

Global Perspectives- South American Sheep Industry Parallels with Wyoming



Trip Overview:

The exploration of sheep production in Argentina and Uruguay, with their combined population of 26.4 million sheep, has provided invaluable insights into fine-wool specialization and export-driven markets. This unique endeavor offered diverse learning opportunities, ranging from Uruguay's dynamic export economy, particularly its responsiveness to markets like China and the U.S. for red meat exports, to Argentina's distinct absence of a commercial lamb industry. The comprehensive 14-day journey encompassed exposure to intensive sheep production systems as well as the vast expanses of Patagonian sheep production. Despite the challenges posed by the ongoing SARs-COVID-19 pandemic, collaborations between stakeholders persist, albeit at a slower pace due to global economic disruptions and travel restrictions. This report highlights the significant findings and experiences gleaned from this once-in-a-lifetime exploration, shedding light on the intricacies and nuances of sheep production in these two South American nations.

Description of Activities

Uruguay

During the initial phase of the journey, I flew into Montevideo, Uruguay, where we met with Dr. Ignacio de Barbieri, my host from INIA. Subsequently, we commenced a comprehensive tour of research stations dedicated to sheep research, focusing on genetics, animal breeding, nutrition, and genetic evaluation programs. Additionally, I had the privilege of delivering three seminars at the University of Montevideo and INIA-Paysandu, discussing topics such as the structure of the U.S. sheep industry, the role of land-grant institutions, and opportunities for collaborative research.

Figure 1. Lecture delivered at University of Montevideo and Tacuarembó INIA research center



The tour of the ENGRAW wool processing plant provided a distinctive opportunity to explore advanced infrastructure within the wool industry and to visit the parent company of the only first-stage processing plant in the United States. During discussions, insights were shared regarding the current trade disputes involving the Trump administration and their impact on global wool prices, shedding light on the international dynamics affecting the relatively smaller U.S. wool industry.

A significant aspect highlighted during the visit was the potential utilization and value of lanolin, which is crucial information for inclusion in feasibility studies post-COVID. Representatives from ENGRAW and Fuhrman Industries in AR emphasized the diverse applications of lanolin, ranging from industrial lubricants to vitamin D supplements. They mentioned that the value derived from lanolin contributes significantly to covering the majority of their labor costs at scouring, carding, and combing facilities, particularly in the first stage of processing.

Figure 2. ENGRAW in-house testing laboratory and protocols. One unique aspect of wool testing in Uruguay are privatized wool testing labs.



The technical guidance provided, along with discussions on wool analysis and its integration into national genetic improvement programs, proved especially enlightening, as I had not been aware of the development of the side sample clean wool yield test. Collaborative efforts with the UY Wool Secretariat facilitated the sharing of protocols, and there is anticipation regarding the recommencement of validation of this test in collaboration with them. The integration of this validated technique has led to significant enhancements in clean wool yield within the national genetic improvement program. Previously, I had assumed that the fleece corer was the sole method for objectively assessing clean wool yield. However, the adoption of this validated technique has resulted in swift advancements in clean fleece weights throughout Uruguay.

Figure 3. Color scale test and clean wool side sample test at the UY Wool Secretariat laboratory



Argentina

The adjacency of borders facilitated my continuation of the visit with Drs. Diego Sachero of INTA in Argentina. However, due to travel cancellations, this segment of the trip was condensed from 7 days to 5 days. Contrary to Uruguay, Argentina's vast landscape bore the closest resemblance to Wyoming's sheep production environment. This became particularly evident during the leg of the journey encompassing an 800-mile loop through central Patagonia. Here, we had the opportunity to explore breeding and genetics research centers situated in the foothill regions, and to observe firsthand how extension services engage with small-scale underserved clientele.

Like our farm flock systems, a significant portion of our time was dedicated to engaging with extension educators and examining their approaches to developing and customizing curriculum to suit local requirements. Notably, the research and extension initiatives focused on high-altitude pasture management bore significant resemblance to Wyoming's high-elevation hay meadows, highlighting their crucial role in pastoral livestock systems.

Figure 4. Patagonian night pen in central Patagonia used for predator control.



While venturing into more shrub-dominated ecosystems during our travels, it was particularly enlightening to gain insights into the comparatively lower production levels, with only 60% of lambs weaned per ewe. This stands in stark contrast to production levels observed in the Western U.S., which range from 107 to 130%. My hosts attributed this disparity to the absence of a well-developed commercial lamb marketing system, with wool still accounting for the majority of revenue. Despite the absence of a significant commercialized lamb industry, my hosts showcased small-scale packing plants that are utilized during periods of high demand for lamb, such as Mother's Day and Christmas, while remaining shuttered for the remainder of the year.

The primary aim of this trip was to enhance comprehension of wool harvesting and preparation methodologies within the Argentinian wool industry. A significant aspect of this effort involved active participation in a sheep shearing and wool classing school, established through a unique collaboration between extension services and the national sheep shearing organization, "Prolana." This immersive experience afforded me the opportunity to closely observe wool harvesting and classing procedures at a small-scale operation situated in rural Patagonia.

In Argentina, funding for shearing education and wool classing is facilitated via a remittance program, which allots \$0.03 per kilogram of wool sold. This financial support underpins the provision of necessary equipment, training instructors, and the establishment of a traceability system. This structured support mechanism stands in sharp contrast to the relatively untraceable nature of the U.S. wool industry. While the current pandemic presents challenges to immediate replication of such a system in the U.S., there is potential in endeavors aimed at simulating and adapting aspects of this program for future implementation.

The technical criteria employed, particularly the more detailed classification systems, proved immensely valuable in providing ongoing feedback for the American Sheep Industry Association's wool classing schools. Moreover, insights garnered from this experience have informed potential adaptations for integration into my extension program and undergraduate curriculum here at the University of Wyoming.

Figure 5. Example of one of the nine wool grading lines (VG= high vegetable matter) left, and the group photos as part of the Prolana training series right.



Observing extension activities and outreach to small scale producers in the Patagonia was particularly insightful. We visited extension educators who worked with local producers to establish a coop systems to help increase marketing volume and purchasing power. This service-forward approach to establishing the Coop “La Amistad” has increased the

number of young families returning to farmssteads throughout the region and was intentionally developed to address the immediate needs of rural agricultural producers first, and afterwards focus on delivering curriculum.

Figure 6. Agricultural cooperatives in Rio Negro province through INTA extension



The pinnacle of the wool education and analysis segment of the AR trip was the visit to one of the largest wool processing centers in Trelew, Chubut province. The tour of Fuhrman Industries, a world-class international conglomerate in wool processing, has yielded numerous insights crucial to both my current and future endeavors aimed at supporting Wyoming's wool industry. These insights are proving particularly valuable as I prepare for wool processing feasibility studies scheduled for the upcoming year.

The opportunity to witness the processing infrastructure and equipment firsthand has been transformative, especially considering the challenges of accessing similar facilities within the U.S. wool industry. From observing automated wool scouring trains to witnessing blending techniques and state-of-the-art top-making equipment, this experience has opened doors to support and enhance the U.S. wool industry in ways I had not previously imagined.

Figure 6. Fuhrman Industries wool processing tour Trelew Argentina



The tour concluded at the INTA Bariloche wool lab. One of the largest wool International Wool Textile Organization (IWTO) certified testing labs in South America, this lab provided additional necessary insights into wool testing procedures we're striving to mirror here in the U.S. Specific tests such as grease correction factors, vegetable matter determination, and even looking at stress hormones in wool has been helpful in overcoming the abrupt closure of our only U.S. wool lab. Currently the wool trade has seen unprecedented disruption due to trade wars and COVID related supply chain disruptions. I'm proud that this collaboration with the INTA Bariloche wool lab has allowed us to send wool there for testing and avoid economic disruption to our industry.

Project Outcomes

1. Established federal government research (INTA, Argentina; INIA, Uruguay), University research and extension, and industry organizations (Prolana, Argentina; Uruguayan Wool Secretariat) collaborations.
2. Studied national research and extension objectives in sheep and wool production, specifically information transfer in genetic improvement programs, production of management, and wool classing and education programs.
3. Toured sheep operations, research facilities, and lamb and wool processing plants for information transfer and extension program enhancement that have been leveraged during ongoing pandemic circumstances.
4. Explored the similarities and differences between US, AR, and UY in sheep industries, and the methods used to assess research and extension needs.

Summary of Global Perspectives Impact

The exploration of sheep production in Argentina and Uruguay has been a transformative journey, offering unparalleled insights into fine-wool specialization and export-driven markets. With a combined sheep population of 26.4 million, these nations provided a rich tapestry of experiences, from Uruguay's dynamic export economy to Argentina's resemblance to Wyoming's sheep production environment.

During this 14-day expedition, we delved into diverse facets of sheep production, from intensive systems to expansive pastoral landscapes. Despite the challenges imposed by the SARs-COVID-19 pandemic upon my return, collaborations between stakeholders persevered, albeit at a slower pace. This report encapsulates the significant findings and experiences garnered from this immersive exploration, shedding light on the intricacies of sheep production in South America.

The visit to Uruguay offered invaluable insights into research programs and collaborative opportunities, with a focus on genetics, nutrition, and animal breeding. Discussions with industry experts and academia further enriched our understanding of the sheep industry, laying the groundwork for future partnerships and initiatives.

In Argentina, the journey continued with a condensed yet insightful exploration of Patagonia's sheep production landscape. Observing extension activities and engaging with small-scale producers underscored the importance of tailored approaches to education and outreach, with initiatives like agricultural cooperatives playing a pivotal role in revitalizing rural communities. This experience has not only broadened my perspective but also provided crucial insights for upcoming feasibility studies in Wyoming's wool industry. Collaborations with research institutions like INTA in Argentina and INIA in Uruguay have laid the foundation for ongoing knowledge exchange and program enhancement. The integration of validated techniques, such as the clean wool side sample test, promises to enhance wool production and quality assessment in both nations. As we navigate unprecedented disruptions in the global wool trade, partnerships with institutions like the INTA Bariloche wool lab have proven instrumental in mitigating economic challenges and ensuring continuity in industry operations. In conclusion, funding from the Global Perspectives program has not only deepened my understanding of sheep production but has also forged lasting collaborations and laid the groundwork for future initiatives. The insights gained from this journey will inform policy decisions, research agendas, and extension programs, ultimately contributing to the resilience and sustainability of the sheep industry in Wyoming and beyond.

