

Virginia Cattle Industry Board

Final Report

12/13/2021

Project Lead: John Benner

Organization: Virginia Polytechnic Institute and State University through Virginia Cooperative Extension

Email: benner89@vt.edu

Title: Virginia 4-H/FFA Market Beef Ultrasound Carcass Contest (21-6)

Project Type: Education Market Development Promotion Research Youth Development

Original Funding Amount: \$10,000

Remaining Balance: \$8,760

Objectives and Results:

Were the objectives from the original proposal reached? How? If not, why not? Please discuss any problems or delays. Methods and resulting data should be reported as they pertain to each objective.

The Virginia 4-H/FFA Steer Ultrasound Carcass Contest is a youth development project with the goal of improving youth exhibitor understanding of beef carcass evaluation. It is the objective of this project to broaden the depth of knowledge and appreciation for the cattle and beef industries.

In calendar year 2021, a total of 124 finished 4-H/FFA project steers were scanned via ultrasound for carcass merit at various fairs and livestock shows throughout the state of Virginia. Each of these steers scanned received support from the Virginia Cattle Industry Board at a rate of \$10/head. These efforts included the Augusta County 4-H/FFA Market Animal Show (35 steers), Madison County Fair (10 steers), Culpeper-Madison-Rappahannock Farm Show (19 steers), Rockingham County Fair (33 steers), and Page Valley Fair (27 steers).

The 2021 Augusta County 4-H/FFA Market Animal Show marked a resumption of the live-in person show and ultrasound steer carcass evaluation, after a pause in both of these activities in 2020 due to COVID-19. Possibly due to the pandemic, the overall show and correspondingly the entries into the steer carcass contest were down. There were a total of steers and the show with 35 entries into the carcass contest. Steer exhibitors entering the carcass contest brought their steers up to a headcatch and squeeze chute to have their steer scanned. The steers were scanned by Andy Weaber, Weaber Livestock.

Steer tag identification, steer show check in weight and ultrasound scan data was sent to the Centralized Ultrasound Processing (CUP)® Lab for processing. Ultrasound images of each steer's ribeye area at the 12/13th rib, backfat dept, and % IMF were obtained. Data from these images was used to report measurements for each of these important carcass traits, and correspondingly used to calculate yield grade, quality grade, boneless closely trimmed retail cuts, and carcass value gain per days on feed. To do this kidney, pelvic and heart fat was assumed to be 3.5% for all steers.

Steers are ranked using a carcass price grid provided by the CUP lab. The grid assigns a base carcass price and premiums and discounts for carcasses with superior or inferior quality and yield grades. Steers with a yield grade of 1 were discounted, and steers with a yield grade of 4 or 5 were discounted. Steers with a Choice+ quality grade received a premium. Steers were then ranked on carcass price per \$/cwt and high %IMF.

Virginia Cattle Industry Board Grant Reporting

A survey was distributed and made available to all exhibitors participating in the carcass contest, regardless of species. A total of 19 exhibitors took the survey, 7 of which, were steer exhibitors. Exhibitors were asked several questions related to carcass evaluation and meat quality. All questions were multiple choice. One question asked "What is the most important factor in determining yield grade?" 31% of exhibitors correctly indicated that the answer is back fat depth at the 12/13 rib. This indicates greater need for educational programs relating to carcass evaluation and meat quality. Exhibitors were also asked why they participate in the carcass contest. A majority of all exhibitors 51%, indicated that they scan their animals to learn about carcass quality. 31% stated that they primarily scan their animals to have a chance at winning or placing in the carcass contest. This is a positive indication about the educational value of the carcass contest to all exhibitors. Carcass data for the Augusta County Market Animal Show is included. This data is posted online at Market Animal Show Website and was shared at the Market Animal Show Awards Banquet in August.

An additional educational tool to share with young beef exhibitors regarding the profitability of feeding cattle is Carcass Value per Day on Feed. Carcass Value per Day on Feed (CVDOF) is calculated using carcass weight gain per day during the feedlot period and adjusting for red meat yield using the percent retail product equation. This result is then further adjusted on a carcass price grid accounting for yield and quality grade (Strohbehn and Busby, 2009). CVDOF is shared with exhibitors to provide a prediction of profitability for their steer project, if they were feeding it out in the commercial industry, as it combines rate of gain and feeding margin with end carcass value. We hope to share this value with exhibitors whenever rate of gain and initial nomination weights are recorded. Research by Iowa State shows a high correlation of average daily gain (ADG) with profitability of feeding cattle, which CVDOF addresses (Strohbehn and Busby, 2009).

The Culpeper-Madison-Rappahannock Farm Show and Madison County Fair were held in July. At the Culpeper-Madison-Rappahannock Farm Show 19 steers were scanned. Steers were ranked on an index formula based on quality and yield grade adjustments. Data is included in this report. The 19 steers in the contest averaged 2.68 lbs/day average daily gain, and average hot carcass weight of 809 lbs. The average backfat depth was 0.54 inches and the average ribeye area was 13.89 inches². The average yield grade for steers entered in the contest was 2.88 and the average %IMF was 5.25%, which is equivalent to a Choice grade.

10 steers were scanned at the Madison County Fair. Steers were ranked on an index formula based on quality, yield and retail product adjustments. The 10 steers averaged a 3.21 lbs/day average daily gain, 12th backfat of 0.33 inches, and an average ribeye area of 12.10 inches². Average yield grade was calculated at 3.45.

At both the Culpeper-Madison-Rappahannock Farm Show and the Madison County Fair carcass data was reviewed with exhibitors during the awards banquets for both shows. Exhibitors learned about the importance of intramuscular fat (%IMF) to quality grade and 12/13th rib backfat depth and ribeye area to yield grade. Steers at both shows were scanned by Andy Meadows, DVM, Springwood Livestock Management Services. Data was sent to UltraInsights, Pierce, CO.

At the Rockingham County Fair 4-H/FFA Livestock Show a total of 33 steers were scanned in the debut year of carcass ultrasound data collection. Steers were placed on a carcass grid developed from USDA-AMS 5 Area Weekly Weighted Average Direct Slaughter Cattle report and National Weekly Direct Slaughter Cattle Premiums and Discounts. A carcass with a yield grade of 3.0-3.99, Choice weighing between 600-900 lbs was considered average. 12/13th rib backfat average on steers entered in the contest was 0.55 inches. Average ribeye area at the 12/13th rib was 13.91 inches². The average yield grade for steers entered in the contest was 2.74. Dressing percentage for the Rockingham County Fair was assumed to be 63%. Steers were ranked on live value = [(Grid adjusted carcass value)/(predicted hot carcass

Virginia Cattle Industry Board Grant Reporting

weight)] and high percent %IMF. Exhibitors received prizes for the top 3 carcass entries. At the Rockingham County Fair Buyers Appreciation Event carcass data was presented to exhibitors, along with explanation of the data. At their regular board meeting the Rockingham County Fair Livestock Show Board indicated they were enthusiastically interested in continuing the carcass show contingent on receiving additional support from the Virginia Cattle Industry Board in financially supporting the carcass contest.

Overall Benefit for Virginia Cattle Industry:

Please indicate the number of people that were impacted by or involved with this grant: How will your results improve Virginia's Cattle Industry?

The direct impact of this grant was to determine the carcass merit of 124 steers that were scanned for carcass traits via ultrasound. This positively impacted over 90 exhibitors who learned about their steer(s) carcass data. At the Augusta Market Animal Show and the Rockingham County Fair, the participation in the steer carcass contest was approximately 58% and 47% respectively, of the total number of steers at the show. We feel these numbers are very strong. Many exhibitors with two steers often elect to scan only the one that they think may have the best chance to win the contest. Furthermore, through educational efforts such as sharing the carcass data at awards banquets for the various shows increased the knowledge of beef grading for all exhibitors. At the 2021 Augusta County 4-H/FFA Market Animal Show there were a total 142 exhibitors participating in the contest. The majority of these exhibitors and their families attended the Market Animal Show awards dinner, and received carcass information on the steers. Approximately, 125 total people attended the Culpeper-Madison-Rappahannock Farm Show and Madison County Fair awards programs, receiving steer carcass information. At the Rockingham County Fair, there were a total of 232 exhibitors, many of whom, along with their families, attended the Buyers Appreciation Dinner and learned about the beef carcass data.

Activities Associated with Project:

List any activities held in association with this project, including date, type (article, brochure, training, event, etc.), purpose, and any pertinent results.

As mentioned in the Objectives and Results section of this report, steer exhibitors at the Augusta County 4-H/FFA Market Animal Show, Culpeper-Madison-Rappahannock Farm Show, Madison County Fair, Page Valley Fair, and Rockingham County Fair 4-H/FFA Market Animal Show. Data from each of these shows is included as an addendum to this report. Data from the Augusta Market Animal Show, of which historical data is presented below (Fig. 1-4). 2020 data is not available as no carcass contest was held due to the coronavirus pandemic.

Virginia Cattle Industry Board
Grant Reporting

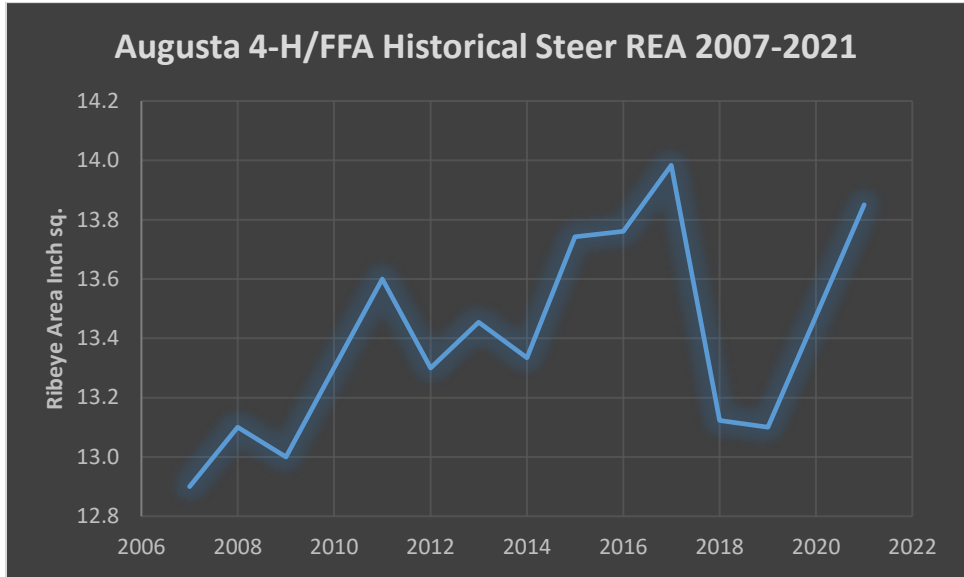


Figure 1 - Augusta 4-H/FFA Market Animal Show Historical Steer REA 2007-2021

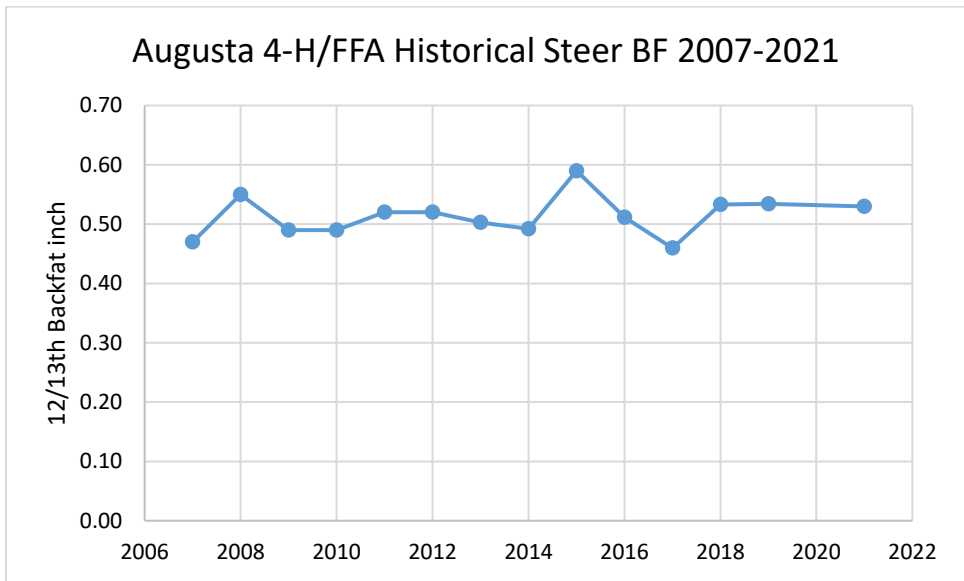


Figure 2 - Augusta 4-H/FFA Market Animal Show Historical Steer Backfat 2007-2021

**Virginia Cattle Industry Board
Grant Reporting**

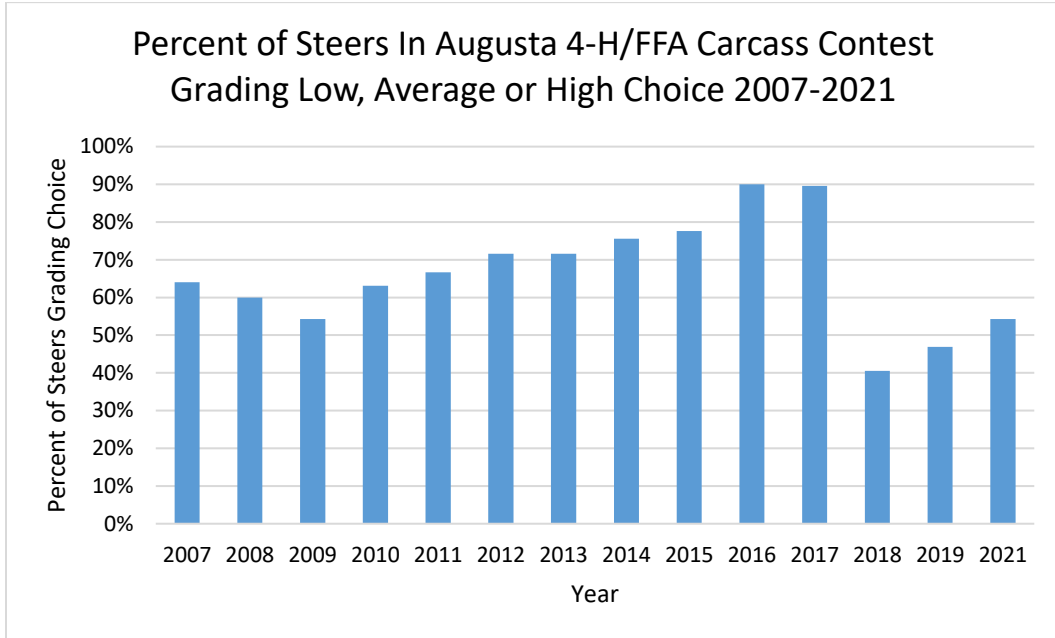


Figure 3 - Augusta 4-H/FFA Market Animal Show Historical Choice Grade % 2007-2021

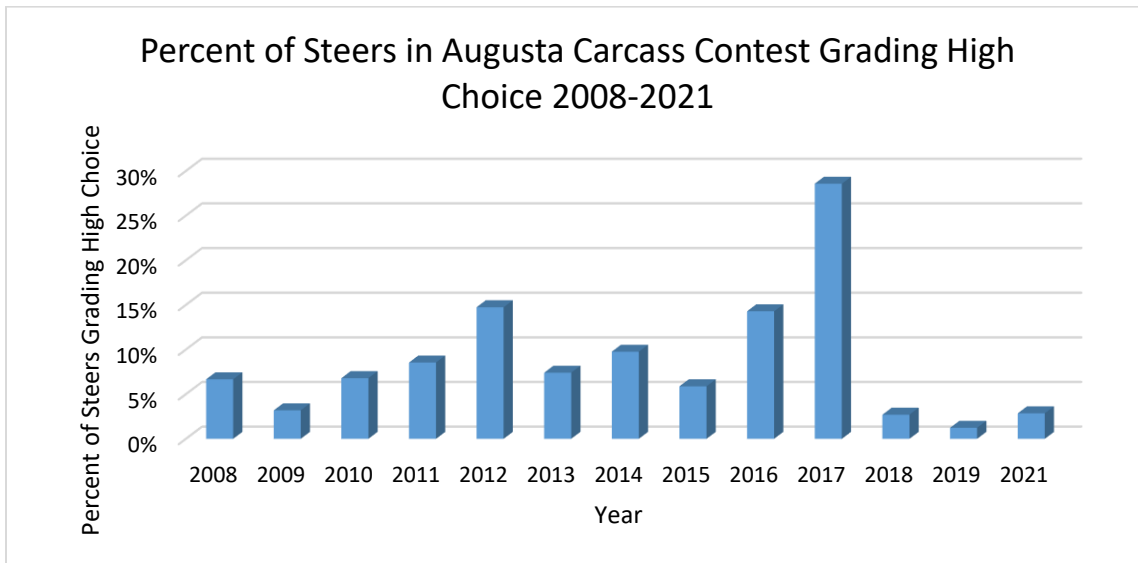


Figure 4 - Augusta 4-H/FFA Market Animal Show Historical High Choice Grade % 2007-2021

Lessons Learned:

Comment on what worked, what did no work, and what you would do differently.

There are lessons learned from this year's carcass contests. One lesson is to have the headcatch and chute set up the night before scanning begins. This saves critical time during scanning day to ensure that every animal that is intended to be scanned gets scanned. Another critical piece is to have enough help to scan steers. Steers must be brought up to the headcatch, while additional help is needed keeping track of steer and exhibitor identification and paperwork. Resolving both of these issues will make sure that scanning goes smoothly and every animal that signed up to get scanned will get scanned.

Virginia Cattle Industry Board Grant Reporting

Future Work:

Discuss continuation of the project or how results will direct future activity.

We hope to continue this project into 2022 and beyond. We hope by sharing carcass results of livestock shows that are currently participating in the grant will help grow awareness of the grant and foster greater participation from more livestock shows. We also hope to grow educational program opportunities and meetings with exhibitors that cover the importance of carcass data and grading beef to beef demand. Carcass data and beef grading educational materials can be presented at exhibitor workshops and regular monthly 4-H club meetings in addition to awards programs.

Regions:

Please indicate what Virginia cattle production areas were impacted by this grant activity:

Select all that apply:

District I – Western South West

Buchanan, Dickenson, Lee, Russell, Scott, Smyth, Tazewell, Washington, Wise

District II – Eastern South West

Bland, Carroll, Floyd, Giles, Grayson, Henry, Montgomery, Patrick, Pulaski, Wythe

District III – Southern Valley

Alleghany, Amherst, Augusta, Bath, Botetourt, Craig, Highland, Nelson, Roanoke, Rockbridge

District IV – Northern Valley

Clarke, Frederick, Page, Rockingham, Shenandoah, Warren

District V – Northern Piedmont

Accomack, Albemarle, Arlington, Caroline, Culpeper, Essex, Fairfax, Fauquier, Fluvanna, Gloucester, Goochland, Greene, King and Queen, King George, King William, Hanover, Henrico, Lancaster, Louisa, Loudoun, Madison, Matthews, Middlesex, New Kent, North Hampton, Northumberland, Orange, Prince William, Rappahannock, Richmond, Stafford, Spotsylvania, Westmoreland

District VI – Southern Piedmont

Amelia, Appomattox, Bedford, Brunswick, Buckingham, Campbell, Charlotte, Charles City, Chesapeake, Chesterfield, Cumberland, Dinwiddie, Franklin, Greensville, Hampton, Halifax, Isle of Wight, James City, Lunenburg, Mecklenburg, Newport News, Powhatan, Nottoway, Pittsylvania, Prince Edward, Prince George, Suffolk, Sussex, Southampton, Surry, Virginia Beach, York

Final Budget and Justification:

Item Type	Original Awarded Amount	Final Amount Spent
Personnel	[\$0.00]	[\$0.00]
Fringe	[\$0.00]	[\$0.00]
Travel	[\$0.00]	[\$0.00]
Supplies & Materials	[\$0.00]	[\$0.00]
Contractual	\$10,000	\$8,760

**Virginia Cattle Industry Board
Grant Reporting**

Other	[\$0.00]	[\$0.00]
Total	\$0.00	\$0.00

A total of \$1,240 was spent from the original allotment of \$10,000. 100% of these funds were used to scan 124 steers at the Augusta County 4-H/FFA Market Animal Show, Culpeper-Madison-Rappahannock Farm Show, Madison County Fair, Page Valley Fair and the Rockingham County Fair. Though we have seen steady growth in the use of the carcass contest grant funds in the first year since its inception (2021). We do expect several additional livestock shows to make use of this fund going forward. It may be reasonable to expect the total number of steers scanned under this program to increase in future years as more shows become aware of the grant.

Credits: Please list how the Virginia Cattle Industry Board was recognized as a sponsor of this grant project.

The Virginia Cattle Industry Board was credited on steer carcass sheets in the following manner: "This project is funded in part by a grant from the Virginia Cattle Industry Board." This statement was placed adjacent to the logo. The Virginia Cattle Industry Board was also mentioned during the awards programs at the various shows.