

## Angus Foundation Research Project

**Name of project:** Relationship between feed efficiency measures during the heifer development stage and measures taken during first lactation in purebred Angus, Iowa State University (ISU)

**Status:** Completed

**Timeline:** 2008 to 2011

**How much the Angus Foundation has provided in funding:** \$19,000

**Objective:** To address the furthering of knowledge on feed utilization in Angus females following their first calving and subsequent weaning of the calf. The purpose of the study was to determine if heifers evaluated for feed efficiency during their growth phase from weaning to yearling have similar rankings in feed utilization for continued developmental growth and milk production during the nursing stage with their first calves.

**Results, if any:** This study found that evaluation of first-calf heifers is complex due to feed energy intake being partitioned into the three areas that one should address when using the Residual Feed Intake (RFI) model. These areas are maintenance, growth and milk production. Further complicating comparisons was the physiological maturity and stage of lactation when measures were taken.

Still, this study did find that large phenotypic differences exist in efficiency of feed utilization in lactating first-calf heifers. This study indicated that over 80% of feed intake variation can be accounted for with measures of initial metabolic weight, weight gain, day of lactation when measurement starts and milk production. This study also suggests a positive phenotypic correlation exists between yearling and first-calf heifer RFI. That use of yearling RFI could result in efficiency gains during lactation; however the efficiency of milk production, the efficiency of maintenance and the efficiency of growth are separate traits and must be recognized as such.

**Application:** Results of this study provide a background to better understanding efficiency measures for the cow herd, potential for any selection tools and their impact. With current Angus efficiency tools directed at the feedlot sector, the cow herd efficiency component is still not well understood in the scientific community relative to genetic strategies.