

BEEF CATTLE

Florida's beef cattle ranches comprise 1.7 million cows and calves, the third-largest number among states east of the Mississippi River. In 2012, cash receipts for the state's beef industry totaled \$669 million.

Most of Florida's estimated 20,000 ranchers engage in cow-calf production, raising calves that are finished and processed in other states. Reproductive efficiency is key to this system, and ranchers strive to ensure that each cow produces one healthy calf per year.

Consequently, UF/IFAS beef research emphasizes programs that boost calving rates by improving nutritional support and helping ranchers implement new reproductive technologies such as timed artificial insemination, an alternative to traditional breeding.

UF/IFAS beef cattle research takes place primarily at the UF main campus in Gainesville, the Range Cattle Research and Education Center in Ona and the North Florida REC in Marianna, and is supported by the Florida Cattlemen's Association, beef industry advisory groups, federal government agencies and individual ranchers.

Besides reproductive efficiency, UF/IFAS researchers investigate ways to address challenges such as heat stress, disease and pest pressures, and the need for efficient, sustainable forage production.

NATURAL
RESOURCES



HUMAN
SYSTEMS



AGRICULTURE



Ongoing Research



REDUCING PHOSPHORUS LOSS

Responding to the needs of Florida's cattle ranchers and the concerns of environmental groups, UF/IFAS' Range Cattle REC at Ona has committed to long-term study of the role phosphorus plays in forage production, and how phosphorus fertilizer can be used properly to support vigorous forage growth while simultaneously minimizing the potential risks of off-site nutrient transport. UF/IFAS phosphorus recommendations have been revised numerous times since the 1950s to help ranchers save money and avoid unnecessary phosphorus applications. Current efforts by Maria Silveira, an associate professor at the Ona center, investigate soil fertility strategies that target both the agronomic and environmental aspects of pasture fertilization.



TEMPORARY CALF REMOVAL

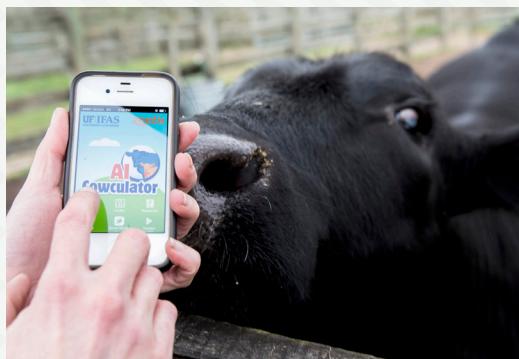
Ranchers often breed beef cows using timed artificial insemination to reduce labor and veterinary costs. Frequently, the calves are temporarily taken from their mothers just before breeding because this practice is believed to increase the chances of pregnancy. But a UF/IFAS study led by Cliff Lamb, a professor at the North Florida REC in Marianna, suggests that the conventional wisdom may be wrong—researchers found no difference between pregnancy rates in cows that had their calves removed for 48 or 72 hours prior to breeding, versus control groups where the calves remained with their mothers. Furthermore, calves that had been separated from their mothers had lower body weights two months after breeding, compared with control calves.



FIGHTING PATHOGENIC E. COLI

One way to protect beef from the harmful *E. coli* O157 bacterium is to reduce populations of the microbe in and around live cattle. Kwang Cheol "K.C." Jeong, an assistant professor with UF/IFAS' animal sciences department, led a study that analyzed so-called super shedders, cattle that harbor large amounts of the bacterium and excrete it in their waste. These animals are believed to constitute between 2 and 5 percent of an average herd, but may account for more than 90 percent of the *E. coli* O157 bacteria present. The results suggest it could be practical for ranchers to identify and test likely super shedders, then quarantine cattle that test positive.

Research with Impact



TIMED ARTIFICIAL INSEMINATION APP

To help ranchers determine for themselves whether it's practical to breed their beef cows using timed artificial insemination (AI), UF/IFAS researchers including Professor Cliff Lamb have developed a mobile Internet application called the AI Cowculator. The app enables ranchers to input statistics about their operations and then learn whether timed AI might reduce their costs and enhance profitability. The app was developed with about 15 years of economic data collected by Lamb and colleagues at the North Florida REC. The data show that an average calf produced with timed AI was almost 40 pounds heavier at weaning than a counterpart that resulted from traditional breeding.



FEED EFFICIENCY

Feed efficiency is a measurement showing the difference between the amount of feed a cow consumes, versus the amount she'd be expected to consume based on her breed, weight and body condition. Ranchers looking to minimize their feed costs can learn an important point from a UF/IFAS study led by Nicolas DiLorenzo, an assistant professor at the North Florida REC. The researchers compared the feed efficiency of beef cows over time and found that the most feed-efficient heifers matured into feed-efficient cows, and those cows performed as well as counterparts that ate more. The results could help ranchers save money on feed, without affecting the prices their calves command.



EARLY WEANING

Florida ranchers using a cow-calf system could increase profits by following UF/IFAS recommendations on early weaning, according to John Arthington, director of the UF/IFAS Range Cattle REC at Ona. The system involves weaning calves at 70 days of age, rather than the standard 220 to 250 days. For heifers that have given birth to a first calf, early weaning greatly increases the chances of a successful second pregnancy and reduces the post-partum interval. Early weaning can also reduce voluntary forage intake by nearly 25 percent per cow during winter months when forage is scarce. Arthington reports that Florida ranchers who've tried the system have been pleased with the results.

UNIT LEADERS

John Arthington
Center Director and Professor
Range Cattle Research and Education Center
863-735-1314 • jarth@ufl.edu

Nick Comerford
Center Director and Professor
North Florida Research and Education Center
850-875-7100 • nbc@ufl.edu

Geoffrey Dahl
Chair and Professor
Animal Sciences
352-392-1981 • gdahl@ufl.edu

K. Ramesh Reddy
Graduate Research Professor and Chair
Department of Soil and Water Science
352-294-3154 • krr@ufl.edu

RESEARCHER CONTACTS

Reducing Phosphorus Loss
Maria Silveira
Associate Professor
Soil and Water Science
Range Cattle Research and Education Center
863-735-1314
mlas@ufl.edu

Temporary Calf Removal and Timed Artificial Insemination App
G. Cliff Lamb
Assistant Director and Professor
Animal Science Programs
North Florida Research and Education Center
850-394-9124
gclamb@ufl.edu

Fighting Pathogenic E.Coli
Kwang Cheol "K.C." Jeong
Assistant Professor
Animal Sciences
352-392-1981
kcjeong@ufl.edu

Feed Efficiency
Nicolas DiLorenzo
Assistant Professor
Animal Sciences
North Florida Research and Education Center
850-394-9124
ndilorenzo@ufl.edu

Early Weaning
John Arthington
Center Director and Professor
Range Cattle Research and Education Center
863-735-1314
jarth@ufl.edu