecting your agricultural operation in the space below.

Q11 The following questions are to help ensure that we at USU Extension are adequately reaching the diverse populations within our communities. This data helps us to secure funding and programming for future events in your county. Participation in the following section is at your own discretion.

Q12 What is your gender?

- Male
- Female
- Prefer not to say

Q13 What is your ethnicity?

- Hispanic or Latino
- Not Hispanic or Latino
- Prefer not to say

Q14 What is your race? Mark all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Prefer not to say

Q15 The following question is optional. If you would like to receive information from USU Extension please fill out the following:

Please enter your information if you would like to be added to our contact lists for future events (optional)

- Your Name _____
- Your Email _____
- Your Phone Number_____