



Beef Cost Calculator

A Decision Tool to Compare Direct Market vs. Retail Market Beef

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Introduction

Direct marketing has become a popular method of marketing beef by both the producer and consumer. This beef marketing method has its own set of benefits and challenges. Producers can use direct marketing to diversify their marketing portfolio, establish their name and brand, and add value to their products. Direct market purchases help stimulate the local economy directly and indirectly. First the money from the purchase goes to the individual producer. Second, the producer has used local resources in their production practices. Consumers also have the benefit of knowing the source of the product and even some of the practices used such as grass fed or grain fed. Some of the challenges involved with direct marketing include processing wait times, quality assurance, product advertising, consumer freezer space, and knowledge of how to prepare meat at home.

The beef cost calculator's primary objective is to compare the cost of purchasing fresh locally produced beef to the cost of a similar product in the retail market. In addition to this primary objective, the beef cost calculator helps to answer the questions: 1. How much does it cost to raise a beef animal for direct market sales? 2. How much should I charge for meat sold as whole animal or partial carcass? How much should I charge for retail cuts?

Explanation of use and methods

Fields highlighted in yellow are editable by the user.

Fields highlighted in green are connected to the cost of fresh local bulk beef.

Fields highlighted in orange are retail prices.

The beef cost calculator decision tool is broken into 3 categories:

1. Direct vs. Retail
 - a. The first worksheet in the Beef Calculator workbook contains the *Freezer Beef vs. Retail Beef* tool. This tool compares the cost of purchasing fresh local beef to the same or similar product in the retail market. The prices used for the retail comparison are obtained from USDA AMS and are representative of the date in the bottom left hand corner of the sheet.
 - b. Step 1. select the amount of beef to be purchased from the drop-down list in cell D5 (see arrow on the right hand side of cell): 1 quarter, 2 quarters, 3 quarters, or a whole beef. The yield of 1 quarter of beef is variable depending on the size of the animal



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processing choices. The typical yield is 110 lbs. of meat plus or minus 10%. This calculator will use 100lbs of meat for each quarter of meat purchased. The sheet will automatically fill with the correct weight based on the selection made by the user.

- c. Step 2. manually enter the price per pound that is expected to be paid in cell D6 below *Cost/Lb Bulk Quarter* highlighted in green. The calculator applies this price to the approximate breakdown of cuts the user would receive from the amount selected. Note that methods of cutting will vary, however the breakdown of cuts received is assumed for typical consumer use and simplicity (Cattleman's Beef Board and National Cattleman's Beef Association 2013; Revised 2014). The *Cost Per Pound Direct Market* column, located in cells E9 through E13, shows that the *Cost/Lb Bulk Quarter*, is applied to all cuts. The total cost for each cut, located in cells G9 through G13, (ground beef, round roasts/steaks, etc) is equal to the *Cost Per Pound Local x LBS*. The *Total Retail* column, located in cells I9 through I 13 is highlighted in orange and is the total expected retail price for the same weight and cut of direct market beef purchased; $LBS \times Retail Price/Lb = Total Retail$.
 - d. Once the selections are made the table will automatically adjust. The results may be seen below. The user can see the total price paid for fresh, direct market beef in cell K15 and the price per pound paid for fresh, direct market beef in cell K16. The next set of headings are the retail comparison. First the user can see the total expected retail price for the same amount of beef in cell K18 and the average per pound expected retail price in cell K19. The last category on this worksheet is savings. This is the total difference in dollars that the user can expect to save or spend on fresh, local, direct market beef compared to retail. This is located in cell K21 where $Total Savings Over Retail = Total expected retail price - Total price pd Fresh beef$.
2. Cost to produce and sell beef in bulk
- a. The second worksheet in the beef calculator workbook is the *Cost of Bulk Meat*, worksheet. The objective of this worksheet is to determine the cost of selling beef products in bulk. Bulk, in this case, refers to the marketing method in which a consumer purchases quantity of beef that are measured as a fraction of an animal. For the beef calculator tool bulk is quarters of an animal: one quarter, two quarters, three quarters, whole beef.
 - b. Step 1. To use this sheet, Select Yes or No in cell F3 to the right of *Standard Cut*, highlighted in yellow. This refers to the option to have the processor remove all the bones or process the animal in a standard way (without complete bone removal in steaks, roasts, and ribs). The sheet will fill according to this selection and the selections made previously on the *Retail vs. Local* worksheet.
 - c. Step 2. Next the user has the option to enter some data in the yellow highlighted cells in range C17:F31, below *Animal Details, Marketing Costs/Animal, and Overhead/Animal*. Individual data may be entered in the highlighted fields or the pre-filled numbers can be used. The first set of cells, C17 through C29, under *Animal Details* is where the cost of the physical animal is calculated. The first cell, C17, is the cost to purchase the animal.



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This is the closing price of the nearby live cattle contract of the Chicago Mercantile Exchange (CME). The date this price was retrieved is the same as the date of the cut prices retrieved from USDA Agricultural Marketing Service and is located below the table. The total purchase cost based on cost of production is located in cell C19. The remainder of the cells in the range are costs associated with processing. Total Direct Cost can be found in cell C33. The total cost to produce bulk, direct market beef can be found in cell G12. The cost per pound required needed to cover the cost of production is located in Cell G13.

3. Cost to produce and sell beef by individual cuts

- a. The third worksheet in the beef calculator workbook is the *Cost of Individual Cut*, worksheet. The objective of this worksheet is to determine the break-even price the producer needs to charge if he or she sells by primal cut. Primal cut, also known as wholesale cut, refers to the anatomical location of an individual cut of meat. This is the cut from which individual retail cuts are made. Primal cuts include: chuck, rib, loin, round, brisket, shank, plate, and flank (National Cattleman's Beef Association, 2009). The break-even price is the total average price the producer needs to receive in order to cover expenses. The break even for both direct cost and total cost is illustrated in this worksheet.
- b. Table 1, illustrates the breakdown if the producer sells a meat product by primal cut. The total pounds of meat after accounting for 15% shrink due to unsalable cuts, trim, and samples are accounted for. The average expected retail price per pound found in cell E12, and total retail revenue found in cell E13 is shown for comparison. The retail prices for the Southeast Region (AL, FL, GA, MS, NC, SC, TN, VA, WV) and the date they were retrieved are listed in the *Retail Breakdown by Primal* table located in cell range I4:J13.
- c. Table 2, found in cell range B16:C37, illustrates the Net Revenue per Animal portion of the workbook. This table can be used to view the net revenue above or below expected retail revenue, margin % above direct cost (cell C21) , and the net return at retail prices (cell C37).
- d. Table 3, found in cell range E16:F25, illustrates the break-even prices for direct cost and total cost. These are the prices a producer needs to receive in order to cover cost of production when selling by primal cut.

Explanation of terms, line items, and assumptions

Retail VS. Direct: The comparison of beef sold in the retail market compared to fresh local beef being sold as a direct market product.

Total Lbs: Total quantity in pounds of beef being purchased.

Cost per lb. Bulk Quarter: The dollar amount paid per pound of bulk quarter beef.



CUT: The type of beef cut in a specific way (ground beef, sirloin steak, ribeye steak, chuck roast, etc.).

Cost Per Pound Local: The price paid in dollars per pound for bulk direct market beef.

Cost Per Bulk QTR: The total price paid for $\frac{1}{4}$ of a direct market beef animal.

Total Retail: Total cost of the equivalent quantity of beef at current retail market price.

Retail Breakdown: List of retail meat cuts being compared to direct market cuts purchased.

Total Price Pd—Fresh Beef: The total price paid in dollars for the total quantity of fresh local beef purchased.

Price Per Lb—Fresh Beef: The price paid in dollars per pound for non-retail beef.

Total Savings: The difference in total dollars between the total cost of direct market beef purchased minus the total cost of equal quantity and cut of retail beef at current retail market price.

Date of Pricing: The date which retail market prices were obtained from USDA Agricultural Marketing Service Southeast Region price listings (USDA Agricultural Marketing Service, Livestock, Poultry, and Grain Market News, 2020).

Cost of selling bulk

Cost to Raise/Buy per #: Assumed cost to raise per pound of beef produced Or the current market price for steers/finished beef animal in your area, especially if it is higher than what it costs you to raise and finish an animal.

*CME Price/Lb: The closing price of the nearby Chicago Mercantile Exchange contract obtained on the date listed below the *Animal details* table on the *Cost of Bulk Meat* worksheet.

Live Weight: Weight in pounds of a living beef cow

Cost per Animal: Total cost of beef cow: Total Cost = Live Weight x Cost to Raise/Buy per #.

Dressing %: yield ratio for dressed (or hanging) weight as a percentage of live weight.

Dressed weight: weight in pounds of a partially dressed carcass: Dressed weight= Dressing % x Live Weight.

Cutout %: The percentage of meat left after the dressed carcass is cut into retail meat cuts.

Bone out %: The percentage of cutout remaining after bones have been removed.

Kill Fee: (If applicable) The fee charged up front to slaughter an animal.

Processing cost per #: The dollars per pound of dressed (or hanging) weight a processor charges to slaughter and process an animal.

Total Processing Costs: Total Processing Costs = Kill fee + (Processing cost per # x live weight).



Cost of selling by primal cut

Primal: refers to a location from which a cut is taken; wholesale cut; chuck, rib, loin, round, brisket, shank, plate, and flank (National Cattleman's Beef Association, 2009).

Percent Cutout by Primal: Percent yield of each category of cutout.

Shrink: percentage of cutout lost due to unsaleable cut, trim, and samples.

Total pounds after shrink: refers to the pounds of saleable meat remaining after accounting for shrink.

Average Expected Price/LB Retail: The total average expected retail price of primal cuts one can expect to receive.

Average Expected Total Revenue @ Retail: The total expected retail revenue from a whole beef.

Gross Margin %: refers to the margin above direct expenses one can expect at current retail prices.

Net Revenue: Expected revenue above direct cost – total additional expenses.

Break even/lb for direct cost: Price in dollars per pound the producer needs to receive in order to cover direct cost.

Break even/lb for total cost: Price in dollars per pound the producer needs to receive in order to cover total cost.

Breakeven total for direct cost: The price in dollars the producer needs to receive in order to cover direct cost.

Break even total for total cost: The price in dollars the producer needs to receive in order to cover total cost.

Summary and Wrap-up

The beef cost calculator is a tool that can be used to compare the cost direct market beef, to the cost of beef purchased at retail price. This tool is also designed to answer these questions about cost of producing beef for local direct marketing: 1. How much does it cost to raise a beef animal for direct market sales? 2. How much should I charge for meat sold as whole animal or partial carcass? How much should I charge for retail cuts?



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References

USDA Agricultural Marketing Service, Livestock, Poultry, and Grain Market News, 2020. *National Retail Report - Beef Advertised Prices for Beef at Major Retail Supermarket Outlets ending during the period of 11/27 thru 12/03*. Retrieved from: <https://www.marketnews.usda.gov/mnp/lis-home>

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