



# ANALYSIS AND COMMENTS

Livestock Marketing Information Center

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## COMPREHENSIVE BOXED BEEF CUTOUT: DATA, ANALYSIS AND COMMENTS

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This report analyzes the Boxed Beef Cutout, which depicts the wholesale beef market. It considers the comprehensive cutout value, as well as the primal cutout values for rib, chuck, round, loin, brisket, short plate, and flank. Additionally, this report seeks to link cutout values for Prime, Choice, and Select meat with corresponding data on grading percentages. The type of beef products produced and marketed at the wholesale level has changed dramatically in recent decades.

For the most part, analysis continues to focus on whole carcasses, or often requires calculating back to a carcass weight. The impetus for this may have been a lack of data concerning the domestic trade of meat cuts. However, since the Mandatory Price Reporting legislation was passed in 1999, there has been a wealth of information collected by the USDA's Agricultural Marketing Service concerning wholesale boxed beef sales. Specifically, the National Comprehensive Boxed Beef Cutout report aggregates all wholesale beef sales into a single weighted average carcass cutout value.

Despite the importance of the role of boxed beef trade in the international arena, very little analysis on the trade of different meat cuts exists. Not only is there a different set of players in the market, but the types of products transported across international borders have also changed significantly. Gone are the days when whole beef carcasses moved across borders. Now, most of the beef trade occurs in the form of boxed beef (boxes of a particular beef cut, e.g. chuck), or more simply stated, countries engage in the trade of meat cuts. To date, data on the international trade of meat does not account for the types of meat cuts being traded.

### Overview

The historically reported Wholesale Boxed Beef Cutout reported by the USDA Agricultural Marketing Service (AMS) is an estimate of the value of a beef carcass based on negotiated sale prices of beef cuts. The Wholesale Boxed Beef Cutout is a weighted average carcass value derived from negotiated sales of fed, non-dairy steer and heifer beef to be delivered (fresh) within 21 days in the domestic market. The Wholesale Boxed Beef cutout represents the wholesale value of beef sold on the "spot" or "open" market.

In 1999, as part of Mandatory Price Reporting (MPR) legislation, AMS was directed to establish a collection and reporting system of additional detailed livestock and meat price data.

The legislation requires Packer firms report these prices twice each day directly to USDA. The MPR program was implemented to provide information on pricing, contracting for purchase, and supply and demand conditions for livestock, livestock production, and livestock products that can be readily understood by producers, packers, and other market participants.<sup>1</sup>

As part of the MPR program, in January 2002, AMS introduced the National Comprehensive Boxed Beef Cutout report. The National Comprehensive Boxed Beef Cutout report is based on all sales and combined into a single weighted average carcass cutout value. The National Comprehensive Boxed Beef Cutout is reported on a weekly basis for all fed steers and heifers. Thus, the Comprehensive Boxed Beef Cutout represents boxed sales of Prime, Choice, Select, Ungraded (cuts, grinds, and trim) and Branded beef<sup>2</sup> that are sold on a negotiated (spot market and 22 days and out), formula, forward contract, other domestic, or export basis.

Beginning April 11, 2003, AMS began to report the individual beef primal component cutout values i.e. Prime, Branded, Choice, Select, and Ungraded beef in the weekly National Comprehensive report. Prime, Choice and Select represent quality grades as determined by USDA. The addition of the individual primal grade cutout values provides more information on pricing and supply conditions in the wholesale beef market.

### **Analysis of Monthly Cutout Values**

The following section provides an analysis of the boxed beef cutout values as described in the National Comprehensive Boxed Beef Cutout report. Data are reported on a weekly basis and cover the time period from April 11, 2003 to July 2, 2004. This analysis includes the total cutout value, the individual primal cutout value, and the individual grades within each of these. Comparisons are made between the differing grades for the total cutout value, as well as each of the individual primal cutout values. Additionally, a z-test was used in some instances to verify that the cutout values of two grades were statistically equal.

The monthly cutout values for boxed sales of Prime, Branded, Choice, Select, and Ungraded beef are shown in Figure 1. As shown in this figure, there is a seasonal component to sales in all categories. As expected, the Prime cutout value is higher each month than all other categories. This represents the premium received for Prime graded beef. Branded is the next highest value category, followed closely by Choice. It can be seen from Figure 1 that the cutout values for Select and Ungraded meat products are not significantly different from one another. The lack of difference between the Select and Ungraded meat products is verified by a z-Test, which shows that the difference between the means of these two grades was not significantly different from zero.

The data collected by AMS also provides individual primal quality grade cutout values. Figure 2 shows the monthly primal rib value. As in the case above, Prime has a significantly higher value than all other quantity grades, followed by Branded and Choice. As would be expected based on the case above, there is no statistical difference between the value for Select and Ungraded products.

The monthly primal chuck values paint a much more interesting picture. As seen in Figure 3, the value of Prime cuts is not the highest value for the chuck primal. In fact, it is not

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<sup>1</sup> Department of Agriculture, Agricultural Marketing Service, 7 CFR Part 59 Livestock and Grain Market News Branch: Mandatory Price Reporting – Final Rule. Federal Registrar, Vol. 65 No. 232. December 1, 2000.

<sup>2</sup> AMS defines Branded product as those boxed beef that are produced and marketed under a corporate trademark or under one of USDA's Meat Grading and Certification Branch, Certified Programs where the basis of the brand is the quality, yield, or breed characteristics of the product which are not unique to any one packer and can be produced by anyone in the industry, regardless of the brand (i.e. CAB® or Sterling Silver®).

significantly different from Choice in value terms. Recalling that this data represents the wholesale level, this indicates that wholesalers receive no premium for Prime chuck. Branded chuck commands the highest value of all types, with Select and Ungraded being on the lower end of the value scale. As in the previous two instances, z-Test results indicate that Select and Ungraded statistically have the same values.

Findings for monthly primal round values (Figure 4) are similar to those of the primal chuck values. Again, Branded products command the highest value in the wholesale market, while Prime and Choice are statistically valued the same. The same is true for Select and Ungraded. For both chuck and round cuts, it must be noted that Prime graded meat is actually discounted. This is due to the fact that the Prime cuts tend to have more fat in them; hence they are more tender and flavorful. However, this feature is not desirable for a chuck or round cut, which is often marketed as a leaner beef item.

The primal loin values, as shown in Figure 5, indicate that there are significant premiums associated with Prime product. This finding is not surprising given that the majority of higher valued beef cuts are derived from the loin (i.e., tenderloin). It is also interesting to note that primal loin values appear to be much less susceptible to seasonal changes as seen in the minimal fluctuations of the cutout values over the year. This may be explained by the growth in consumer purchases of food away from home. As in the case of the previous individual primal component cutout values, there is no distinctive difference between the values for Select and Ungraded loins. These are also the lowest valued and, thus, the least desirable quality grades for the loin.

Primal brisket values share some of the same characteristics as primal chuck and primal round values. As in the previous two cases, Branded brisket is higher valued than Prime and Choice. Additionally, Prime and Choice briskets are valued equally, as are Select and Ungraded briskets. Overall, primal brisket values do not vary a lot between grades. Due to seasonality, the highest variation occurs in the fall and winter months. It is also interesting to note that in late spring and early summer, values for the differing quality grades scarcely differ (Figure 6).

Primal short plate values are presented in Figure 7. As seen here, these values are identical for all grades. This indicates that at the wholesale level, there are no premiums for differing quantity grades of short plate. This area of the carcass yields the skirt steak and hanger steak, which are less desirable cuts of meat. Therefore, it is not surprising that wholesale prices show essentially no product differentiation.

Primal flank values tend to fluctuate more between grades than the other cuts discussed above. While a Branded product is generally higher priced than Prime or Choice (as seen in Figure 8), this is not uniquely the case. Additionally, the size of the premium for the Branded product tends to fluctuate more than with other Prime cuts. It is also of interest that the Ungraded product is valued more than a Select product, and the Ungraded flank product often commands a value that is close to that of Prime, Branded, and Choice.

On a whole carcass basis, it is clear from the above analysis that there are definite premiums associated with Prime quality beef. However, as seen in the previous discussion, there are major differences in the values of the individual primal components. For example, while a Prime graded loin is awarded a substantial premium, there is no incentive to pay a premium for a Prime graded chuck, round, brisket, or flank. The discussion also shows the growing importance of Branded products at the wholesale level. While a Prime graded product is still valued above a Branded product, the premium is not excessive. It will be interesting to continue to monitor this in the future and see if Branded products eventually eclipse Prime graded products in terms of the premiums they receive. This may be especially true in light of the increased efforts of the cattle industry to brand their products (i.e. Certified Angus Beef).

## **Relationship between Cutout Value and Grading Percentage**

The previous discussion focused on the value of individual primal component cutout values. The analysis focused on comparing the premiums and discounts related to the various grades of the primal cutouts. This section takes the analysis farther by linking the premiums and discounts of the comprehensive cutout value to grading percentages. Only Prime, Choice, and Select grades are discussed here.

Regression analysis shows that as the percent of meat graded as Prime increases, the cutout value increases as well. Although this may seem counterintuitive, there is a possible explanation. Prime graded meat cuts may be considered a luxury item. This is especially true when discussing loin and rib primals. Thus, these would be valued more at the wholesale level. These values would reflect the outward shift in demand likely caused by rising incomes over the same period. This phenomenon is reflected in the growth in the restaurant industry and, more generally, in increased purchases of food away from home.

Choice grades present a much different picture. In this case, as the percent of meat graded as Choice increases, the value of Choice at the wholesale level decreases. Thus, the more Choice meat that is available on the market, the higher the discounts associated with products graded as Choice. This conforms to a priori expectations that as the supply of a good increases holding demand constant, the price of that good will decline.

Unlike the findings presented above, Select graded meat products do not conform to expectations. Results suggest that as the percent of meat graded as Select increases, the value of Select meat cuts also increases. This may be explained by the short time period this analysis covers. This analysis only covers the one-year of available weekly comprehensive beef cutout data. Additionally, this result may be tied to the export market. Many beef cuts graded as Select are exported to countries such as Mexico and Korea, which were markets that grew dramatically in 2003. The increasing values in the wholesale market caused by an increasing percentage of meat graded as Select may reflect shifts in consumer incomes abroad. Alternatively, branding of products may be influencing this relationship. Branding of a product increases the value of that product to the consumer. Thus, branding products quality graded as Select may actually increase the value of these products despite an increase in the percentage of meat graded as Select. However, this is merely speculation and would require more in depth analysis to derive the principal driver of the value of Select meat cuts in the wholesale market.

## **Concluding Comments**

Overall, this discussion is intended to highlight trends in the value of the boxed beef primal cutouts. In light of the fact that most trade of meat does not involve carcasses but rather primal cuts, this study focuses on primal cutout values. Additionally, the implementation of MPR by USDA has increased the amount of information collected on boxed beef sales, including information by quality grade and at the individual primal component cutout level. This knowledge has and will continue to improve analysis of the wholesale meat industry. However, in respect to international trade, future analysis will continue to be limited due to the fact that U.S. imports and exports of beef continue to be reported at an aggregated level. Thus, while the data paints a clearer picture of the domestic wholesale meat market, knowledge of international trade in meat cuts tends to be somewhat vexing. Trade data will need to be disaggregated in the future in order to make comparisons or look at flows of primal products between countries.

Figure 1.

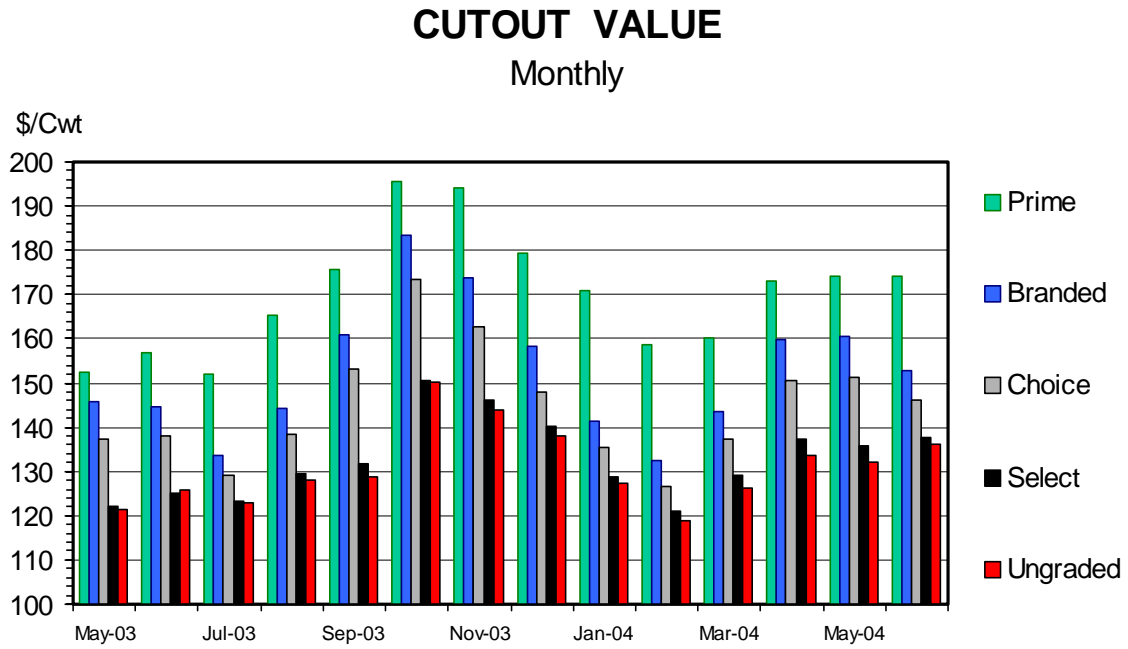


Figure 2.

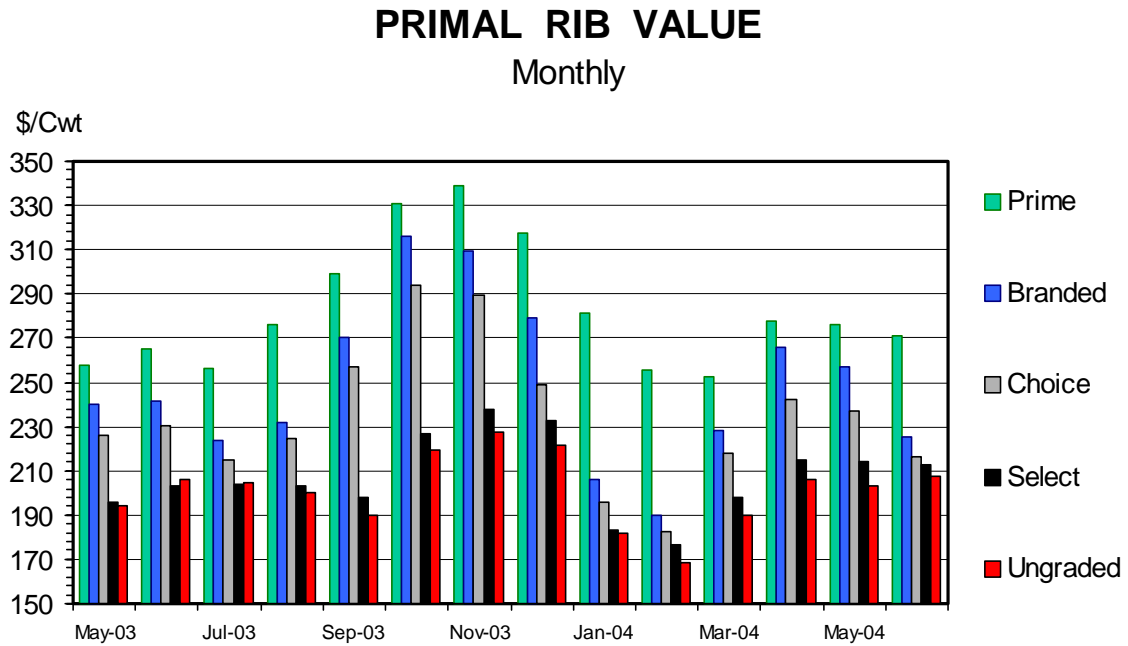


Figure 3.

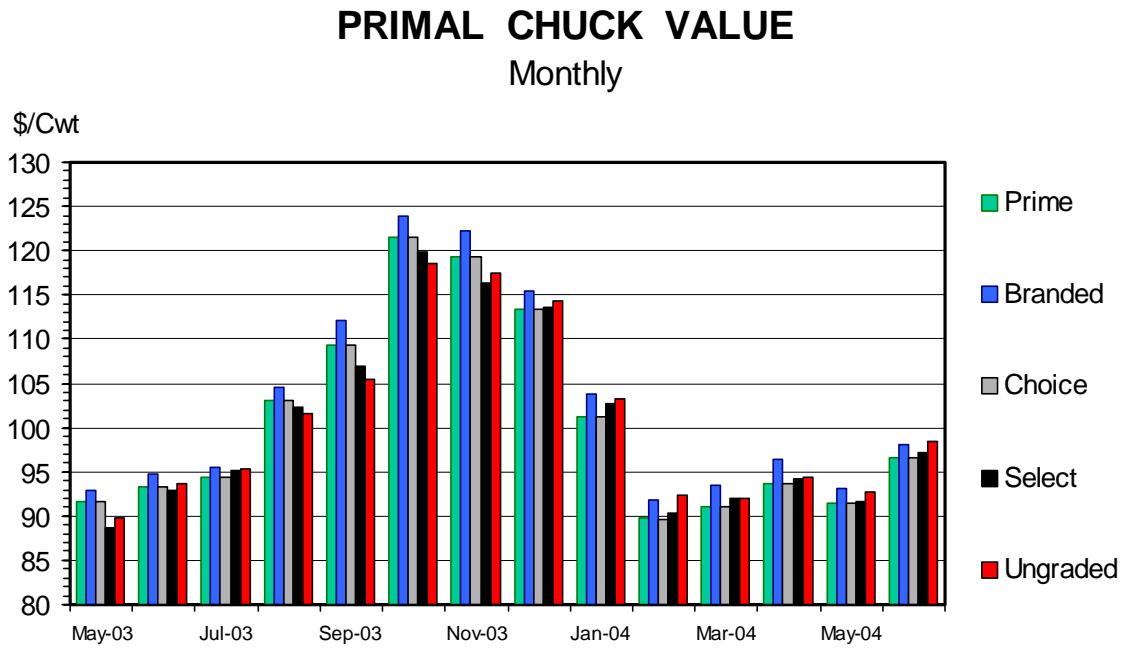


Figure 4.

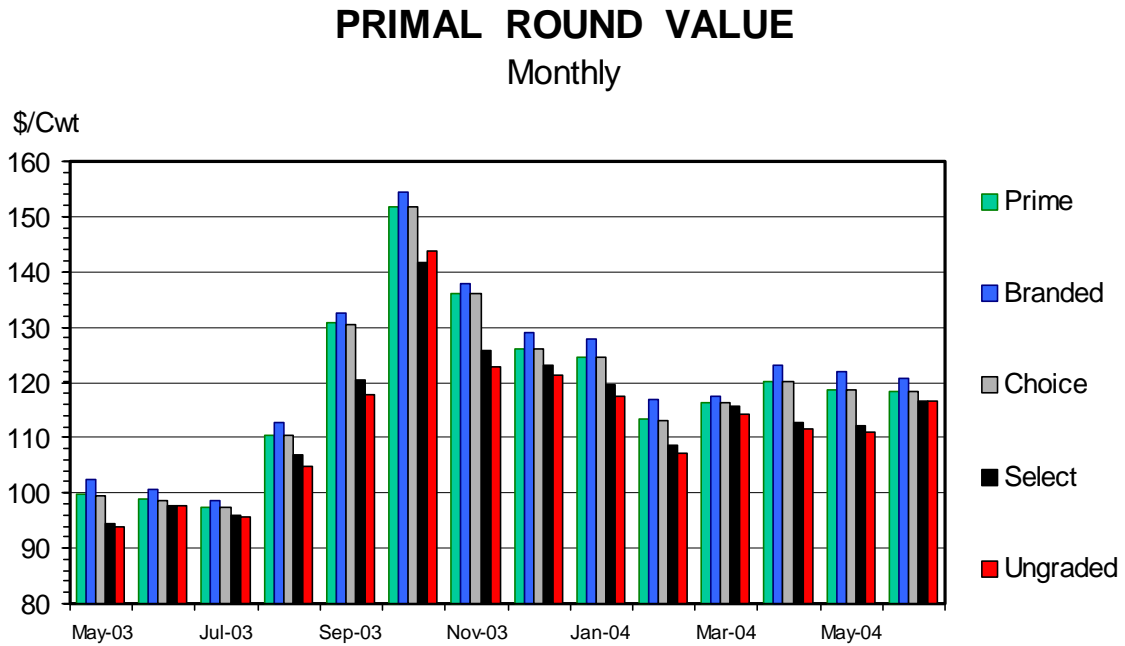


Figure 5.

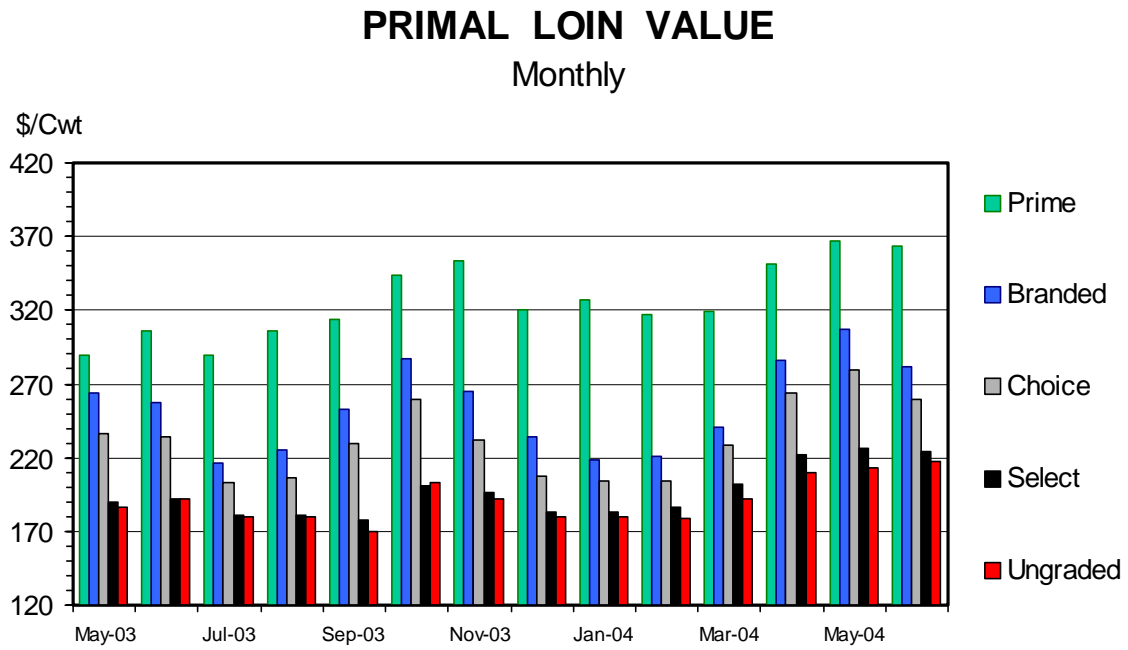


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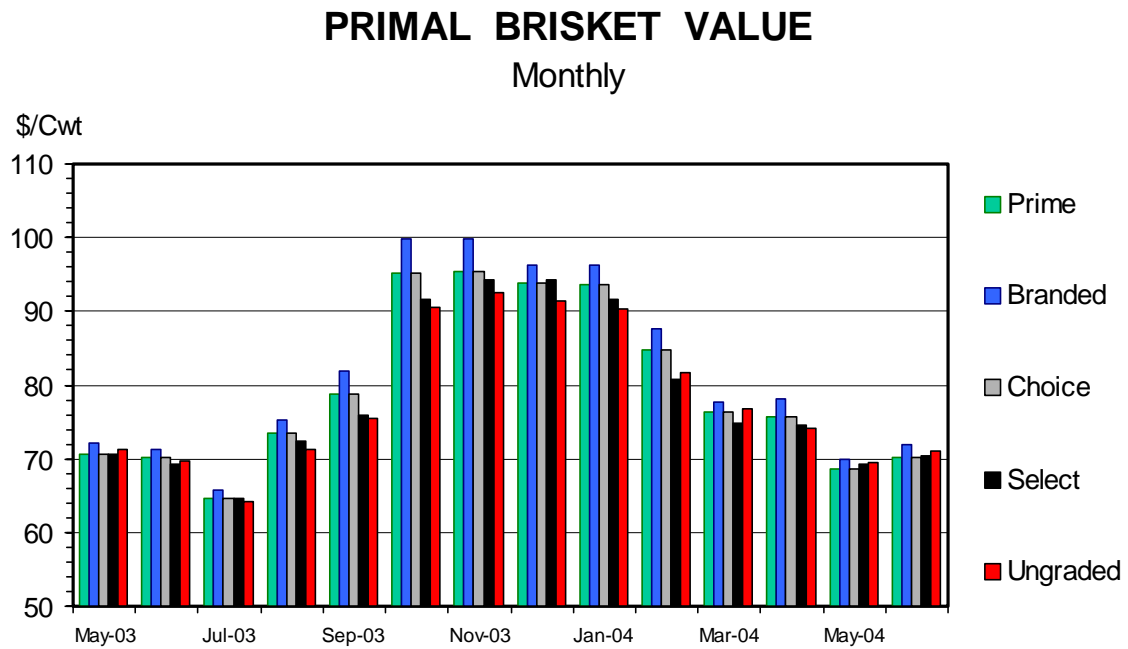


Figure 7.

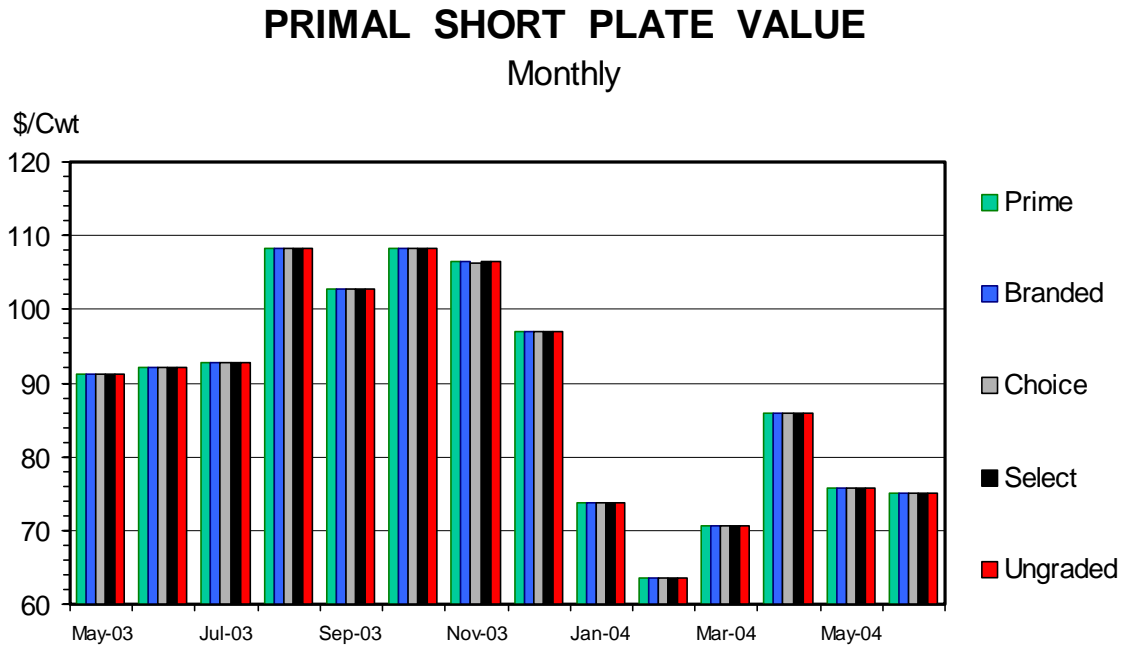


Figure 8.

