Virginia Cooperative Extension

PUBLICATION 400-761

Marketing Cull Cows in Virginia

Phil Blevins, Extension Agent, Agriculture and Natural Resources, Washington County

Introduction

Cull cows and bulls represent a significant portion of the net income of Virginia beef farmers. According to the National Cattlemen's Beef Association (NCBA) *2007 Market Cow and Bull Beef Quality Audit*, the sale of cull beef and dairy cows and bulls accounts for as much as 20 percent of the income generated on these farms in the United States (NCBA 2007). Management and marketing strategies that enhance the value of these animals are worth considering. Research has also demonstrated that consumers are concerned about the well-being of the animals that produce the meat they consume (Bowling et al. 2008). Producers cannot ignore this trend.

According to the *1999 National Cow and Bull Beef Quality Audit* (NCBA 1999), beef producers could capture approximately $70 more per cull cow/bull by managing to minimize quality defects, monitor their health and condition, and market in a timely manner (Roeber et al. 2001).

What Beef Products Come From Cull Cows?

Beef from cull cows is called nonfed beef, meaning cull cows do not spend any significant time in a feedlot. Also included in the nonfed classification are cull bulls, and heifers or steers that are too mature to achieve a grade above U.S. Department of Agriculture (USDA) "Utility." While much of the beef from these animals is used as ground beef, the high-value primal cuts, such as the round, loin, and rib and the subprimals, such as the sirloin, ribeye, and tenderloin are used by fast-food outlets, airlines, family restaurants, and grocery stores (Bowling et al. 2008). Therefore, it is important that beef producers make every effort to deliver an animal that will yield a high-quality meat product for these consumers.

How Is Cull-Cow Value Determined?

The value is related to two factors: carcass value and byproduct value. The leaner product a cow or bull carcass produces and the higher the quality grade, the higher the value of the animal (Bowling et al. 2008). The official USDA grades for nonfed beef are (1) Commercial, (2) Utility, (3) Cutter, and (4) Canner – in descending order of desirability. These grades are based on a combination of maturity and marbling. Visual indicators used to estimate these characteristics are the degree of fat cover at various points on the animal and muscling (USDA 1996). However, most cow packers do not use the USDA grading designations and separate cull cows into five categories:

1. "White Cows" or high-quality cows: characterized by a significant amount of white external fat (commonly a result of 20 to 100 days on a high-concentrate diet), good body conformation, and high muscle quality.
2. "Boners and Breakers": characterized by slightly leaner carcasses with some marbling and good body conformation.
3. "Cutters and Canners": characterized as having little or no external fat or marbling, and poor body conformation.
4. "Bulls": defined as intact male animals that have little fat cover or marbling but good body conformation.
5. "Bologna Bulls": extremely lean bull carcasses for which conformation is not an issue (Bowling et al. 2008).

These grades take tissue lean percentage (TLP) and quality into consideration. Tissue lean percentage indicates the actual lean content of the untrimmed, boneless soft tissue product from the carcass. Cows can be sorted based on TLP yields of:

www.ext.vt.edu

Produced by Communications and Marketing, College of Agriculture and Life Sciences, Virginia Polytechnic Institute and State University, 2009

•90's: 90.0 percent or more TLP
•85's: 85.0-89.9 percent TLP
•80's: 80.0-84.9 percent TLP
•75's: 75.0-79.9 percent TLP
•70's: 74.9 percent or less TLP

(Harris 2002).

In Virginia, these cattle grades are reported by the Virginia Market News Service in the categories:

• Breaker – 75-80 percent lean
• Boner – 80-85 percent lean
• Lean – 85-90 percent lean

Breaker is the most valuable grade; Lean is the least valuable grade.

Many times there are price differentials reported within grades, with a designation of high or low dressing. This would be in reference to expected dressing percent (carcass weight divided by live weight times 100). Factors such as pregnancy status, gut fill, udder, muscle, and fat can affect dressing percent. A poster of cull-cow grades is available from the Virginia Department of Agriculture and Consumer Services (VDACS) at *www.vdacs.virginia.gov/marketnews/grading/slaughtercow.pdf*.

In addition to lean meat, a significant portion of the value of a cow or bull is derived from its hide and other byproducts, such as its tongue, cheek meat, and oxtail – especially valuable in export markets (Bowling et al. 2008).

Using Body-Condition Score in Culling Decisions

Body condition score (BCS) is an estimate of the external fat carried by a cow. Cows are assigned a score of 1 to 9, based on how much fat they are carrying, with a BCS 1 (figure 1) representing a very thin or emaciated cow and a BCS 9 (figure 2) representing a very fat or obese cow.

BCS is a useful tool when making culling decisions. Buyers of cull cows are looking for those cows that provide the best combination of carcass yield and meat quality.

Apple et al. (1999) from the University of Arkansas demonstrated that carcasses from fatter cows (BCS of 7 and 8) were graded U.S. Utility or higher, while carcasses from thin cows (BCS 2 and 3) had inferior quality characteristics. However, carcasses from BCS

Figure 1.

Figure 2.

Figure 3.

Figure 4.

7 and 8 cows had the lowest lean product yields with the most trimmable fat. Product from thin cows would be utilized primarily for ground beef. Carcasses of moderately conditioned (BCS 4, 5, and 6) cows had an optimized lean-product yield with a percentage of the carcasses achieving a quality grade of U.S. Utility or higher. Therefore, producers will likely receive the highest price for cull cows marketed when they carry a body condition score of 5 (figure 3) or 6 (figure 4). (For a complete discussion of body condition scoring, see *Body Condition Scoring Beef Cows*, Virginia Cooperative Extension publication 400-795.)

How Marketing Season and Grade Affect Price

Weekly auction-barn prices from Virginia livestock markets from 2005 through 2008 confirm that the properly conditioned cows are the higher-value cows (figure 5). Weekly auction data (from Southwest, Central, and Northern Virginia markets) from the Agricultural Marketing Service's *AMS Market News* (USDA 2005-2008) for this period show that cows of similar weight classified as Breakers averaged $8.01 per carcass weight more than cows classified as Lean. This amounts to $96.12 on a 1,200-pound cow. With proper planning, beef producers can capture some, or all, of this premium.

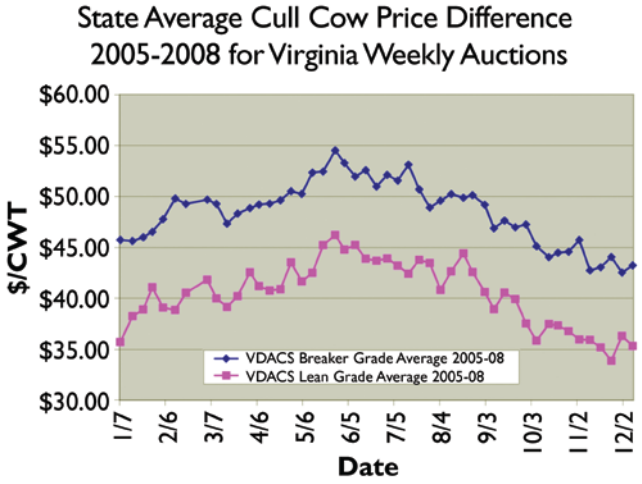

Figure 5. Data from USDA/AMS Market News.

There is definite seasonality to price. Cull-cow prices peak from late spring through mid-summer, decline to a low point in late December/early January, and then begin increasing. According to market data from the *Virginia Weekly Auction Reports* (figure 5), cows marketed from May through July in the Breaker category (averaged over the three-month period) sold for $6.94 per carcass weight more (or $83.64 for a 1,200-pound cow) than those marketed during the two-month period of December and January. Price information from CattleFax from 1994 through 2008 on cows marketed as U.S. Utility demonstrates a similar national trend (figure 6).

This provides producers with another possibility for increasing income from cull-cow sales.

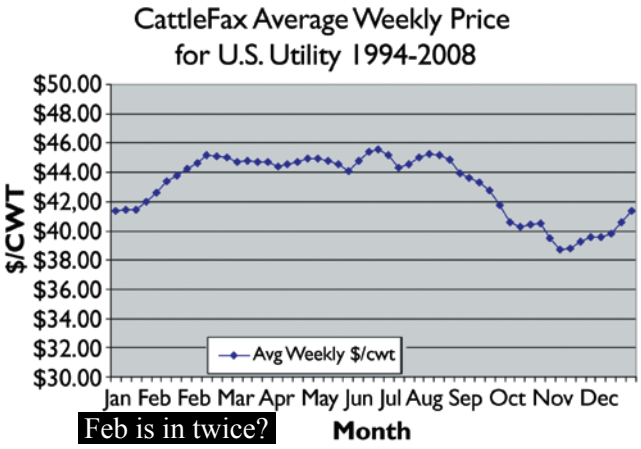

Figure 6. Data from CattleFax.

The Impact of Animal Care on Cull Value

Adherence to Beef Quality Assurance (BQA) guidelines for feeder calves and yearling cattle is well understood by many beef producers. BQA practices for mature cows and bulls are equally important. Progress in this area has been significant, as demonstrated by the results of the *2007 National Market Cow and Bull Beef Quality Audit* (NCBA 2007). Fewer cattle had mud/manure problems, brands, cancer eye, bruises, or were lame, and more cattle were polled than when the audit was conducted in 1999 (NCBA 1999). Overall, 94 percent of the cattle had no evidence of injection-site blemishes. These are positive trends, but there is more progress to be made.

Bowling et al. (2008) summarized the top quality concerns from the 2007 audit as: (1) food safety, (2) animal welfare/handling, (3) poor condition/nutrition, (4) antibiotic residues, (5) bruises, (6) hide damage, (7) lame/soundness, (8) condemnation rates/downers, and (9) injection-site lesions. Producers have the opportunity to improve all these areas.

Producers should make every effort to follow BQA guidelines with replacement heifers and brood cows so

that maximum value is realized from cull cows when they are processed into meat products. All vaccinations should be given according to label directions in the neck area. All precautions and withdrawal times should be observed.

Animal care and welfare should be emphasized with cull animals as well as the rest of the herd. While consumer confidence in beef products has remained high, research at the Oklahoma State University showed that 49 percent of consumers say they consider the well-being of animals when making decisions about purchasing meat, 64 percent say farmers and processors put profits ahead of treating animals humanely, and 78 percent agree that animals raised under higher standards of care will provide safer and better-tasting meat (Bowling et al. 2008).

Animals should be handled such that stress and bruising are minimized. Excessive use of driving aids such as electronic cattle prods and sorting sticks should be avoided. Loading and working facilities should be constructed to provide good footing and avoid protruding or low-hanging objects that can injure animals. In addition, these facilities should provide for handling cattle with minimal stress. Animals should be treated or marketed before they become too lame or develop an advanced case of cancer eye. Strong consideration should be given to the humane disposal of cows and bulls that can't walk, have advanced cases of cancer eye, or have other serious health problems or injuries that make them potentially unmarketable. Care should be taken when hauling animals to avoid injury. Table 1 details the recommended maximum number of cattle (according to BQA guidelines) for trailers of different lengths.

Culling Should Be a Planned Event

Occasionally a cow has to be culled immediately due to injuries or other problems, and you have to take the price offered at the time. However, with proper planning, producers can receive higher prices for cull cows from the market.

A vital part of this plan is regular monitoring of the cow herd to determine which cows need to be culled. This monitoring plan should include a veterinarian to help with pregnancy determination and early detection of diseases such as cancer eye or lumpy jaw.

Having a skilled veterinarian check for pregnancy after the breeding season will allow culling decisions to be planned, making more marketing options available. For example, open cows, which are otherwise productive, can be bred outside your breeding season and marketed as a bred cow for a premium.

Other factors to consider when making culling decisions include cows that have udder problems or produce calves that are below acceptable weaning-weight levels when compared to herdmates. Cows with bad dispositions or those that continuously cause problems (such as riding down fences) should also be considered cull prospects.

Producers should also monitor cows for body condition and problems such as lameness and old age. Good records will help keep track of age. Producers should check the mouths of older cows for tooth wear. As older cows lose their teeth, it affects their ability to chew and digest forages, often resulting in a loss of body condition. Checking this on an annual basis helps plan culling decisions for these animals.

Under many circumstances, it is desirable to feed thinner conditioned cows to get them to a body condition score of 5 or 6. Certainly, on-farm feed supplies and feed prices factor into this, so producers should put the pencil to this practice. However, a $7.90 per carcass weight premium may make it worthwhile. A medium-framed beef cow that is open will gain or lose approximately 75 to100 pounds for each body-condition score change. It is not unreasonable to expect an average daily gain of 2.5 to 3.0 pounds per day for cull cows put on feed (high-concentrate) for 50 to 100 days. However, these gains require 7.5 pounds to 9.5 pounds of feed for every pound of gain. Younger animals are more efficient than older animals. Virginia producers could expect gains of 1.5 pounds or more per day on forages. Therefore, these cows could gain 75 to 100 pounds during this period, and every 100 pounds of gain equals one body-condition score (Wright 2005). Feeding decisions can be coupled with the seasonal market trends depicted in figure 5 to take advantage of market trends as well as the compensatory growth of thin cows.

On the other hand, cows should be marketed before they become overly conditioned. These cows are not only expensive to maintain on the farm, they will likely be discounted at sale time due to the need to trim excess carcass fat and the resulting low lean yield.

Good culling management takes planning and day-to-day effort, but the results are well worth it for all concerned.

Table 1. Recommended maximum number of cattle[1] for trailers of various lengths[2].

Trailer size (inside dimensions in feet)	Weight of cattle in pounds							Total weight[3] (lb)
	400	600	800	1,000	1,200	1,400	1,600	
	Number of head							
16 x 6	18	12	9	7	6	5	5	<7,400
18 x 6	21	14	10	8	7	6	5	<8,400
20 x 6	23	15	12	9	8	7	6	<9,300
24 x 6	28	18	14	11	9	8	7	<11,100
20 x 7	27	18	13	11	9	8	7	<10,800
24 x 7	32	22	16	13	11	9	8	<13,000
32 x 7	43	29	22	17	14	12	11	<17,300

1. When hauling horned/tipped cattle, reduce the number of cattle by 5%.
2. Reduce the number of cattle loaded during hot conditions.
3. The maximum weight of cattle for each trailer size with these calculations. Do not exceed the Gross Vehicle Weight Rating for your truck or stock trailer.

Summary

Cull cows marketed in the proper condition and health offer the potential to increase the bottom line of many beef producers. A marketing plan that avoids excessively thin or overly conditioned cows as well as lame or diseased cows is necessary to achieve this. By monitoring these things, as well as the marketing season, several dollars can be added to the value of a cull cow.

In addition, timely marketing of well-managed cull cows will help provide a better product to our customer, whether that customer is the packer or the final consumer.

References

Apple, J. K., J. C. Davis, J. Stephenson, J. E. Hankins, J. R. Davis, and S. L. Beaty. 1999. Influence of body condition score on carcass characteristics and sub-primal yield from cull beef cows. *Journal of Animal Science* 77:2660-69.

Bowling, M. B., K. E. Belk, J. D. Tatum, T. W. Hoffman, and G. C. Smith. 2008. *Identifying Management Strategies to Improve Market Cow and Bull Beef Quality and Profitability*. White paper.

CattleFax. 1994-2008. U.S. Utility cow price average, 1994-2008. Calculations supplied by Steve Hopkins, Virginia Cooperative Extension, Orange County, Va.

Eversole, D. E., M. F. Browne, J. B. Hall, and R. E. Dietz. 2000. *Body Condition Scoring Beef Cows*. Virginia Cooperative Extension publication 400-795. *www.pubs.ext.vt.edu/400/400-795/400-795.html.*

Harris, T. G. 2002. *Training Manual for USDA Grading Standards for Grading Slaughter Animals. http://vdacs.virginia.gov/marketnews/grading/slaughtercowgrading.pdf* (accessed July 1, 2009).

NCBA. *See* National Cattlemen's Beef Association.

National Cattlemen's Beef Association. 1999. *1999 National Market Cow and Bull Beef Quality Audit. http://ansci.colostate.edu/files/meat_science/dlr002.pdf* (accessed Feb. 20, 2009).

National Cattlemen's Beef Association. 2007. *2007 National Market Cow and Bull Beef Quality Audit: Beef Edition*. Executive Summary. *www.beefboard.org/news/files/2007%20National%20Market%20Cow%20and%20Bull%20Beef%20Quality%20Audit%20-%20Beef%20Cattle%20Edition.pdf* (accessed Feb. 4, 2009).

Roeber, D. L., P. D. Meis, C. D. Smith, K. E. Belk, T. G. Field, J. D. Tatum, J. A. Scanga, and G. C. Smith. 2001. National market cow and bull beef quality audit – 1999: A survey of producer-related defects in market cows and bulls. *Journal of Animal Science* 79:658-65.

Turner, J., D. Griffin, C. Layne, and R. Gill. National Cattlemen's Beef Association. Beef Quality Assurance. 2008. *Stocker Trailer Transportation of Cattle: Transporting Cattle the BQA Way*. Master Cattle Transporter Guide.

USDA. *See* U.S. Department of Agriculture.

U.S. Department of Agriculture. Agricultural Marketing Service. Livestock and Seed Division. 1996. *United States Standards for Grades of Slaughter Cattle*. *www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3062519* (accessed Feb. 6, 2009).

U.S. Department of Agriculture. Agricultural Marketing Service. 2005-2008. *Market News*. *www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&navID=MarketNewsAndTransportationData&leftNav=MarketNewsAndTransportationData&page=LSMarketNewsPageVASLCattle* (accessed Jan. 22, 2009).

Wright, C. L. 2005. Managing and marketing cull cows. In *Proceedings of the Range Cow Beef Symposium XIX*, 153-60. Rapid City, S.D.