
84 Awardee Talk: Managing Reproduction: A key to Profitability. Les Anderson¹, ¹*University of Kentucky*

Abstract: In agriculture, the ability to reproduce dictates gross revenue and reproductive success is the culmination of implementation of multiple management practices that optimize the probability the animal will reproduce. About four decades ago, Extension Specialists recognized the need to develop a holistic approach to beef cattle management. Integrated Resource Management (IRM) is a concept developed by the Cooperative Extension Service and the National Cattlemen's Beef Association and the concept represents a systems approach designed to enhance the competitiveness, efficiency, and profitability of the beef business. My Extension program has focused on enhancing reproductive efficiency, revenue, and profits using IRM concepts and a hands-on approach. Nearly 2,000 farm visits and multiple Extension programs to thousands of producers have demonstrated methods to improve productivity and profitability. Perhaps the most impactful program was the UK IRM Farm Program. This program combined standard educational meetings discussing health, nutrition, genetics, and reproduction with extensive farm visits. Baseline data was obtained from each cooperator and farm goals were ascertained. From these, production plans were developed and implemented with the help of local Extension Agents. At the conclusion of the program, 147 producers from 84 counties with 6,943 cows committed to this program. Data collection and management was central to this project. We obtained gross data from all cooperators and accurate impact data from a subset of these producers. Integrated, organized management decreased the length of the calving season, increased calving percent, weaning percent, weaning weight and pounds of calf per cow exposed. Revenue was increased by 34% on average with a range of 25-200%. During this project, we recognized the need for a new data collection and management application and developed X10D (pronounced "extend"). An IRM approach making data driven decisions is a key to increasing revenue and enhancing profitability in beef cow-calf operations.

Keywords: beef cattle, reproduction, IRM, profitability

82 Genetic Correlations Underlying the Thermotolerance: Production Complex in Beef Cattle. Raluca Mateescu¹, Fernanda M. Rezende¹, Kaitlyn M. Sarlo Davila², Andrea N. Nunez Andrade¹, Aakilah Hernandez¹, Pascal Oltenacu¹, ¹*University of Florida*, ²*ORISE/NADC*

Abstract: Heat stress is a principal factor limiting production of animal protein in subtropical and tropical regions, and its impact is expected to increase dramatically. Development of effective strategies to improve the ability to cope with heat stress is imperative to enhance productivity of the livestock industry and secure global food supplies. However, selection focused on production and ignoring adaptability results in beef animals with greater metabolic heat production and increased sensitivity to heat stress. The goal of this research is to describe novel traits which can be used to characterize genetic pathways for thermotolerance which are independent or positively associated with production performance. Variance components, heritabilities, additive genetic correlations, and phenotypic correlations were estimated for skin histology characteristics, hair characteristics, body temperature under high temperature-humidity index (THI) conditions, and ultrasound carcass traits on 330 heifers from the University of Florida multibreed herd. A high heritability of 0.69 was estimated for the sweat gland area. The heritability for body temperature under high THI conditions was estimated to be 0.13 which is similar the heritability estimated reported for rectal temperature in a Brahman x Angus crossbred population (0.19; Riley et al., 2012) and dairy cattle (0.17; Dikmen et al., 2012). Sweat gland area had a negative genetic correlation with sweat gland depth (-0.49), short and long hair length (-0.45 and -0.28, respectively), and body temperature under high THI conditions (-0.65). These negative correlations suggest a similarity in the genetic control underlying these traits which would allow for selection of animals with large sweat glands, short hair (both topcoat and under coat), and able to maintain a lower body temperature under high THI conditions. More importantly, although weak, the genetic correlations between sweat gland area and the two production traits (backfat and intramuscular fat) were favorable (0.22 and 0.20, respectively).

Keywords: beef, genetic parameters, heat stress