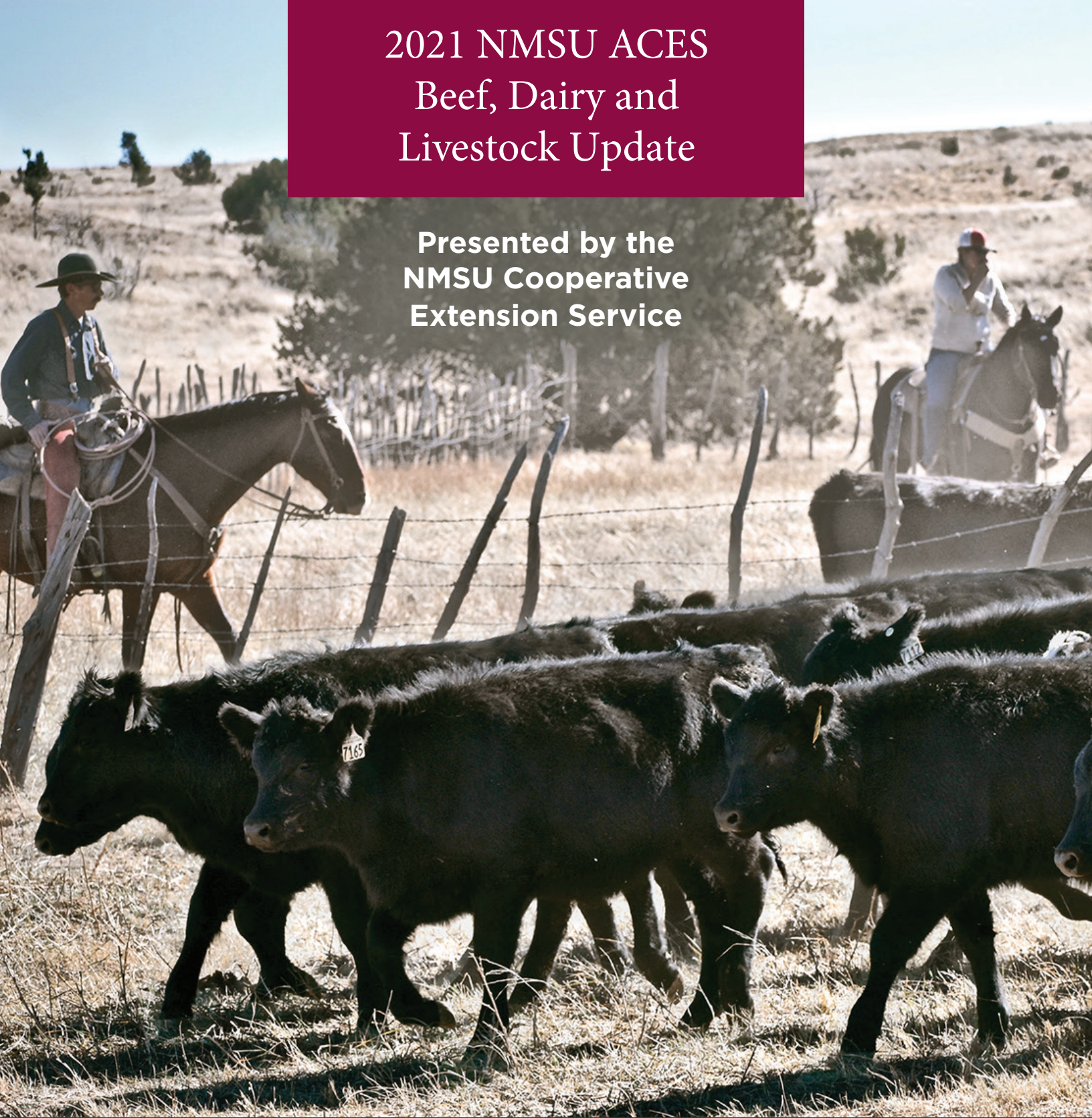


# 2021 NMSU ACES Beef, Dairy and Livestock Update

Presented by the  
NMSU Cooperative  
Extension Service



**NM**  
**STATE**

**BE BOLD.** Shape the Future.  
**College of Agricultural, Consumer  
and Environmental Sciences**  
Cooperative Extension Service

# 2021 NMSU ACES BEEF, DAIRY AND LIVESTOCK UPDATE

Presented by NMSU Cooperative Extension Service

## Organizing Committee and Editorial Board

Chair: Craig Gifford, Extension Beef Cattle Specialist, Extension Animal Sciences and Natural Resources

Nancy Flores, Food Technology Specialist, Extension Family & Consumer Sciences

Marcy Ward, Extension Livestock Specialist, Extension Animal Sciences and Natural Resources

Casey Spackman, Extension Range Management Specialist, Extension Animal Sciences and Natural Resources

Leonard Lauriault, Certified Forage and Grassland Professional

College Professor - Superintendent and Forage Crop Management Scientist

Lena Sanchez, Graduate Student, Agriculture and Extension Education



**BE BOLD.** Shape the Future.  
**College of Agricultural, Consumer  
and Environmental Sciences**

## TABLE OF CONTENTS

FACILITATING KNOWLEDGE EXCHANGE AROUND STRATEGIES FOR SUSTAINABILITY.....	3
RURAL VETERINARY SHORTAGE IN NEW MEXICO.....	7
EVALUATION OF THE IMPACTS OF INCONSISTENT CONSUMPTION OF INSECT GROWTH REGULATOR ON FILTH FLY POPULATION CONTROL IN A SIMULATED FIELD ENVIRONMENT.....	9
MOBILE SLAUGHTER UNITS POTENTIAL WITHIN NEW MEXICO.....	14
DEVELOPMENT OF A LARGE ANIMAL MASS MORTALITY PLAN.....	18
USING FILTER PAPER AND GLASS VIAL BIOASSAYS TO DETERMINE CHEMICAL RESISTANCE OF PERMETHRIN RESISTANT AND SUSEPTIBLE HORN FLY (DIPTERA: MUSCIDAE) POPULATIONS.....	21
NEW MEXICO LIVESTOCK PRODUCERS' INTEREST IN A STATE MEAT INSPECTION PROGRAM AND DIRECT MARKETING TO CONSUMERS.....	24
SEASONAL YIELD AND ANIMAL PREFERENCE FOR IRRIGATED WINTER CEREAL FORAGES UNDER CONTINUOUS STOCKING IN A SEMIARID; SUBTROPICAL REGION.....	27
PURPOSE OF THE NEW MEXICO YOUTH BEEF FEEDER CONTEST IN YOUTH DEVELOPMENT.....	30
PERMITS REQUIRED FOR MOBILE SLAUGHTER.....	33
TAKING CARE OF COWS BY TAKING CARE OF PEOPLE, UNDERSTANDING THE DAIRY LABOR CONUNDRUM.....	37
EFFECTS OF ANTIBIOTIC CLASS, TREATMENT FREQUENCY AND METAPHYLAXIS MANAGEMENT ON PERFORMANCE IN YEARLING BULLS.....	42
NEW MEXICO CALF MANAGEMENT AND MARKETING SURVEY.....	44
COMPLEMENT SYSTEM ACTIVITY IN FEEDLOT HEIFER CALVES AFFECTED BY BRD.....	48
TESTING OF A LoRa-WAN DIGITAL RANCHING ON DESERT RANGELANDS: SOME PRACTICAL EXPERIENCES.....	51

## Facilitating knowledge exchange around strategies for sustainability

Skye Aney\*, Emile Elias†, Reanna Burnett\*, Craig Gifford‡, Glenn Duff§, Brent Auvermann#

\*USDA Southwest Climate Hub, Jornada Experimental Range, New Mexico State University, Las Cruces, NM, 88003, USA; †USDA Southwest Climate Hub, Agricultural Research Service, Jornada Experimental Range Las Cruces, NM 88003; ‡Extension Animal Science and Natural Resources, New Mexico State University, Las Cruces, NM, 88003; §Department of Animal and Range Sciences, New Mexico State University, Clayton Livestock Research Center, Clayton, New Mexico, 88415; #Texas A&M AgriLife Research at Amarillo, Amarillo, TX, 79106.

### Keywords

drought, sustainability, grass-fed beef, Criollo, adaptation, decision-support tools

### Introduction

Economic and environmental stresses on cattle producers in the Southwest, already operating on very narrow margins, are predicted to intensify under a warmer, drier, future (Spiegel et al. 2020). Reduction in carrying capacity of some rangeland sites has already been documented (McIntosh et al. 2019), spurring the need to find new ways to adapt to old but intensifying problems of aridity and frequent drought in the region. Over the course of the past year, the Sustainable Southwest Beef Project's extension team has undertaken a number of activities to facilitate knowledge exchange around strategies which may enhance cattle production in the southwest under future conditions. Here we present highlights from these efforts. All products described here can be accessed at <https://southwestbeef.org/>.

### Materials and Methods

Activities centered around three novel strategies, which are still under research: Raramuri Criollo heritage cattle, alternate supply chain pathways, and

precision technology. We documented one rancher's transition to using heritage Raramuri Criollo in his cow/calf herd in a Case Study, "Heritage Genetics to Increase Cattle Resilience During Drought". With regard to supply chain options, we created an online interactive map showcasing 89 grass-fed beef producers located across the west (CA, NV, UT, AZ, NM, CO, KS, OK, TX). Next, we sent a survey to these producers to better understand current grass-fed operations in the Southwest, and 28 participated. Our team also conducted an extensive effort to locate existing decision support tools designed for the beef cattle industry. Tools were compiled into an online, accessible filter-based catalog called Tools for the Beef Industry (TOBI). Several webinars and podcast episodes were also produced to share information from researchers and service providers across a variety of media.

### Raramuri Criollo Case Study

A producer reports changes he has observed at his ranch, including anecdotal attestation of reduced impact on forage and water resources during droughts. Also documented are lessons learned such as his trial and error arrival at the importance of using an Angus sire on Criollo cows to

produce marketable calves. Advice offered by this producer to others wishing to try this strategy is to start off small by replacing just a few of their cows with heritage cattle to test whether or not the biotype will be successful on their landscape and produce calves that fit their buyer's preferences.

### **Southwestern Grass-fed Beef Producers**

Diversification was a significant strategy reported by those who responded to the survey. While nearly all respondents (96%) reported selling "freezer beef", 75% also reported marketing their product through more than one channel. Likewise, a variety of on- and off-ranch income diversification methods were reported, with the most common (53%) being to supplement with off-ranch income.

93% of respondents grazed their cattle at least part of their lives on rangeland or native grassland, but use of irrigated, non-irrigated planted, and improved pasture was also reported. 75% reported use of more than one feed/forage type, with the most common, after grass, being supplementation with hay (68%), and/or use of legumes (36%). The most commonly suggested barriers to adoption of raising grass-fed beef were lack of processor availability and drought (Figure 1). A follow-up survey is being developed to gather more detailed information about grass fed production, including a deeper dive into the challenges identified in the preliminary survey. Information will be used to develop models evaluating the economic and ecologic tradeoffs of grass-finishing in the southwest.

### **TOBI: Tools for the Beef Industry**

We located over 550 decision support tools related to the beef cattle industry. Of these, 535 appeared to be

designed for producers, 115 for researchers and technical service providers, 10 for consumers, with some overlap between audiences. Primary concerns addressed include: finance, livestock management, animal and feed performance, natural resource management, crop management, and weather and climate. We concluded that there are a plethora of decision support tools at the disposal of producers and that having a quick and centralized location to search for a tool of interest could be a valuable time-saver, hence the creation of TOBI

<https://webapps.jornada.nmsu.edu/livestock/>. On April 29, 2021, we presented a walkthrough of TOBI during a webinar, and the recording is linked from the project's webpage (<https://youtu.be/wTSiG1s70nY>).

### **Webinars & Other Media**

Four webinars were held and recorded for on-demand viewing. Highlighted topics included: precision livestock tools; tools for navigating drought; factors that affect meat quality; and sustainability incentive programs in beef supply chains. There are also several podcast episodes, one of which delves into the topic of virtual fencing with one of our Scottish collaborators. To date, there have been a total of 338 podcast downloads; 361 views of webinar recordings; and live webinars have had a collective 186 attendees, which included (self-reported) researchers, ranchers, students, and agency and business professionals.

### **Summary and New Mexico Impact**

The Sustainable Southwest Beef Project extension team continues to conduct research to support the

development of user-friendly products to aid producers in their decision-making around strategies for enhanced sustainability. These products can help New Mexico cattle producers evaluate whether or not a strategy is right for their operation. Additionally, the materials can help inform consumers who are concerned about the production and sustainability of the beef they eat.

### **Acknowledgements**

The Sustainable Southwest Beef Project is funded by USDA National Institute of Food and Agriculture, Agriculture and Food Research Initiative's Sustainable Agricultural Systems (SAS) program. Grant #2019-69012-29853

### **University Approvals**

The survey-based study was determined by NMSU IRB as not needing review due to being "not human subjects research". All other research was conducted using publicly available information gathered from reputable web or mobile app-store sources.

### **References**

McIntosh, Matthew M., Jerry L. Holechek, Sheri A. Spiegel, Andrés F. Cibils, and Richard E. Estell. 2019. Long-Term Declining Trends in Chihuahuan Desert Forage Production in Relation to Precipitation and Ambient Temperature. *Rangeland Ecology & Management* 72(6):976–87.

Spiegel, Sheri, Andres F. Cibils, Brandon T. Bestelmeyer, Jean L. Steiner, Richard E. Estell, David W. Archer, Brent W. Auvermann, Stephanie V. Bestelmeyer, Laura E. Boucheron, Huiping Cao, Andrew R. Cox, Daniel Devlin, Glenn C. Duff, Kristy K. Ehlers, Emile H. Elias, Craig A. Gifford, Alfredo L. Gonzalez, John P. Holland, Jenny

S. Jennings, Ann M. Marshall, David I. McCracken, Matthew M. McIntosh, Rhonda Miller, Mark Musumba, Robert Paulin, Sara E. Place, Matthew Redd, C. Alan Rotz, Cindy Tolle, and Anthony Waterhouse. 2020. Beef Production in the Southwestern United States: Strategies Toward Sustainability. *Frontiers in Sustainable Food Systems* 4:114. doi: 10.3389/fsufs.2020.00114.

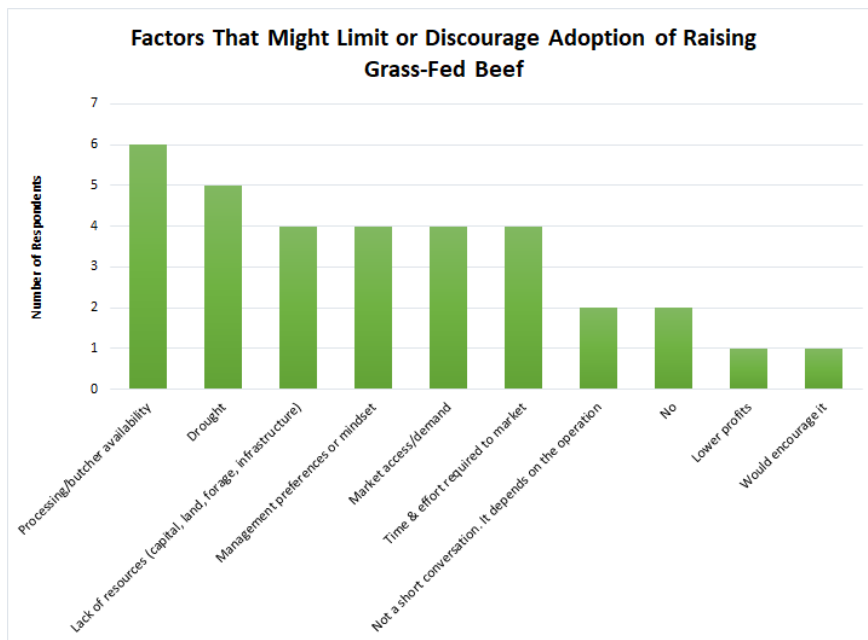


Figure 1. Perceived limitations to adoption of raising grass-fed beef by other producers in the respondent's area, as reported by survey respondents.