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Impacts of Hands-on Lambing and Kidding Workshops

Abstract

The U.S. sheep industry has been on a steady decline in numbers since the early 2000s by approximately 2% yearly. Furthermore, approximately 90% of producers who raise sheep are small operations, but those small operations only account for 12% of the sheep in Utah (USDA NASS, 2022). This means that the majority of sheep in the state are raised on large-range operations that report having more than 1,000 sheep. Many of these operations have been in business for generations and find it difficult to continue with increased production costs, labor shortages, and predator losses. However, even with the decline in total sheep numbers, there has been an increasing number of new sheep producers nationally and statewide. National and state goat numbers have also been on the rise since the early 1990s. Utah has seen an increase in new inexperienced producers, some of which reside in underserved and minority populations. We conducted three workshops in Utah. Surveys from our workshops show that many participants gained between 20% and 40% confidence in animal husbandry knowledge with 97% of participants planning to implement skills learned at these workshops. Future programming will be organized around needs discussed in these workshops such as parasite and prolapse control measures.

Introduction

The history of sheep and goats in Utah dates back to the state's settlement, and even earlier, when Native Americans in the region raised Navajo Churro sheep. At one point Sanpete County (currently Utah's county with the largest number of sheep) was known as the fine wool capital of the United States. It is no surprise that this tradition has kept Utah ranked 5th overall in sheep numbers, 4th in breeding stock, and has experienced some extensive growth in goat numbers recently (USDA NASS, 2025). However, as the number of large sheep operations statewide began to decline, we saw the emergence of new and enthusiastic small-scale sheep and goat producers. Approximately 90% of sheep producers in Utah report having less than 100 head of sheep on their farms (USDA NASS, 2022). While the USDA does not report goat inventory by farm size, they do report the number of goat farms and overall goat inventory. Goat inventory within the state has decreased since 2017 but the number of farms has increased which most likely indicates an increase in small goat operations (USDA NASS, 2022). Additionally, there were an estimated 18,000 sheep and lambs lost to non-predator causes of death, like sickness or environmental factors, and 24,000 sheep and lambs lost due to depredation in 2023 (USDA NASS, 2023). Many of these new and often inexperienced producers lack some of the basic knowledge and resources to manage sheep and goat operations successfully, as they encounter the many challenges faced by this profession. Furthermore, these producers are often difficult to find since many of them are unaware of the resources available to them through state and university programs. Sheep and goat production is often a hobby/supplemental income stream for these small operations and not their primary source of income. Educating these small producers about the challenges of proper management, disease, and predation can help increase animal welfare and profitability in small operations.

The sheep and goat industry faces many challenges including parasite management, proper breeding and genetics, volatile markets, disease, and predation. But the agreement by many is that lambing and kidding is the most stressful yet important time of year. Discussions between Dr. Chad Page (Utah State University [USU] Extension Sheep and Goat Specialist) and producers across the state revealed the need for a

workshop that gives more in-depth sheep and goat management training to novice producers (C. Page, personal communication, September 1, 2023). With this in mind, we sought to accomplish the following objectives:

1. Provide quality management information for small-scale and new Utah sheep and goat operations specific to lambing and kidding, through hands-on learning and classroom-based workshops.
2. Reduce death loss during lambing and kidding to increase operation economic sustainability.

Methods

Procedure

We held three two-day workshops in the following locations:

- Logan, Utah: Utah Agricultural Experiment Station Sheep and Goat Unit (34 attendees)
- Ephraim, Utah: Snow College and Local Producer Farm (25 attendees)
- Cedar City, Utah: Southern Utah University Farm (31 attendees)

Each workshop started with a classroom teaching session followed by experiential learning through demonstrations and hands-on practice with live animals. Topic presenters included graduate students with backgrounds in sheep and goat research, USU county extension faculty with experience in sheep and goat production, professors at collaborating universities, and the state USU sheep and goat Extension Specialist, Dr. Chad Page. A lamb dinner, gifted by a Utah-based producer, was cooked on site for participants at the conclusion of the first day. Evaluations were collected each day.

Target audience

The target audience for the Utah State University lambing and kidding workshop is new and small sheep and goat producers within the state of Utah. Large production operations were not excluded but few attended. Advertising for the lambing and kidding workshop was done using social media (Facebook) and word of mouth. We developed different ads with links to a registration page and alternated ads for about 6 weeks prior to the event. We also used Facebook's paid advertising to target agriculture audiences.

Another target audience are the minority ethnic groups within Utah that rely on sheep and or goat production as a significant part of their cultural needs, diets, and livelihood. The first group targeted includes the African refugee group in Salt Lake County who had previously worked with USU to obtain valuable goat production skills and knowledge. The second group are Native American peoples within Utah who raise generational flocks of sheep. We had a previous working relationship with the Diné College; all advertisements were sent to our contact with the school and dispersed via that contact.

Course evaluation

Course evaluation consisted of two anonymous surveys asking the participants to evaluate their confidence/knowledge in a subject using a one to five scale with one being no confidence/knowledge and five being high confidence/knowledge. The first survey was administered on the first day of the class before any presentations and consisted of 11 questions regarding current knowledge levels with additional questions to identify gender and ethnicity and operation scale dynamics. The second survey was administered on the last day of the workshops and consisted of 6 questions to gauge the change in knowledge and confidence that producers had experienced upon completion of the workshop. An example survey question is “after completing the workshop rate your knowledge in the following areas” which the participant would then rate their knowledge from one to five in the subjects below. An IRB (IRB ID# 15260) was obtained from the Institutional Review Board at Utah State University.

Subjects discussed

- Lambing and Kidding
- Ewe/Doe Nutrition
- Vaccination and Disease
- Record Keeping
- Business Plans and Marketing
- Breeding Management

Training demonstrations

- Vaccination
- Managing Dystocia
- Hoof Care
- Shearing
- Tubing
- Castration
- Tail Docking
- Disbudding
- Newborn Lamb/Kid Care
- Tagging/Animal Identification

During the workshops participants were split into groups of five to eight per group and rotated through live animal demonstrations that covered the above events. After the demonstration was complete, participants were able to get hands-on practice and develop animal husbandry skills through experiential learning. Participants could trim hooves, dock tails, vaccinate animals, etc. Many took advantage of the ability to learn new skills or reinforce old ones and enjoyed the hands-on aspect of this training.

Timeline

Each workshop was held around the time of lambing for each location. The Logan and Ephraim workshops took place on March 8th and 22nd respectively, while the Cedar City workshop was on April 12th. Having the workshops during lambing was crucial to allow participants to observe and assist with birth and processing. Most of these operations had staggered lambing systems so there were ewes and lambs in different stages of management either just before or right after lambing. This helped to cater to hobby farm producers, show industry producers, and more traditional lambing season systems.

Results

Statistics

A Wilcoxon Rank Sum Test was conducted as a non-parametric test to compare topic areas from the pre- and post-survey responses. Significance was established at $P \leq 0.05$. All changes in subject matter knowledge were $P \geq 0.09$. As a result, we decided to display all data as descriptive statistics and used averaged results with corresponding standard errors for changes in subject matter knowledge, confidence in performing tasks, and where to find resources.

Participant characteristics

We had participants from six states: Utah, Idaho, New Mexico, Nevada, Arizona, and California. Participants came from diverse backgrounds with 41% of participants identifying as male, 58% identifying as female and 1% preferring not to disclose their gender. American Indian participants accounted for 20%, while 78% of participants were

White and 2% of the participants were part of other races. Participant herd sizes ranged from 0 to 6,500 with the average flock size being 10 sheep and/or goats for small to medium operations (those with fewer than 100 head) and 340 sheep and or goats when all operations were included. Roughly 8.5% of operations were urban with the remaining majority of participants being from rural areas. Only 15% of attendees reported attending any kind of sheep or goat education workshop – evidence of reaching target audiences that previously had no opportunity for sheep and goat education.

Participant change in subject matter knowledge

Participant knowledge was evaluated on a zero to five scale as described above. Participant confidence in subject matter knowledge increased from 2.7 ± 0.24 (low to neutral) to 3.9 ± 0.2 (neutral to average) after they participated in classroom learning.

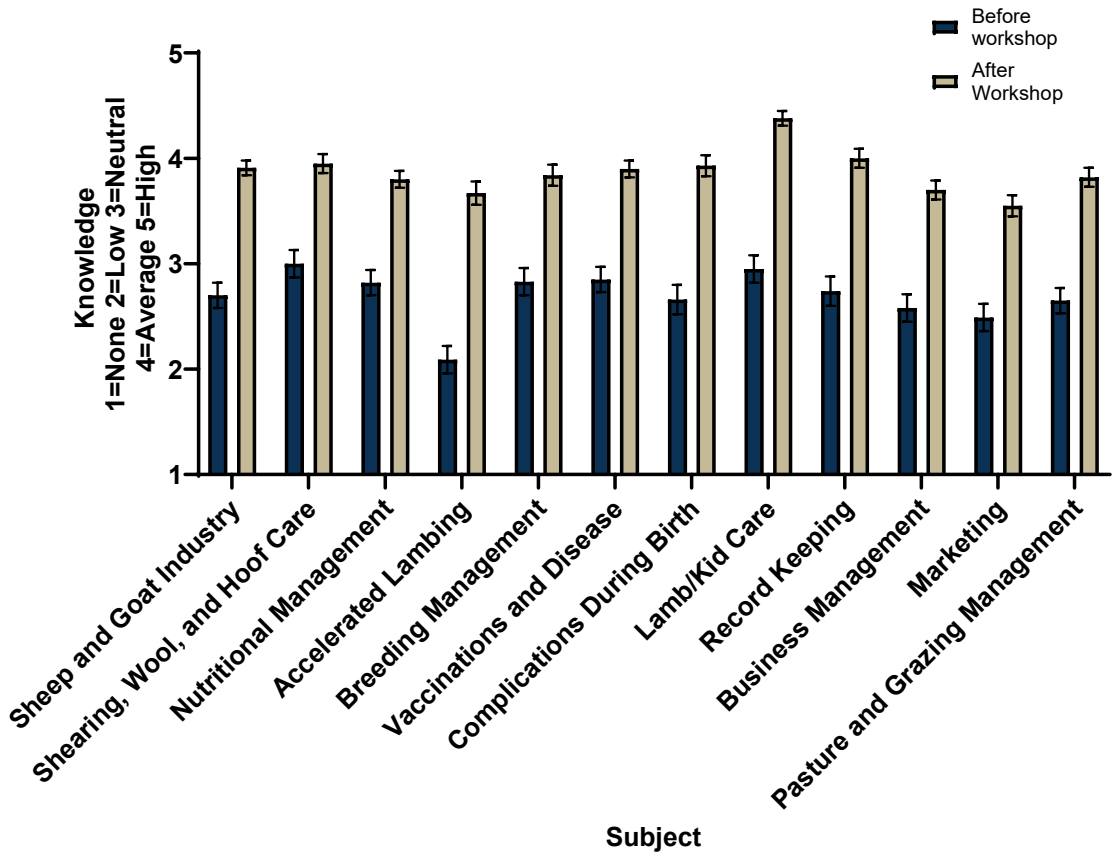

Figure 1. Ranking confidence in subject matter knowledge before and after the workshop using averaged Likert scale values from before and after the workshop.

Participant change in task confidence

Participant confidence was evaluated using the one to five scale described above. After learning more about specific tasks, attendees' confidence in performing all tasks increased from an average of 2.7 ± 0.48 (low to neutral) to 4 ± 0.5 (neutral to average).

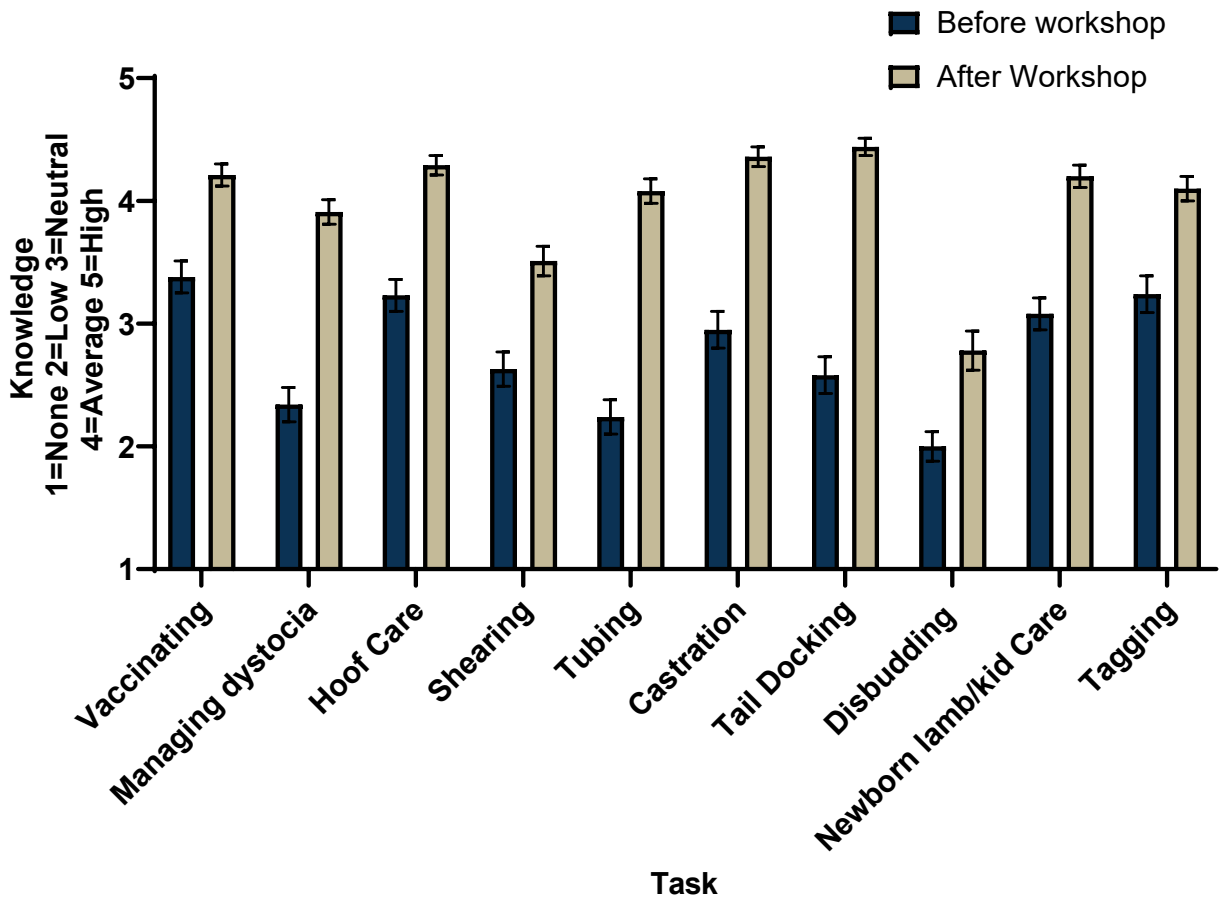

Figure 2. Ranking participant confidence in performing tasks before and after the workshop using averaged Likert scale values from before and after the workshop.

Change in ability to find resources related to challenges

At the beginning of the workshop around 57% of participants felt they knew where to find resources to assist with issues surrounding small ruminant production. Post-workshop surveys showed that 95% of participants knew where to find resources to

help manage their flocks, meaning that approximately 38% of participants gained knowledge to find valuable resources. The largest increase of participant knowledge to find resources were in the topics involving Business Plans and Marketing, and Record Keeping.

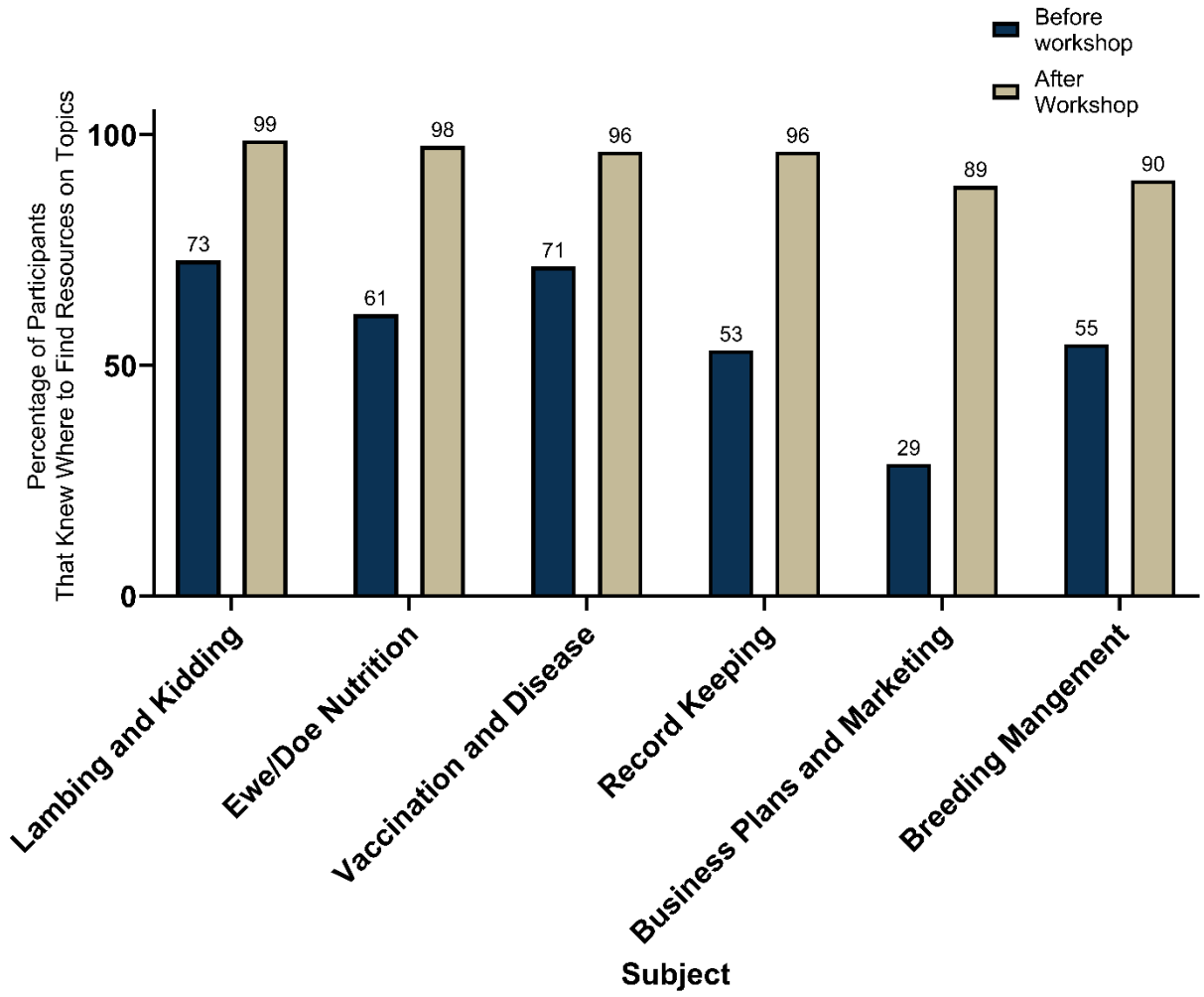

Figure 3. Change in proportion of participants who were confident in their ability to find and access resources before and after the workshop using averaged percentages from before and after the workshop.

As part of the post-workshop survey participants were asked what other topics they would like to see covered in future workshops. Some of the responses were managing prolapses, parasite treatment and prevention, disbudding, and artificial insemination.

Discussion

There was considerable change in subject matter knowledge after the workshop, with confidence in subject matter surrounding lambing time (dystocia, accelerated lambing, record keeping, and lamb/kid care) increased by 20% to 40%. Lambing is often one of the most stressful times of year for any producer as management requirements increase drastically (Campbell, 2019). Knowing how to tube lambs, feed ewes, and minimize lamb/kid loss can increase profit margins and operation sustainability. Many participants became 20% more confident in tubing their lambs and kids after completing the workshop. Lambs are dependent on colostrum for passive immunity and preventing death from hypoglycemia within the first 24 hours after birth, which can be managed by tubing if a mother is unable to raise the lamb or has insufficient colostrum (Yapi et al., 1990). Producers who are more confident in preventing lamb death will raise more lambs, increasing profitability as well as animal welfare. Other tasks such as managing dystocia, performing castration, and tail docking increased by around 20% in confidence. Skills in general flock management are important for animal welfare. Healthy animals are often more cost-efficient and easier to manage, so developing skills to keep animals healthy puts less stress on the producer both mentally and financially. Participants were roughly 40% more confident in finding resources about ewe/doe nutrition and around 60% more confident in their ability to find resources for business and marketing plans. Nutritional requirements often make up a large portion of production costs associated with any livestock operation. Having greater access to both nutritional and business plans is expected to help these producers find where they can fit into sheep and goat markets and increase profitability. Lastly, 97% of participants expressed intent to implement information and techniques learned at these workshops demonstrating that there has been a serious lack of small producer-oriented workshops in the state.

Possible limitations include a lack of further formal follow-up with participants following the completion of the workshops. It may have been beneficial to provide an additional survey several weeks after workshop attendance to gauge how many participants were using knowledge gained on their operation and how that affected profitability and animal

husbandry. Additionally, resources were slightly different at each site (presenter availability, facilities available, timing of lambing and weather events, etc.) which made direct comparisons of each workshop somewhat difficult. Even with these limitations, 97% of attendees expressed their willingness to utilize information gained from the lambing and kidding schools. Future workshops may benefit from increased planning to help ensure that there are fewer differences between events, such as ensuring presenters are available for all events and planning facility access to bring more similarity among experiential learning opportunities.

As a result of these workshops, USU Extension county faculty and specialists have been contacted by the Diné College Extension and the Navajo Sustainable Agriculture Project to speak at events they have hosted since the workshops. We are also in the process of applying for funding opportunities to host a train the trainer workshop for the extension faculty at Diné College and provide support as they then teach workshops throughout New Mexico, Arizona, and Utah.

Conclusions

We were able to provide in-depth information on sheep and goat management around the time of lambing and kidding thanks to our collaborators. Many of the participants felt that they gained valuable knowledge after the workshop, which is expressed by their increased confidence in many of the tasks and subject matters discussed and widespread willingness to adopt information gained from these workshops. We were also able to reach Native American individuals from Diné College system. Future programming will include subjects that participants wanted more information on as indicated by our post-workshop survey. We plan to continue creating as many hands-on experiences as possible where workshop participants get to work with the animals and apply the things they are learning in the didactic teaching sessions.

Acknowledgements

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