

DEVELOPING BEEF QUALITY ASSURANCE MATERIALS FOR YOUTH

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Introduction

Beef Quality Assurance is a program that ensures that beef cattle are maintained in a manner which will result in a safe and wholesome beef product for the consumer. Youth livestock programs such as 4-H and FFA involve thousands of youth nationwide. These programs provide youth with a unique opportunity to use live animals to develop valuable life-long skills. With the increasing popularity of junior livestock shows, product safety and quality is every bit as important as it is in the commercial industry. Today, more than ever before, 4-H and FFA students need to realize they are in the business of producing food. These youth must take every precaution to ensure a high quality product that the consumer will find safe and wholesome. This project developed instructive materials that will enhance the educational aspects of 4-H and FFA junior livestock projects.

The objectives of this project were: 1) Increase youth awareness of the commercial livestock industry, the impact junior livestock shows have on that industry and how his or her steer project and product compares to industry benchmarks as determined by national beef quality audits. 2) Teach youth principles of Beef Quality Assurance (BQA) and animal livestock evaluation from the perspective of the wholesale and retail trades. These principles will benefit them as future producers and/or consumers. 3) Provide 4-H and FFA leaders with materials that will enable them to teach youth about carcass quality and other BQA principles that will assist in a greater understanding of the beef industry.

Materials and Methods

Live animal, carcass, and economic data on 4-H and FFA steer projects were collected from the Box Elder County Fair and Junior Livestock Show since 1974. Each year, 4-H and FFA youth exhibiting beef projects are required to register and weigh their beef animal with the livestock show committee in March and care for their animal for a minimum of 150 days. Beef projects are consigned to the junior livestock show in late August. No project is accepted under 1,075 lbs net weight. The average market weight during the period of 2004 to 2007 was 1,286 lbs live, an increase of 70 lbs over the previous 5 year period. A standard shrink of 3% is applied to all show steers.

Data collected on the steers includes: 1) A photograph of the rear and side view of each live animal (Figure 1) was taken as the exhibitor and project exited the judging contest; 2) an ultrasound scan including a digital image (Figure 2) of the ribeye area and backfat thickness taken by a certified ultrasound technician; 3) live weight and breed type which were gathered at the livestock show; and 4) after harvesting the animals, a photograph of a cross section of the ribeye between the 12th and 13th rib was taken (Figure 3). Collecting accurate carcass measurements in a large beef packing plant is difficult because the measurements usually need to be made while the carcass is moving on the rail.

Because of limited processing area, it has become almost impossible to have commercial processors rail aside carcasses for closer examination. For this reason, we had to incorporate data gathered from ultrasounds with the limited data gathered from the processor. Carcasses were measured for quality and yield grade, carcass yield, hot carcass weight, percent kidney, pelvic and heart fat, ribeye area, backfat

thickness and marbling score. Carcass data were compared to data acquired from the ultrasound scan and the placings in the livestock show.

Results and Discussion

Objective 1 – Help youth gain an understanding of the livestock industry.

Recent county and state junior livestock show research indicates that many youth are trained in fitting and showing their steers but do not associate their project with the overall beef or consumer retail industry. Many know little about careers available to them in the livestock industry (Holmgren and Reid, 2001).

Educational BQA resources included a teaching manual, *From the Farm to the Table, Teaching Youth About Carcass Quality*. Some of the material contained in this manual has been gathered from reliable beef production resources around the country. A series of 17 color sheets are included in the manual which have live animal photos, ultrasound images, actual ribeye photos and measured carcass data for each individual animal. Additional calf sheets are included on a CD, along with other multimedia materials to assist with teaching. A 19 minute DVD video production titled, *Youth Beef Quality, Producing a Quality Product for the Consumer* were developed to help youth understand their relationship as beef producers to the consumer who purchases this product. It stresses that youth who are raising project beef for the retail market improve the quality of their beef product by reducing the frequency of producer-caused carcass quality problems and ensure that best management practices are followed. Specifically, it discusses:

1. Daily Care and Management
2. Prevention
3. Handling
4. Carcass Quality
5. Health Care

A second 26 minute DVD, *Realizing the Impact of Injection-site Lesions*, produced by Utah State University Extension was included with the educational materials. This video discusses the impact of injection site lesions and emphasizes the economic losses to the industry that occur from improperly injecting vaccinations, vitamins, and other drugs into the animal. Since this program has been initiated, there has been an increase in the percent of beef carcasses grading choice or better. At the Box Elder County Junior Livestock show, the number of beef carcasses grading choice or better has increased 62 percent from an average of 38.31 percent during the period of 1994 to 1998 to 58.50 percent during the most recent period of 2004 to 2007.

Objective 2 – Teach youth principles of Beef Quality Assurance and how these principles relate to 4-H and FFA projects.

Traditionally, packers discount prices paid for carcasses outside the hot carcass weight range of 550 to 950 lbs (McKenna et al., 2002). Recent trends in the junior livestock industry show that 4-H and FFA beef project carcass weights continue to increase but remain within acceptable National Beef Quality Audit – 2000 standards as shown in Table 1. According to the National Beef Quality Audit – 2000, 4.6% of carcasses had hot carcass weights outside of the 550 to 950 lbs range.

One objective of the NBQA was to increase the percentage of cattle making it into the USDA Prime and the upper part of the Choice grade (Busby et al., 2001). Table 1 illustrates 4-H and FFA beef carcass trait averages for carcasses grading Choice or better at the Box Elder County Junior Livestock Show. Since the mid 1980s there has been an improvement in the percentage of carcasses grading Choice or higher. The information developed from this project was distributed to each FFA advisor and county extension agent with youth livestock project responsibilities. In our own county, the information is taught in club meetings and at our county livestock field days where BQA principles are emphasized.

Objective 3 — 4-H and FFA leaders will have materials that will enable them to teach youth about carcass quality and other BQA principles that will assist in a greater understanding of the beef industry.

A CD containing supplemental material included 53 calf data sheets which have rear and side view live animal photos, ultrasound images, actual ribeye photos and measured carcass data for each individual animal. These sheets can be used to teach youth about quality and yield grading and how much variability can exist between different carcasses with the same quality or yield grade.

Implications

Often in our youth livestock programs, youth get so involved in competitive aspects of the project that they lose sight of the fact that the livestock they produce is eventually destined to the consumer. 4-H and FFA beef project leaders and parents can use these materials to teach their youth about Beef Quality Assurance and how they can produce a better beef product for the consumer.

Literature Cited

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McKenna, D. R., D. L. Roeber, P.K. Bates, T. B. Schmidt, D. S. Hale, D. B. Griffin, K. E. Belk, and G. C. Smith. 2002. National Beef Quality Audit – 2000. Survey of targeted cattle and carcass characteristics related to quality, quantity, and value of fed steers and heifers. J. Anim. Sci. 80.1212-1222.

NCBAQA, Executive Summary of the 2000 National Beef Quality Audit, Improving the Quality, Consistency, competitiveness and marketshare of beef. National Cattlemen's Beef Association.

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Figure 1. Side and rear view photograph of steer.



Figure 2. Ultrasound image of rib eye taken between the 12th and 13th rib of the same steer.

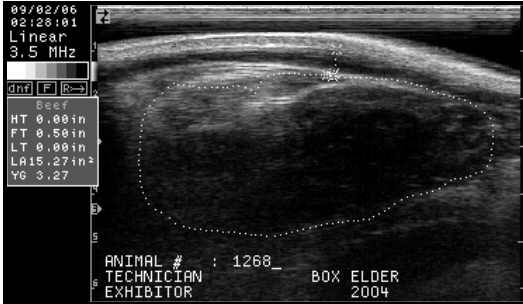


Figure 3. Digital photograph of the same ribeye muscle.

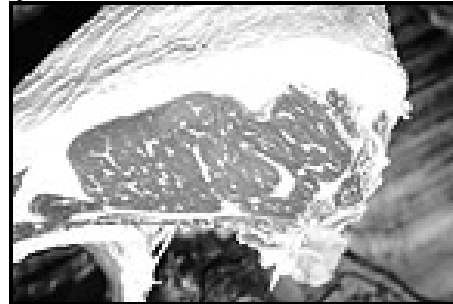


Table 1. Average quality production data, rib eye size and quality grades from 1974 to 2007 in 5 year increments at the Box Elder County Junior Livestock Show.

Period	1974 - 78	1979 - 83	1984 - 88	1989 - 93	1994 - 98	1999 - 03	2004 - 07
Number of Cattle	443	310	340	397	448	393	358
Live Weight	1,101	1,095	1,156	1,162	1,177	1,225	1,286
Hot Weight	621	674	700	713	719	743	768
% > 700 lb HW	7.2%	31.9%	52.5%	59.5%	62.7%	75.0%	91.0%
Ribeye Size	11.6	12.1	12.2	13.2	13.0	13.2	12.8
% Choice	59.2%	44.4%	32.1%	45.9%	38.3%	53.5%	62.0%
% Select	37.0%	52.4%	63.5%	51.3%	53.8%	41.0%	33.5%
% Off Grade	3.8%	3.2%	4.4%	2.8%	7.9%	5.5%	4.5%