

Keeping beef in the center of the plate

August 11 2015, by Jacquelyn Prestegaard



The United States' cow herd saw its highest numbers—132 million head—in 1975. Over the last 40 years those numbers have diminished, with the USDA reporting 89.8 million cattle within the country at the beginning of 2015.

Despite the four-decade decline in cow numbers, the [beef industry](#) has actually increased its outputs over time. This phenomenon is almost entirely thanks to the adoption of smarter, more resourceful animal husbandry techniques nationwide.

The adaptability of livestock producers and scientists is the reason for

the [beef](#) industry's overwhelming success, despite increasingly limited resources. While there are still many obstacles to tackle, the industry's toughest challenge lies with its most essential lifeline: the consumer.

At this year's ADSA-ASAS Joint Annual Meeting, three outstanding cattle experts explored the ever-changing world of beef production and its customers. Their talks comprised the Beef Species Symposium, titled, "Keeping beef in the center of the plate: Meeting consumer demand in a period of reduced cattle numbers and increased prices." Drs. Daniel Thomson, Clint Krehbiel and Chris Calkins offered thought-provoking knowledge surrounding our modern beef industry and how to keep it thriving.

Reducing antibiotic usage

[A 2014 survey](#) by Sullivan, Higdon and Sink cites antibiotic usage as consumers' top concern regarding livestock production. While most producers still see antibiotics are a necessity for animal health, there is potential to reduce their use. This was further explored by Dr. Daniel Thomson, a Professor of Production Medicine and Epidemiology, and Director of the Beef Cattle Institute at Kansas State University.

"I'm afraid we will lose our tools if we don't use our technology more responsibly," said Thomson.

He indicated that antibiotic usage can be decreased in modern beef systems if more focus is applied to keeping cattle healthier from the get-go. He suggests making improvements in pre-and perinatal nutrition, neonatal calf housing and management, weaning calf management, transportation and overall better nutritional management throughout animals' lifespans.

"We've been treating antibiotics as the panacea to keep animals healthy,

oftentimes using them to replace the human-animal interaction," said Thomson. "In the end, strategies that improve [animal health](#) will decrease [antibiotic usage](#), which by theory will decrease antibiotic resistance."

Growth technologies in the feedlot sector

There is an overwhelming need to increase world production of high quality animal protein, as the need for meat, milk and eggs will increase by 60% in the next 35 years. In response to this demand, some 95% of American feedlot cattle are given hormone-releasing implants to increase growth and overall, keep beef cheaper. Feed additives are also commonplace to increase growth and efficiency in market animals.

Despite the unquestionable benefits of growth technologies in the beef industry, there is mounting pressure by consumers to eliminate them.

Although a Stanford review found no notable health benefits of eating organically-grown food versus its conventionally-grown counterpart, people still believe that residual antibiotics and hormones are excessively present in non-organic beef. A vast number of consumers also think conventional technologies are harmful to cattle and to the environment.

These beliefs were disputed by Dr. Clint Krehbiel, Regents Professor of Animal Science at Oklahoma State University. He and his colleagues from Oklahoma State and Texas Tech University studied the effects of growth technology usage in a feedlot compared with an all-natural program. Together, they evaluated overall cattle performance and carcass characteristics.

On average, naturally-fed animals spent 56 more days on feed than their conventional counterparts. This translated to an excess 1500 pounds of feed and 946 gallons of water consumed per animal.

"We can feed 1.4 more citizens in the United States with these technologies," said Krehbiel. "We also reduce the use of everything we value from an environmental standpoint."

As expected, livestock treated with growth technologies grew more quickly (35.7% increased carcass gain) and more efficiently (32.6% increased carcass efficiency) than non-treated animals. Furthermore, Krehbiel said growth-promoting products do not affect cattle behavior, mobility, or overall observed health and well-being.

"All of the things that have helped aid production and efficiency have been for the right reasons," said Krehbiel. "What we've done in the livestock industry is an incredible story."

Consistency with carcasses

Faster-growing, more efficient cattle directly correlate with greater beef carcass sizes. While this ultimately equals more meat for a growing population, there are hurdles to overcome when preparing larger carcasses for the final retail product.

Dr. Chris Calkins, Professor of Animal Science at University of Nebraska, addressed the problems with beef carcass consistency during the Beef Species Symposium. He recognizes that a consistent product translates to better beef-purchasing habits of consumers.

Simply enough, beef-buyers prefer meat that is flavorful and tender. Larger carcasses tend to be less tender, so extra steps need to be taken to increase their palatability. Calkins says that hands-down, aging is the most effective tenderizing method of beef. For practical purposes, most advantages of aging well-finished beef are achieved between seven to 10 days of hanging.

"We've known the benefits of aging beef for over 100 years," said Calkins. "It is the single best thing to make meat tender."

Unfortunately, an analysis of carcass-aging times yielded an undesirable spectrum of inconsistency. According to Calkins, too much meat sells underaged, with some carcasses only hanging in the cooler for one day. He says placing a premium on tender beef will likely promote better aging systems.

Consumer preference for a tender, juicy product is incredibly strong, and Calkins says it is the industry's responsibility to respond to that demand. The importance of promoting this meat quality characteristic cannot be emphasized enough, as studies show that people are willing to pay up to 30% more for USDA "Certified Tender Beef."

Another improvement regarding carcass consistency is already becoming increasingly popular. High quality cuts of beef have been "discovered" in parts of the animal once deemed as sub-par. For example, chuck cuts like the flat iron or the petite tender have been described as "diamonds in the rough" because they are tasty, yet affordable cuts of meat.

"Ultimately when we meet customer's satisfaction and expectations, we can reward ourselves," said Calkins.

Provided by American Society of Animal Science

Citation: Keeping beef in the center of the plate (2015, August 11) retrieved 16 July 2024 from <https://phys.org/news/2015-08-beef-center-plate.html>

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