

Grass-Fed Beef Production in the Southwestern United States

Sustainable Southwest Beef Project



The Sustainable Southwest Beef research project involves more than 40 scientists, ranchers, extension agents, and educators. The team is looking for solutions to challenges faced by ranchers, including increased demand for beef, increasing preference for beef produced in an environmentally friendly way, and climate change. The project focuses on three strategies that might increase the sustainability of ranching in the southwestern United States: Rarámuri Criollo, precision tools, and beef supply chain options.

What is Grass-Fed Beef and How Is It Different Than Grain-Fed Beef?

Most calves born on ranches in the southwestern United States are shipped to Texas, Oklahoma, Kansas, and Nebraska (the Ogallala Aquifer region) after they are weaned (Figure 1). In the Ogallala Aquifer region, they live in large feed yards where they eat grains and grow rapidly for several months before being transferred to meat packers.

Grass-fed and grass-finished beef is produced differently. According to the United States Department of Agriculture, "grass-fed" beef requires that after an animal is weaned, its diet must consist only of grass and other forage. It cannot be fed grain, and it must have continuous access to pasture.

Ranchers can't raise all cattle types on grass in the southwestern United States because not all types are adapted to the dry, hot climate. One promising cattle type is the Rarámuri Criollo. The bloodline of Rarámuri Criollo goes back hundreds of years in dry, hot regions in Mexico. They are, therefore, well adapted to these same conditions in the southwestern United States. Rarámuri Criollo explore large areas within the pasture, especially when there is less food available. This spreads the cows out, reducing their environmental impact and allowing them to find more food on their own.



Figure 1. United States beef production often involves movement of cattle, feed, and money between the Southwest and the Ogallala Aquifer region of the Midwest.

What are the New Areas of Research about Grass-Fed Beef Production in the Southwest?

In the Sustainable Southwest Beef project, scientists use the "Integrated Farm System Model" to compare traditional beef production with other systems, including grass-fed beef production of Rarámuri Criollo.

The model shows tradeoffs between traditional beef (e.g., grain-fed Angus) and grass-fed Criollo. For example, a traditional beef supply chain where Angus calves are shipped to the Midwest for grain finishing uses more water (Figure 2) and energy (Figure 3) than Rarámuri Criollo that are finished on grass in the southwest.

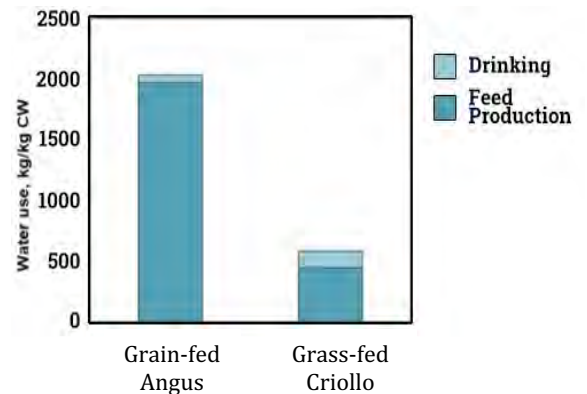


Figure 2. Model results show higher water use in a traditional beef production system.

However, grass-fed Rarámuri Criollo grow more slowly than animals sent to feedlots and finished on high-calorie grains. This means that the animals take longer to reach marketable sizes, resulting in larger carbon dioxide and methane emissions than the grain-fed Angus. Since carbon dioxide and methane are potent greenhouse gases, this is an important consideration for climate change.

What Other Factors Might Be Important for the Future of Grass-Fed Beef in the Southwest?

The success of grass-fed beef production in the southwest depends on environmentally conscious consumers who are willing to pay more for their beef. Limited processing facilities for grass-fed animals in the southwest result in grass-fed beef being costlier to produce. Yet many consumers want to support beef markets that avoid some of the problems associated with large-scale feedlots, such as air and water pollution, animal welfare issues, and human health issues.

Grass-fed Criollo beef also lacks traditional markets, so it is up to the rancher to find ways to sell it. Some sell directly to consumers at farmer’s markets and on their websites. While many ranchers enjoy interacting directly with their consumers, these direct marketing approaches take a lot of time and expertise to develop.

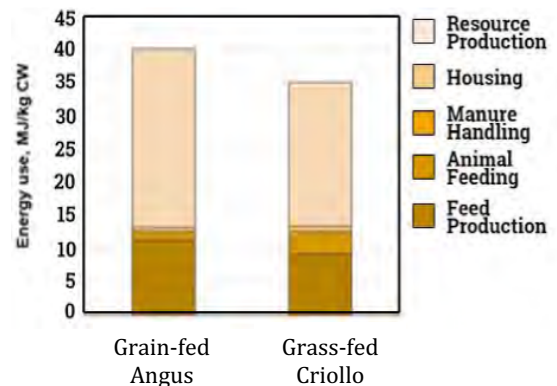


Figure 3. Model results show higher energy use in a traditional beef production system.

Sources

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Career Corner: Dr. Sheri Spiegel

Dr. Sheri Spiegel is a Range Management Specialist at the USDA Agricultural Research Service’s Jornada Experimental Range in Las Cruces, New Mexico. She co-directs the Sustainable Southwest Beef research project and conducts team research on sustainability of US agriculture.

Dr. Spiegel’s research focuses on the links of the U.S. beef supply chain, from ranching in the Southwest to beef cattle finishing in the Southern and Northern Plains to marketing beef across the country. Her favorite part of the job, “is helping to solve big problems related to food, society and the environment.”

