

A Characterization of Direct-Market Beef Processing and Marketing in Virginia

*Denise Mainville, Extension specialist, Agricultural and Applied Economics, Virginia Tech
Gordon Groover, Extension specialist, Agricultural and Applied Economics, Virginia Tech
Ashleigh Waddle, graduate student, Agricultural and Applied Economics, Virginia Tech
Bradley Webb, former graduate student, Agricultural and Applied Economics, Virginia Tech*

Introduction

Beef is Virginia's second most important agricultural industry, with 20,000 beef farms generating more than \$400 million in cash receipts (USDA 2004). Despite the industry's importance, Virginia's beef producers face many challenges, including rising input costs, unstable selling prices, and expanding urban populations that put pressure on land prices and farming practices. Evolving consumer, industry, and regulatory demands that require new investments and increase costs further limit the profitability of Virginia's beef farms.

These issues make it challenging to operate a profitable beef-cattle operation in Virginia, particularly for smaller-scale commodity beef producers who sell calves or stockers out-of-state for finishing. Marketing beef directly to consumers is an alternative of interest to many producers. Direct marketing offers potential benefits, including price premiums and loyal customers, which in turn can increase farmers' incomes and improve the sustainability of their farm operations. Nevertheless, producers who directly market beef to consumers must perform all of the logistical, marketing, and other value-added activities that are typically handled by others in the commodity beef market. Thus, they face additional costs, risks, and cash-flow considerations that should be weighed along with the potential benefits when considering entering the market.

As farmers contemplate direct-marketing their beef, they – and the professionals who serve them – need information about the different approaches and methods available so they can consider their options and the tradeoffs among them. The objective of this publication is to describe the processing and marketing practices used by direct-marketers of beef in Virginia, including

producers' slaughter and processing decisions, as well as key marketing practices such as product form, advertising, and pricing. The information presented in this publication comes from a telephone survey of 42 direct-marketers of beef in Virginia. Further information on the data and how it was analyzed is provided in box 1. A complementary publication, *A Characterization of Direct-Market Beef Production in Virginia*, Virginia Cooperative Extension publication 448-124, draws from the same survey results and describes the production practices used by direct-marketers of beef in the state.

Background on Direct-Marketed Beef Production

The information presented in this section is addressed in detail in *A Characterization of Direct-Market Beef Production in Virginia*, Virginia Cooperative Extension publication 448-124. Most direct-marketers of beef entered this activity with prior experience in beef-cattle production. The typical value-added beef farm in Virginia has 230 acres, with 164 acres devoted to pasture. On average, a producer devotes 70 percent of his or her farm acreage specifically to the production of direct-marketed beef. The typical farm produces at least one other direct-marketed animal product in addition to beef – usually pork or chicken. Approximately one-third of producers' net farm income comes from direct-marketed beef; two-thirds comes from direct-marketed livestock in general, including beef.

The majority of the producers raise cattle from birth to slaughter, with the typical herd having 60 head. Calving is done in both the spring and fall. The average weaning weight is 518 pounds for steers and 475 pounds for

www.ext.vt.edu



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

Virginia Cooperative Extension programs and employment are open to all, regardless of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. Rick D. Rudd, Interim Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; Alma C. Hobbs, Administrator, 1890 Extension Program, Virginia State, Petersburg.



VIRGINIA STATE UNIVERSITY

Box 1. Data sources and analysis

The information presented in this publication comes from a telephone survey of direct-marketers of beef that was conducted between November 2006 and March 2007. An attempt was made to contact all direct-marketers of beef in Virginia. A list of potential respondents was compiled from various sources, including the Virginia Department of Agriculture and Consumer Services, Virginia Cooperative Extension agents, and websites such as *www.EatWild.com*. In all, 95 potential respondents were contacted. Forty-four did not qualify for the survey because they did not direct-market beef. A further nine potential respondents declined to participate in the survey (these potential respondents did not necessarily direct-market beef), while 42 producers who direct-market beef completed the survey. The information in this publication comes from the results of those 42 completed surveys.

The data from these surveys was analyzed in two ways, depending on the type of question that was asked. For questions that asked “how many” (for example, “How many miles do you transport your cattle to the processor?”), the mean, median, and coefficient of variation were calculated. While the mean shows the arithmetic average of a value, it can be increased or decreased by the presence of only a few particularly large or small observations. The median, in contrast, shows the mid-point of the observations and thus is more representative of the “typical” farm. The coefficient of variation is the ratio between the standard deviation and the mean of the observations; it helps show the variation in responses – a higher coefficient of variation means that individual responses varied more widely around the mean than a lower coefficient of variation. Questions that were not appropriate to analyze with such statistics (such as, “What county do you live in?”) are reported as percentage distributions.

heifers. Angus is the most prevalent breed for both bull and cow breeding stock.

Most producers feed and finish cattle on pasture. Less than half of the operations supplement their cows or weaned calves, and the average farmer starts feeding hay on November 15. The typical producer utilizes orchard grass, fescue, and clover as primary forages. The typical producer does not use feed additives or sub-therapeutic antibiotics and utilizes a veterinarian to treat sick animals.

Slaughter and Processing

Producers use numerous ways to determine the optimum time for slaughter, with age and fat thickness being the most popular (figure 1). Of the 45 percent of respondents who rely on age to determine when to slaughter, 24 months is the average age. Forty-five percent of the respondents rely on their judgment of the animal’s fat thickness to decide when to slaughter, with back-fat thickness between 0.2 inch and 0.5 inch considered optimal. Thirty percent of the respondents rely on weight to decide when to slaughter, with the average weight being 1,070 pounds. Twenty-three percent consider frame size in deciding when to slaughter, and twenty percent of producers base their slaughter decisions on time of year. Of these, two-thirds prefer to slaughter exclusively in the fall. Finally, 10 percent of the producers report that they let buyer demand drive their slaughter decisions.

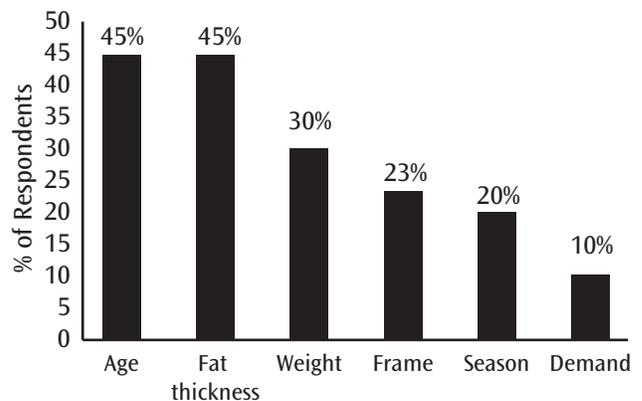


Figure 1. Methods used to determine optimal time for slaughter

Producers tend to use combinations of different facility types to slaughter their cattle. Approximately 70 percent of the respondents use a USDA-approved facility, while 42 percent slaughter in a state-inspected facility, 3 percent slaughter in a custom facility, and 3 percent sell animals live to customers who arrange slaughter and processing on their own. One-third (33 percent) of the producers report having to make an appointment for slaughter approximately one month in advance; 51 percent have to make an appointment two months to four months in advance; and 15 percent report having to make an appointment more than five months in advance.

The average producer brings animals to slaughter three times a year, with four animals in a load. A summary of the producers’ transportation and processing costs can

be seen in Table 1. Most producers (78 percent) transport cattle to slaughter themselves, while the remaining 22 percent hire transport. On average, the cattle travel 59 miles to slaughter. It is worthwhile to note that this amounts to an average total of approximately 240 miles of driving, as each producer will make a round trip to bring the cattle to slaughter, as well as at least one more roundtrip to pick up the product after processing. The estimated cost to haul cattle 59 miles to slaughter is \$148 one way, based on a custom haul rate of \$2.51 per loaded mile.

Table 1. Transportation costs

	Mean	Median	Coefficient of variation
Avg. number of animals hauled/trip	4	4	48%
Avg. miles one-way to slaughter	59	50	74%
Cost/one-way trip based on \$2.51/loaded mile with gooseneck trailer*	\$148	\$125	74%

*Mileage rate from W. Whittle and T. Stanley. "2008 Farm Custom-Work Rate Guide for the Shenandoah Valley," Farm Business Management Update, April-May (2008). www.ext.vt.edu/news/periodicals/fmu/2008-04/ShenandoahValley.html

Most producers have their processors dispose of the hide and offal, while other means of disposal include composting on-farm and sales to firms like Valley Protein, which uses processing by-products for biofuels, pet foods, and industrial applications. Most producers (72 percent) use on-farm cold storage, but other sources of cold storage include storage provided by the slaughter house (44 percent) and refrigerated trucks (5 percent).

Marketing

Most producers (78 percent) sell their beef frozen, 12 percent sell it both fresh and frozen, and 10 percent sell it fresh only. Nearly all of the producers (95 percent) age the meat between 15 days and 17 days. Figure 2 shows that slightly more than half of the producers (54 percent) report selling individual cuts, while almost half (46 percent) sell the whole carcass or sides. Other ways that the beef is sold to consumers is live, in split sides or mixed quarters, and boxed cuts.

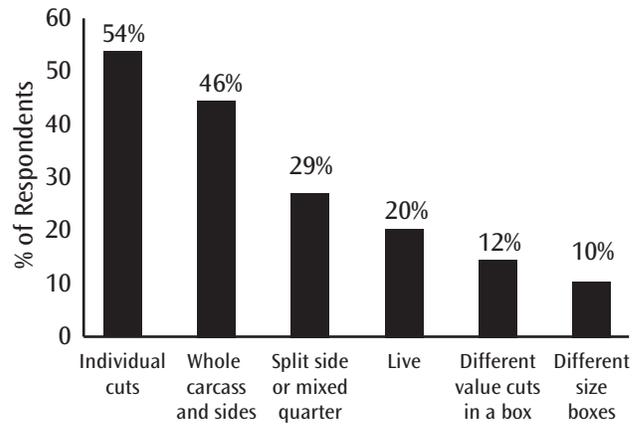


Figure 2. Product form for beef sales

Beef is marketed through a variety of market outlets (figure 3) with 74 percent of producers selling from the farm and 33 percent selling at farmers markets. Approximately one in five producers use natural or specialty food stores and restaurants, while 8 percent sell through buyers clubs, and 3 percent report selling through wholesale markets. Ten percent of producers report sales through "other" outlets, including local farm stands and the Internet.

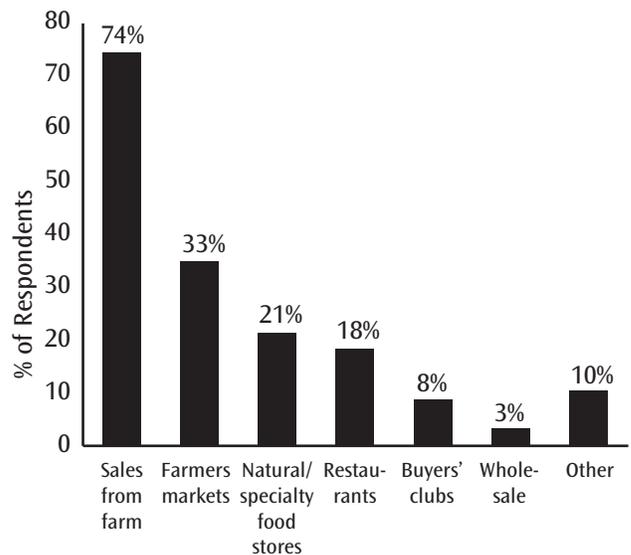


Figure 3. Market outlets for beef

Table 2 shows how producers' sales are divided among the different outlets they use. Those producers who sell their beef at farmers markets or from the farm rely heavily on these markets – they account for approximately two-thirds of the sales at the mean, but for 75 percent and 90 percent, respectively, of the sales for the typical farmer (median) who uses these outlets. It is worth noting that while some outlets such as restaurants and buyers clubs are not used by many producers, they account for a significant portion of the sales (42 percent and 27 percent, respectively) of those producers who use them.

Table 2. Distribution of sales for producers using specific market outlets

Market outlets (% using outlet)	Mean (%)	Median (%)	Coefficient of variation (%)
Farmers markets	67	75	43
On-farm	65	90	58
Natural food stores	20	15	72
Restaurants	42	42	84
Buyers' clubs	27	27	35

Table 3 provides a summary of the producers' prices and inventory levels. While there is relatively little variation in prices charged for specific products, there is a large variation in the average value of inventory carried by producers.

Table 3. Beef prices and inventories

	Mean (\$)	Median (\$)	Coefficient of variation (%)
Top-quality steak, avg. price/lb.	13.72	13.00	31
Roast, avg. price/lb.	5.30	5.00	23
Hamburger, avg. price/lb.	4.17	4.00	17
Beef inventory, avg. total value	3,178.00	2,000.00	119

Producers promote their products using many different terms, as shown in Figure 4. The majority of the respondents refer to their beef as “pasture-fed” and/or “grass-fed,” “local,” and/or “natural.” Promotional terms used less frequently include “organic,” “artificial hormone/antibiotic-free,” “grain-fed,” “fresh,” and “humane.” On average, producers rely on two means of advertising, with word-of-mouth being used in 93 percent of the cases. Internet sites and flyers are tied for the second-most common means of advertising, with 25 percent of producers reporting use of each (Figure 5).

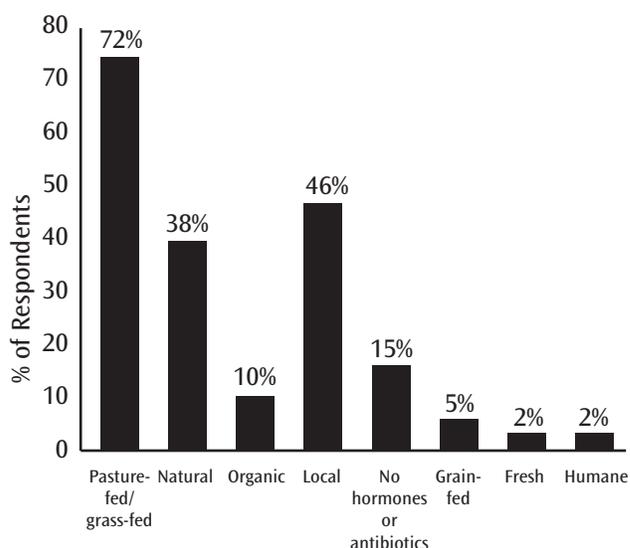


Figure 4. Terms used to market beef

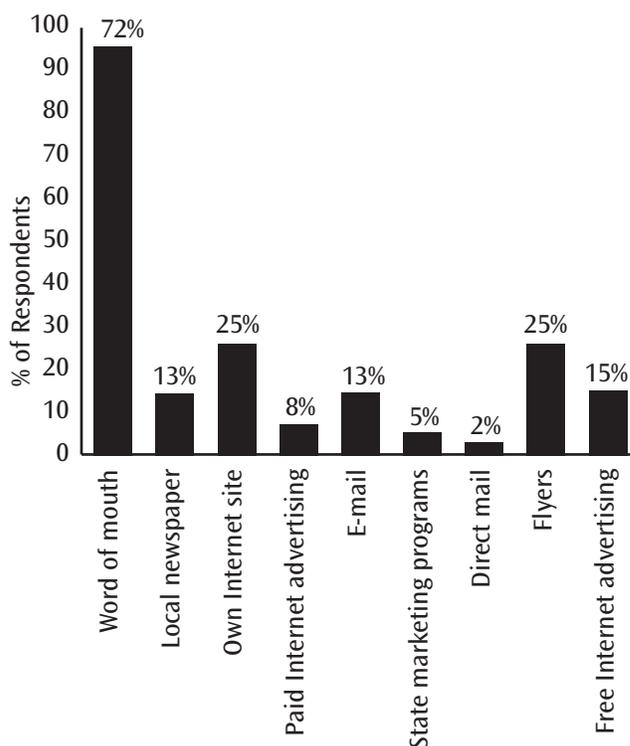


Figure 5. Advertising methods

Summary and Conclusion

Beef-cattle production is a critical part of Virginia's agricultural landscape, yet Virginia's beef producers face challenges to remain profitable and viable as they move forward. Direct-marketing beef is an alternative to the commodity beef market that may help increase farmers' incomes.

The primary objective of this study was to characterize and classify the processing and marketing practices of Virginia's direct-marketing beef producers. Processing is typically done in a USDA-inspected facility, at an appointment made two months to four months in advance. The producers typically provide their own transportation to the processing facility, driving an average of 59 miles one-way to the facility with relatively small loads of four animals on average. Factors such as the need to make appointments several months in advance, the cost of transporting animals to processing, and the seasonality of pasture production can lead producers to slaughter their animals based on a predetermined schedule (for example, 43 percent of those interviewed base slaughter decisions on age), which can compromise the quality and consistency of the product that is marketed.

Once processed, the carcass is typically aged for 15 days to 17 days and sold as frozen individual cuts, with the decision to sell frozen meat determined in large part by the difficulty small farmers face in selling a whole animal before it spoils, particularly considering the seasonality of demand for different types of cuts. The high value of inventory held by direct-marketers of beef reinforces the observation that selling the whole animal presents a significant marketing challenge. Many producers market their products in boxes, bundles, whole carcasses, sides, and quarters – rather than as individual cuts – to alleviate this problem.

Farm sales and farmers markets are the two most important market outlets used by producers. Sales at farmers markets provide greater visibility and may generate a loyal clientele that is amenable to buying directly from the farm in the future. On-farm sales are generally a less-expensive means of marketing the product compared to farmers markets because there is no need to pay for transportation to the market or labor dedicated to a day of sales. Also, on-farm sales don't require that additional marketing equipment (such as coolers to keep the product frozen or chilled at market) be purchased.

Producers' heavy reliance on word-of-mouth advertising shows potential for improvements to sales and reductions in inventory through use of low-cost advertising methods such as free Internet advertising sites (e.g., *www.EatWild.com*) and state-sponsored programs such as the Virginia Grown program. Other advertising possibilities such as newsletters, e-mail lists, Internet sites, and newspaper advertising could also effectively increase producers' sales at a relatively low cost.

Reference

USDA – National Agricultural Statistics Service. 2004. 2002 Census of Agriculture. *www.agcensus.usda.gov/*

Acknowledgements

The authors gratefully acknowledge the contributions of Guillermo Scaglia and Ed Rayburn in developing the survey on whose results this publication is based. Thanks go to Gerard D'Souza, Alex White, Tom Stanley, and Webb Flowers for their thoughtful reviews of the article prior to publication. The research was funded through a Southern Sustainable Agriculture Research and Education grant.