

2023 C-Lock Grant Winner: Nichols Farm

Every few years, C-Lock Inc. awards equipment to applicants in the animal production industry. The grant program supports researchers and livestock producers across the globe and increases awareness of C-Lock equipment. Applicants submitted research proposals that detailed the issue they will address using the equipment, research objectives, project methodology, timeline, and expected results.

This year there were a record number of submissions, with ninety applicants from seventy different institutions. The evaluation committee selected five proposals to fund, awarding nearly one million dollars of equipment. These proposals were chosen for their innovative application of C-Lock equipment to address real-world issues in animal agriculture:

- Incorporating GreenFeed into performance testing and evaluation
- Mitigating methane emissions from ruminants in Africa
- Establishing a sustainability selection index for beef cattle
- Evaluating methane and carbon dioxide emissions in pigs
- Investigating precision data monitoring in beef cattle

Over the next few months, we will highlight each grant awardee and the exciting research that will be conducted. Later, we will feature the findings of their research. This month we are pleased to spotlight **Nichols Farms**, one of the 2023 grant recipients. Nichols Farms has the distinction of being the only non-research institution awarded a C-Lock grant.

Background of Nichols Farms

Nichols Farm was started in the mid-1950s by Dave Nichols and his father, Merrill Nichols. They began their operation feeding cattle but started having trouble sourcing the kind of cattle they wanted in their feedyard. So, they started raising their own,

beginning with Angus. Fast-forward seventy years and a generation of innovation, and Nichols Farm is one of the largest seed stock producers in the country. Nichols runs 1250 mother cows in Bridgewater, Iowa, raising Angus, Simmental, South Devon, and composite breeds. Annually they market 500 bulls and 250 replacement heifers. They've sold cattle, embryos, and semen to producers in all 50 states and 29 countries.

Currently Using C-Lock Equipment

Nichols Farms uses C-Lock's **SmartFeed** and **SmartScale** in their annual performance test. During the test, eight hundred of their calves are evaluated for feed intake, growth, activity, and characteristics like disposition and soundness. From the data collected with C-Lock equipment, smart ear tags, and genome sequencing, Nichols Farms has developed expected progeny differences (EPDs) and selection indexes for feed efficiency.

Ross Havens, Marketing Manager for Nichols Farms since 1994, says, "We currently use C-Lock equipment as a key part of the program. Our goal is to make genetics that result in more efficient cattle. In the cattle industry, the biggest input cost is feed cost—you feed that cow 365 days a year, and there is no getting around that. But, if we can produce feed-efficient cows and bulls, they will produce more efficient calves. And in turn, those calves will enter feedlots and produce a quality protein with less feed and in less time."

Working with Universities

Nichols Farms is collaborating with two universities to bring their data and findings to a broader audience. Texas A&M AgriLife Research is analyzing genetic relationships among cow longevity, cow fertility, and post-weaning health records from Nichols's data. The University of Georgia is studying the effects of the rumen microbiome on cattle health performance traits.

Adding GreenFeed to the Performance Test

With this grant award, Nichols Farms will add two **GreenFeed** units to their performance test. GreenFeed units will work in

conjunction with existing SmartFeed and SmartScale technologies to collect data on animal energy requirements and methane and carbon dioxide emissions, in addition to traditional feed intake, and gain data to bolster their feed-efficiency evaluation and develop new sustainability metrics. Their objectives are to:

- Quantify maintenance energy requirements using carbon dioxide production and dioxygen consumption data from the GreenFeed
- Evaluate the ability of GreenFeed to estimate and rank animals by feed conversion rate
- Correlate traditional feed efficiency and growth metrics with energy requirements
- Evaluate repeatability of feed efficiency during different stages of heifer development
- Incorporate gas emission data into selection indexes

Because of its established reach into seed stock production, Nichols Farm creates an opportunity to impact the industry with innovative approaches that are rarely found outside research institutions. Their high-density genotypes and sequencing data on feed efficiency is impacting how cattle producers feed cattle. They aim to further improve their evaluation with the addition of GreenFeed data.

Praise for C-Lock

Havens says, “We are proud to work with C-Lock and use their great equipment. They are the only ones in the industry doing what they are. They are a very professional company – the service is great, and the equipment's first-rate. The data, well, it’s awesome for the industry