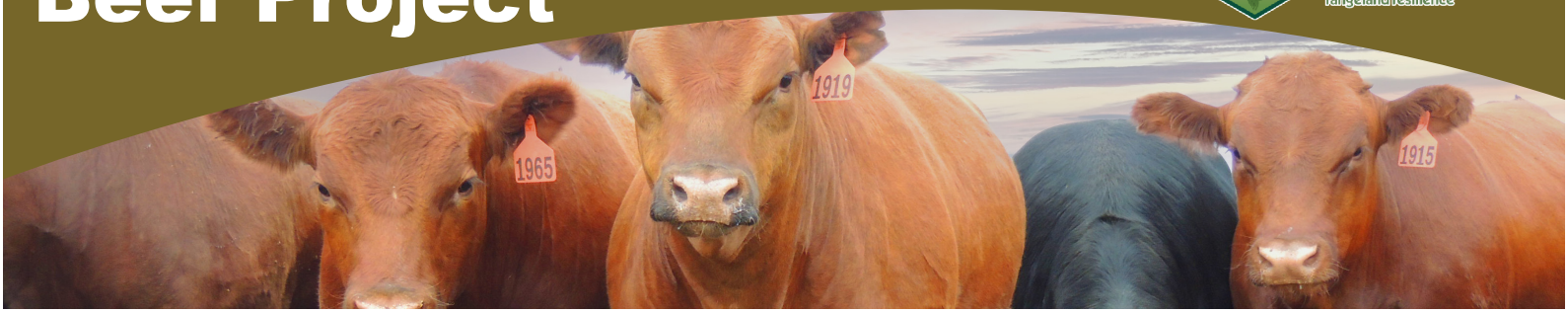
Sustainable Southwest Beef Project

Sustainable Southwest Beef
knowledge and tools for ranch and rangeland resilience



Year Two: Top 10 Accomplishments

1. **The breed comparison team** found that Raramuri Criollo (RC) had greater distribution during periods of low forage availability, less time resting, and fewer hotspots of use than Angus-Herford (AH). Greater cow-calf contacts were observed while the dam was grazing and traveling compared with AH. RC calves possibly impose fewer constraints on their dams' movement and activity patterns compared with commonly used British crossbred. RC and RC crossbred steers showed similar landscape use patterns, finishing on desert rangeland at 30 months of age, and heavier finish weights for crossbreds steers compared to RC, indicating crossbreeding and grass-fed finishing could be viable options for ranchers raising RC cattle.
2. **In response to severe drought,** the breeding herd was relocated from the NMSU College Ranch Research Center to the Clayton Research Center, where Year 1 calves were weaned, breeding for year 2 calves was completed, and new investigations were initiated into foraging behavior of cows on native versus introduced forages and automated monitoring of body condition scores.
3. A framework and modeling capacity was developed for **analysis of sustainability outcomes of nine supply chain options** for beef cattle coming from SW ranches. Work is underway on research that support Beef Briefs to communicate key findings.
4. **The precision ranching data mining and visualization team produced GRAZETOOLS,** a set of analytic tools to assist with the analysis of habitat use and grazing behavior traits (GRAZEACT). The GRAZETOOLS are being used as part of a prototype Digital Ranching Dashboard (DRD) which allows processing, analysis and display of ranching infrastructure and animal behavior data in real-time.
5. **A Webinar Series included:** Precision Ranching Technologies, Tools for Navigating Drought on the Ranch, Meat Quality Panel, and Sustainability Programs In Beef Supply Chains From Pasture To Plate. All were well attended and surveys indicate participants plan to use the knowledge gained.
6. **Tools for the Beef Industry (TOBI),** a searchable decision suppport toolshed, catalogues 540 decision support tools related to the beef cattle industry. TOBI is available from the project website and will become part of the Southwestern Beef Knowledge System.
7. **A dynamic webmap of grass-fed beef producers & retailers** within the footprint of the project adds to the understanding and knowledge of the extent of grass-finishing in the southwest and was posted on the project website.
8. A Case Study in the Collaborative Conservation and Adaptation Strategy Toolbox (CCAST) highlighted Raramuri Criollo cattle at the Corta Madera Ranch: **"Heritage Genetics to Increase Cattle Resilience during Drought"**
9. The Asombro Institute for Science Education collaborated with all three research teams to continue developing **10 educational lessons** related to the project. Despite school closures, lessons were delivered to 141 K-12 students and 27 teachers in Year 2.
10. **BlueSTEM Agrilearning Center worked with 24 high school students** who conducted experiential learning research projects on sustainable agriculture; soil, water, and nutrient management; animal science; and plant science, capped by poster presentations by the students at school, community, and state-level science events.

USDA NIFA United States Department of Agriculture National Institute of Food and Agriculture

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Goals

The Sustainable Southwest Beef Coordinated Agriculture Project (CAP) is a five-year USDA-NIFA funded project that promotes ranch and rangeland resilience in the Southwestern US. The team is evaluating strategies to help keep ranching and rangelands ecologically and economically healthy as climate, markets, and policies change. Specific strategies are:

- Heritage Raramuri Criollo cattle
- Precision ranching technologies
- Tradeoffs among beef supply chain options from pasture to plate

What We Do

- Evaluate the economics, viability, ecological factors, and tradeoffs associated with the three strategies for sustainable beef production on Southwestern rangelands.
- Develop lesson plans for K-12 education that center around sustainability in beef production.
- Engage ranchers, educators, and students in collaborative research and extension to develop and train the next generation of researchers and producers.
- Develop the "Southwestern Beef Knowledge System" to share the science in an on-the-ground and user-friendly form.

Timeline

Work progressed rapidly on all aspects of the project during Year 2. Leadership transition for Project Co-Director and Precision Ranching Team Lead went smoothly. Our students advanced in their studies or upon completion went on to careers in their discipline and our network of followers increased.

Team Leaders

Project Leadership

Project Director: **Glenn Duff (NMSU)**
Project co-director: **Sheri Spiegal (ARS)**

Team Leaders

Breed Comparison Research:
Rick Estell (ARS)

Precision Ranching Research:
Santiago Utsumi (NMSU)

Supply Chain Research:
Sheri Spiegal (ARS)

Extension/Outreach:
Emile Elias (USDA SW Climate Hub)

Education

Asombro Institute:
Stephanie Bestelmeyer

BlueSTEM AgriLearning Center:
Ann Marshall & Kristy Ehlers

Senior Science Coordinator

Jean Steiner (NMSU)

Evaluation

Office of Educational Innovation and Evaluation (KSU)