

NEBRASKA: THE BEEF STATE

Beef Feedlot Research and Teaching

The beef cattle industry is the largest segment of ag in Nebraska, and growing/finishing cattle is larger than the cow-calf industry. For every calf born in Nebraska, another 1.5 calves are brought in from elsewhere to use the grain, byproducts, and forages we produce so well in Nebraska. This allows us to add value to Nebraska by finishing those cattle here.

A thriving beef feedlot industry in Nebraska, which is now the same size as Texas' cattle feeding industry, results in cattle being the highest priced beef cattle anywhere in the world. Nebraska sets the price of cattle for all other calves in the United States because the price of a calf anywhere in the U.S. is the price of the calf in Nebraska, minus the cost to transport him to Nebraska.

In terms of performance evaluations, cattle are normally purchased once per year in the fall, and the largest cattle are finished as calf-feds and smaller cattle are "grown" throughout the year on growing studies prior to finishing. All cattle that are in the beef nutrition area are on research studies, and all are marketed on a carcass finish basis with graduate students collecting data in abattoirs. At any point, as many as 20 different graduate students have projects at ENREC working with 4 different faculty based on campus.

For specific experiments, cattle are weighed multiple times to ensure accurate measures of growth. Many times, cattle are sampled depending on the trial. These may include fecal samples, manure samples, blood, or other samples to evaluate impact of treatments on different measures of interest. For GHG emissions, different sophisticated systems are used. On pasture, sensors are taking samples of air concentration of methane or gas of interest in milliseconds and used

to calculate flux or emissions from that entire pasture. A new facility was built that monitors air in and air out to quantify methane emissions from pens of cattle. In addition to pen studies, we also utilize grazing pastures, corn residue fields, and our individual feeding facility for research trials depending on the objective.

WHAT WE'RE LEARNING - Research is reported annually in the Nebraska Beef Report, at scientific meetings with presentations by students, in theses and dissertations as students finish their M.S. or Ph.D. programs, and in peer-reviewed scientific journals. Some of our key findings include: **1.** Distillers grains and other byproducts are excellent cattle feeds, prevents waste streams at plants, improves growth in many cases, and leads to a more competitive ag industry in Nebraska than anywhere else in the world; **2.** We are learning what factors control GHG emissions from cattle production systems, and testing ways to decrease the carbon footprint; **3.** Improving how grain is utilized and new ways to use the entire corn plant whether that is silage, residue, or improved hybrids; **4.** Use of technology is critically important to beef producers and to maintain a cost-effective production system and affordable beef; **5.** Cattle can be grown many different ways and with many different resources and be economical. However, growth performance and carcass performance need to be known.



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30-50 experiments are conducted per year in the ruminant nutrition area focused on beef cattle. Approximately 20 large research studies are conducted at ENREC annually. There are some key focus areas for our program that include:

- **Beef systems evaluations including cow-calf and growing yearlings**
- **Impact of beef production on greenhouse gas emissions, and methods to cut methane**
- **Ways to improve use of fibrous and novel feed byproducts to make good use of those by cattle and improve performance and economics of beef production in Nebraska**
- **Growth promoting technologies such as feed additives, new feed additives, and implants**
- **Nutritional requirements of beef cattle with a primary focus on protein needs**
- **Methods to improve use of grains and starch by cattle to minimize challenges of using grains, and ways to get more out of grain when fed to cattle**
- **Impact of production on carcass quality, growth, and health of beef cattle.**

Information provided by: - Galen Erickson, Nebraska Extension Beef Feedlot Nutrition Specialist. Copyright 2017.



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