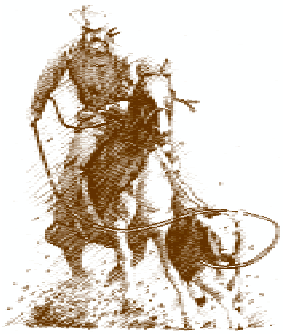

Quarterly Livestock Round-Up

Livestock Marketing Information Center
State Extension Services in Cooperation With USDA

What is Consumer Demand for Beef?

James Mintert, Department of Agricultural Economics, Kansas State University

Understanding consumer demand for beef, its key determinants, and how to analyze changes in demand, can be challenging. Part of the difficulty results from confusion over terminology. Often market analysis focuses on cattle and beef supply because, in the short-run, supply changes more frequently than demand. However, demand is also important in determining prices for cattle and beef products.

A conceptual depiction of demand is the place to start. Economists differentiate between two related, but distinctly different, terms: 1) quantity demanded and 2) demand. Quantity demanded refers specifically to the quantity of beef a consumer will purchase at a given beef price, holding all other factors constant. On the other hand, demand, sometimes referred to as a demand curve, is a schedule of beef quantities consumers will purchase over a range of beef prices. Figure 1 depicts a stylized downward sloping beef demand curve. The graph illustrates that, at lower beef prices, consumers are willing and able to consume larger quantities of beef, and at higher prices consumers will consume smaller quantities of beef.

Note that on the graph at price P^0 the quantity demanded by consumers is Q^0. That particular quantity (Q^0) is referred to as the *quantity demanded* by consumers at price P^0. At prices above P^0, the quantity demanded will be smaller than Q^0 and at prices below P^0 the quantity demanded will be larger than Q^0. Finally, note that as quantity demanded changes, beef price changes, but it does so by moving along the demand curve in Figure 1. Examined in this way, it is clear that changes in quantity demanded are not tantamount to shifts in beef demand since they merely result in movement along an existing demand curve. This is why changes in per capita consumption are not in and of themselves indicative of a change in consumer demand.

What then do economists mean when they refer to a shift in demand? A shift in beef demand occurs when the entire beef demand curve shifts up (demand increase) or down (demand decrease). Figure 2 depicts a downward shift (decline) of the beef demand curve from the curve labeled D^0 to the curve labeled D^1. Note that after the demand curve has shifted down from D^0 to D^1, beef price, for any given quantity demanded by consumers, will be lower than it would have been if demand curve D^0 was operative. Changes in either beef price or the quantity of beef do not cause the beef demand curve to shift. Rather, changes in other external factors, such as changes in prices of competing meats (e.g., pork or poultry), consumer demographics (e.g., income, age distribution, etc.), or health or food safety concerns cause the beef demand curve to shift.

Demand *is* a schedule of the quantities of beef consumers are willing and able to consume at various price levels. The location of the demand curve (as depicted in Figure 2) at a point in time is dependent on what are referred to as demand determinants. Consumer demand theory identifies competing meat product prices, consumer income, demographics, and consumer knowledge and preferences as key beef demand determinants.

Changes in these broadly defined beef demand determinants lead to shifts in the beef demand curve. When beef demand increases (i.e., shifts up), say as a result of an increase in the price of pork that causes consumers to substitute beef for pork, the re-

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Special points of interest:

- *Beef demand explained*
- *Lamb imports decline*
- *Increased Canadian slaughter capacity*
- *Domestic cattle prices lower for fall and winter*

Fig. 1: Stylized Beef Demand Curve.

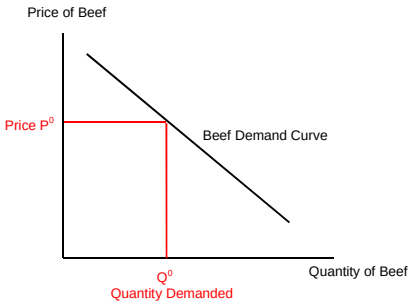
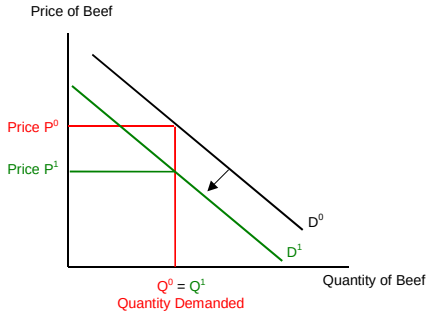


Fig. 2: Beef Demand Shift.

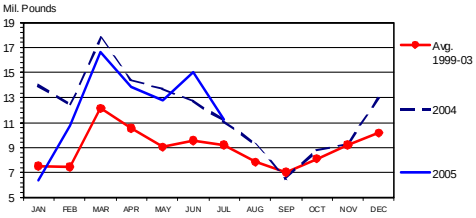


sult is higher beef prices at any level of beef consumption than prior to the demand shift. Conversely, when beef demand decreases (i.e., shifts down) beef prices are lower at any beef consumption level than prior to the demand shift. For example, a decline in beef demand could occur if food safety issues cause consumers to turn away from beef. Unfortunately, these demand determinants are often only apparent after the fact and make forecasting demand changes (shifts) difficult.

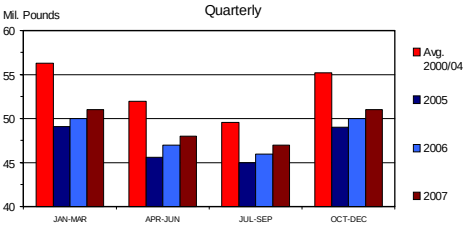
Because there is considerable confusion surrounding demand, it often is useful to define what beef demand is not. *Beef demand is not per capita beef consumption.* Per capita consumption *is* beef production (net of changes in cold storage, imports, and exports) divided by population. Observing per capita consumption over time without consideration of price provides little information regarding beef demand. *Beef demand is not beef's relative share of total meat consumption.* Again, this share concept simply reflects production of beef relative to production of competing meats. Relative, or absolute, production and consumption are not demand because these variables alone do not include information regarding prices. *Finally, beef demand is not the share of consumer income spent on beef.* Consumer income level affects beef demand, but changes in the share of consumer income spent on beef do not provide a measure of whether beef demand is increasing or decreasing. This is because changes in income cause changes in the share of consumer income spent on beef, even if beef demand remains unchanged.

In the next Quarterly Livestock Round-Up, look for a discussion of the beef and pork demand indexes and how they are used. These indexes combine price and quantity demanded information to help gauge whether the respective demand curves for beef and pork are shifting up, holding steady, or shifting down.

U S LAMB IMPORTS
Carcass Weight, Monthly



COMMERCIAL LAMB AND MUTTON PRODUCTION
Quarterly



Sheep and Lamb Outlook: Flock Expands on Higher Prices

In response to record high market prices and generally improved pasture and range conditions, the U.S. sheep and lamb industry has fully entered a growth phase for the first year since 1990.

Feeder and slaughter lamb prices are forecasted to remain strong for the remainder of 2005, however prices are expected to weaken in 2006 and 2007 in response to an increase in the supply of lambs. In addition, imports of lamb from Australia and New Zealand will be key determinants of lamb prices in coming years.

U.S. Sheep Inventory Up

As of July 1, 2005, USDA reported the U.S. sheep flock totaled 7.8 million head, 150 thousand head or 2 percent larger than a year ago. That was the first yearly increase in the mid-year count since 1990. The number of breeding ewes one year and older, at 3.79 million head, increased 1.2 percent. Replacement ewe lambs totaled 680 thousand head, 60 thousand head (9.7 percent) above last year's mid-year count. For 2005, the U.S. lamb crop is expected to total about 4.12 million head, one percent above 2004's.

Year-to-year increases in sheep and lamb numbers are expected as of January 1, 2006 and the rate of annual increase may be larger than those reported as of January 1, 2005. Larger numbers will directly translate into larger U.S. lamb

slaughter in 2006 and 2007. In fact, as early as this fall, some weeks may post year-to-year slaughter increases.

U.S. Slaughter, Weights & Production

In the first two quarters of 2005, commercial sheep and lamb slaughter totaled 1.36 million head, 4 percent smaller than a year ago and 8 percent lower than 2003's. Some of the decline was due to a decline in Federally Inspected (FI) mature ewe slaughter, which compared to a year earlier was down about 10 percent for the first six months of this year, while FI lamb and yearling slaughter was only 2 percent lower. Commercial sheep and lamb slaughter is forecast to be down about 2 to 4 percent from 2004's for the remainder of 2005 with the largest decline in the summer quarter. For the year, commercial slaughter is expected to be 3 to 4 percent below last year and 8 percent below 2003's.

FI sheep and lamb dressed weights were down slightly in the first quarter of the year, but then ramped up in the spring quarter to an average 70 pounds compared to 68 pounds last year. The average lamb and yearling weight was unchanged during the first two quarters, while mature ewes posted a 2 pounds increase from the respective period in 2004. For the year, FI dressed weights are expected to average about one pound heavier than 2004's.

Below year ago slaughter numbers and modest increase weight gains, has resulted in below year ago lamb production. Commercial production was down 6.5 percent in the first quarter and 1.3 percent in the second quarter from last year. Compared to the prior five-year average, during the January through June period, production was down nearly 16 percent. More modest declines are expected for the balance of the year, with yearly declines of 1 and 2 percent expected in the third and fourth quarters, respectively. For the calendar year, lamb production is estimated to average 3 percent less than a year ago.

Looking ahead, in 2006 U.S. commercial sheep and lamb slaughter is expected to be about 2 percent above 2005's with an additional one percent yearly increase in 2007 due growth in the U.S. flock.

Imports Decline

As the U.S. lamb and sheep industry declined in recent years, lamb and mutton meat imports from Australia and New Zealand increased. In 2004, the U.S. imported about 9 pounds (retail weight) of lamb and mutton for about every 10 pounds produced domestically. That represented a dramatic increase from 10 years earlier when just under 2 pounds of lamb and mutton was imported for every 10 pounds produced domestically.

For the first seven months of 2005, U.S. lamb imports from Australia were above a year ago, while imports from New Zealand declined dramatically. Through July, U.S. lamb imports from Australia averaged 10 percent above a year ago. However, lamb imports from New Zealand for the same seven-month period were down nearly 33 percent. Aggregate lamb and mutton imports by the U.S for the first seven months of 2005 were 10 percent below 2004's. For the year, U.S. lamb imports are forecast to be below a year ago for the first time since 1994.

Despite expansion in the U.S. lamb and sheep industry, imports will continue to supplement the U.S. market. How much will be a key to price levels. Compared to the last 10 years, the pace of import growth is likely to subside in 2006 and 2007. Drought in Australia and New Zealand and exchange rates will influence lamb and mutton exports by those countries.

Record Prices

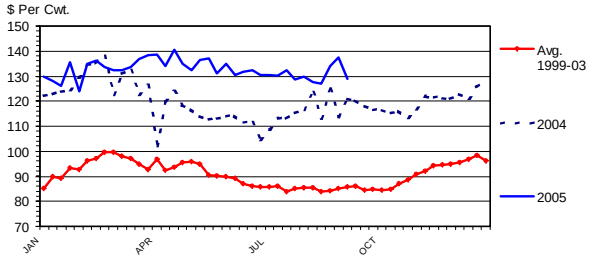
Feeder lamb prices were well above a year ago in the first and second quarters and set new record highs. In the first quarter, prices for 60-90 pound feeder lambs (live weight basis in Texas) averaged $132 per cwt., 3 percent higher than 2004's. In the second quarter, feeder lamb prices averaged $134 per cwt. compared to $113 per cwt. last year, a gain of 18 percent. Looking ahead, feeder lamb prices are expected to modestly decline for the remainder of the year. Nonetheless, prices will remain well above 2004's. For the calendar year, feeder lamb prices are expected to post an annual increase of 8 to 9 percent.

Slaughter lamb prices have also been record high thus far this year with prices expected to remain strong through the balance of 2005. For the first two quarters, slaughter lamb prices (carcass weight basis for Western States sold direct) averaged $208.75 per cwt. and $210.61 per cwt. respectively, up 12 and 9 percent from 2004's. Prices are forecasted to seasonally fade in late summer and into the fall quarter with prices bottoming out in the fourth quarter in the low to mid $190's per cwt. However, for the quarter, slaughter lamb prices will still average 6 to 7 percent higher than a year ago. For the year, slaughter lamb prices in 2005 will be record high, about 9 percent over 2004's.

For 2006, lamb prices may be under pressure from larger supplies. For the year, feeder lamb prices could post a yearly decline of 7 to 8 percent while slaughter lambs prices may drop by 5 to 6 percent from 2005's. Further price declines are projected for 2007 in response to larger supplies as well. Unless imports surge more than anticipated, slaughter lamb prices in 2007 could easily still be near $180.00 per cwt. (carcass basis), which would be only slightly below 2003's.

FEEDER LAMB PRICES

70-90 Pounds, San Angelo, TX Auction, Weekly



A Closer Look at the Canadian Cattle Industry

Producers, market analysts and policy makers in both the U.S. and Canada have paid close attention to cattle and beef trade between the two countries since the first indigenous BSE cow was reported in Canada on May 20, 2003. Putting key Canadian industry statistics into context provides some valuable indications for future developments. Importantly, Canadian cattle inventories and processing capacity have changed markedly compared to the pre-BSE era. As a result of these changes, it's likely that Canada will shift towards selling more beef overseas and away from exporting cattle to the U.S.

Inventories, Slaughter, and Prices

The U.S. border was closed to Canadian cattle for about 27 months before it was reopened in late July 2005 to feeder and slaughter cattle less than 30 months old. In response to the original closure of the U. S. border, Canadian cattle prices tumbled because Canada has depended on the U.S. for many years to slaughter a significant percentage of its cattle supply (steers, heifers, cows and bulls). As a direct result of the U.S. border closure, the Canadian cattle inventory is now record large. As of July 1, 2005, the Canadian cattle and calf inventory totaled about 17.3 million head, up over 500,000 head from a year earlier. Beef cow numbers as of July 1, 2005 also increased by 167,000 head to 5.5 million head. The number of beef cows in Canada represented about 14 percent of the combined U.S. and Canadian beef cowherd, an increase of 1 percent compared to July 1, 2004.

Canadian cattle slaughter capacity has grown since May 2003, primarily due to the expansion of existing slaughter plants and increases in operating hours. Through August 2005, weekly Federally Inspected cattle slaughter in Canada was about 18 percent, or 10,900 head per week, above the weekly slaughter average for 1999 through 2003. Compared to 2004, Canadian cattle slaughter increased about 4 percent, or nearly 2,700 head per week, in 2005. Additional slaughter capacity could come on line soon and some further plans for expansion are still on the drawing board.

As slaughter capacity in Canada ramped-up, cattle on-feed numbers began to rebound toward historically high levels, especially in 2005. On a monthly basis, Canada reports on-feed numbers for two provinces, Alberta and Saskatchewan. Those provinces recently had a year-to-year increase in the number of cattle in feedlots of over 117,000 head or 21 percent. That trend is expected to accelerate in coming months and by year-end Canadian feedlots could easily achieve pre-BSE on-feed numbers.

Canadian slaughter steer prices have significantly narrowed the gap with U.S. prices in recent months. This year, Alberta slaughter steer prices peaked at US $71.54 per cwt. in February in anticipation of the March reopening of the border. However, when the border remained closed, Alberta slaughter steer prices declined to a low of US$63.35 per cwt. in May. By August, Canadian slaughter steer prices had strengthened to just under US$71 per cwt. on a weekly average basis; around US$10 lower than U.S. Southern Plains fed steer prices. Compared to a year ago, Alberta slaughter steer prices were up 27 percent, but were still 8 percent below the same time period in 2002 (pre-BSE era).

Cull cow prices in Canada have surged in recent months. Following the discovery of BSE in May of 2003, cull prices plummeted to US$8.53 per cwt. in August of that year. Canadian cull cow prices have improved greatly since then averaging between US$17 and $24 per cwt. each month this year. Supported by additional slaughter capacity, cull cow prices in Canada strengthened in August of this year. Still, Canadian cull cow prices remained below pre-BSE averages because of the U.S. ban on Canadian cow and cow beef imports.

Canadian Cattle and Beef Exports

Canadian beef exports to U.S. in 2005 were well above the prior year as boxed beef from animals under 30 months of age was substituted for live cattle exports while the border was closed. Canadian beef exports to the U. S. during the first seven months of 2005 averaged 15 percent higher than in 2004's and 30 percent above the prior five-year average. Canadian beef exports to the U.S. peaked in May reaching a record monthly volume and then declined modestly during June and July. Canadian beef exports to the U.S. are expected to outpace a year ago for the remainder of 2005

Weekly Canadian cattle exports to the U.S. have modestly accelerated in recent weeks; however, they are still at fairly low levels compared to historical levels due to a number of market and management factors. In July, live cattle imports from Canada totaled 15,632 head, of which feeder cattle shipped to feedlots accounted for the majority of the total. In August, weekly feeder cattle imports to the U. S. from Canada averaged just over 6,700 head per week compared to about 8,800 head per week in 2002. Slaughter cattle imports averaged about 9,500 head per week; well below the weekly average in 2002 of 18,500 head. Live animal imports from Canada should increase in the fall quarter, but will likely remain below the weekly volumes reported before the border closure.

Cow and bull imports from Canada are still not allowed into the U.S. USDA has stated that they are drafting a second rule, dealing with cows and bulls, but at this time what would be included in such a rule is unclear. For example, the second rule may just include beef from cows and bulls processed using the same procedures as in the U.S. and maybe cows and bulls for immediate processing at U. S. slaughter plants. Later on, there could be a third rule that applies to importing breeding stock. After USDA releases a proposed rule, several months are typically required for a comment period and reviews of comments before a final rule is issued. So, the U.S. will not likely be

importing cull cows and cow-beef until at least the second quarter of 2006 and more likely sometime in the second half of 2006.

It appears that U.S. and Canadian beef trade will continue to normalize. However, there are still several more steps involved to the complete process. As a result, long-term trade flows may have changed. Canada may become less dependent on U.S. slaughter plants and become a stronger competitor in U.S. and foreign meat markets. Further, in some foreign markets, Canada's operational animal identification and tracking system could prove advantageous.

Cattle Outlook

James Mintert, Department of Agricultural Economics, Kansas State University

Overview

Slaughter cattle prices in Kansas rallied from their summer low in the high $70's per cwt. to the upper $80's per cwt. in mid-September, pushing prices above a year ago. The cattle price increase was driven in part by rising boxed beef values. USDA's Choice boxed beef cutout value rose from a summer low of $125 per cwt. in late July to about $140 per cwt. in mid-September. Looking ahead, cattle slaughter and beef production are expected to be larger than a year earlier this fall and remain above the prior year throughout 2006. The increase in beef production will lead to prices that are below year ago levels, with fed cattle prices averaging in the low to mid-$80's per cwt. this fall and the first quarter of 2006.

Canada Imports Remain Small So Far

Cattle began to move across the U.S.-Canadian border in late July, but the volume of cattle imported into the U.S. has been relatively small. Preliminary estimates of imports of slaughter steers and heifers from Canada during August averaged 1,925 head per day. Federally inspected slaughter in the U.S. during August averaged about 129,000 head per day, so Canadian slaughter cattle imports amounted to about 1.5 percent of the daily slaughter supply. Feeder cattle imports have also been relatively modest. During August imports of feeder cattle from Canada to the U.S. totaled 41,000 head for an average of 1,371 head per day. Feeder cattle imports are expected to rise seasonally this fall as the summer grazing season comes to an end.

Canadian Placements On Feed Rise Sharply

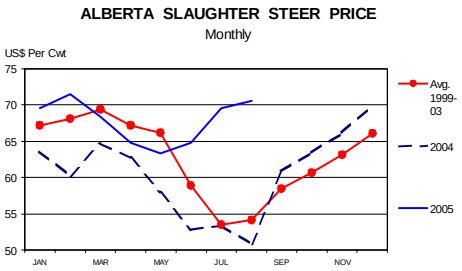
Placements of cattle on-feed in Canada rose sharply during the month of August. During August, placements of cattle on-feed jumped to 185,000 head, up from the 93,000 head placed during July and 91 percent more than in August 2004. Although much larger than last year, the August placement total was actually equal to the four-year average for August. The big jump in placements of cattle on-feed helped push Canada's September 1st on-feed inventory up 21 percent compared to a year ago. The rise in cattle placements confirms that shipments of slaughter cattle to the U.S. from Canada will rise towards the end of 2005 and in early 2006.

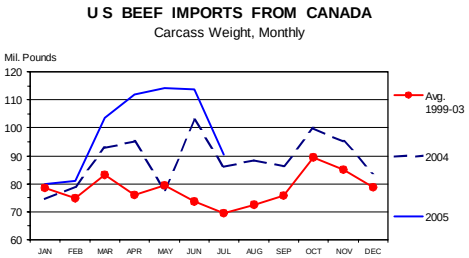
Weights Still Above A Year Ago, But Gap Is Narrowing

Cattle feeders continue to market cattle at heavier weights than last year, but the increase in weights narrowed recently. During July steer dressed weights averaged 1.8 percent heavier than a year ago. The year-to-year percentage increase declined to 1.5 percent during August and, by early September, steer dressed weights were just 0.8 percent heavier than a year ago. The fact that the gap in weights between 2004 and 2005 has narrowed recently implies that feeders are marketing cattle more rapidly. In turn, this helps explain some of the recent strength in slaughter cattle prices.

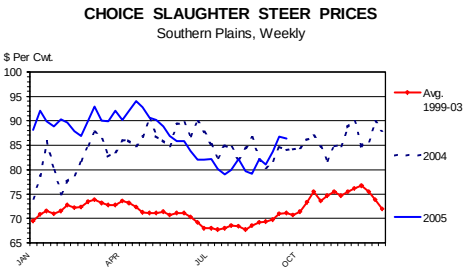
Increasing Slaughter and Production

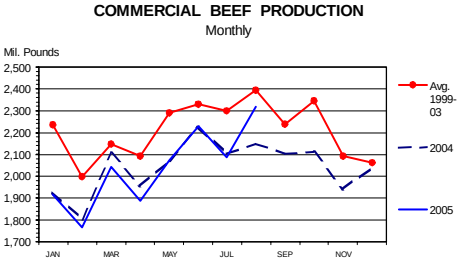
Cattle slaughter rose above a year ago during the July-September quarter. During the first 10 weeks of the third quarter,





"The increase in beef production will lead to prices that are below year ago levels"





cattle slaughter averaged 2 percent above a year ago. The combination of larger cattle slaughter and heavier dressed weights pushed summer quarter beef production up about 4 percent from 2004's. The year-to-year increase in beef production was in sharp contrast to the first half of 2005, when beef production actually fell 1 percent below the prior year.

Herd Rebuilding Underway

Cow-calf producers are holding back females to rebuild their cow herds. Since the first of the year, federally inspected cow slaughter has fallen 7 percent below 2004's. Beef cow slaughter during 2005 was 8 percent below a year ago, while dairy cow slaughter was 6 percent below the prior year. A good indicator of herd rebuilding in the past has been the ratio of female (cow plus heifer) slaughter to steer slaughter. Through late August, female slaughter totaled just 85 percent of steer slaughter, well below last year at the same time when female slaughter equaled 93 percent of steer slaughter. If female slaughter continues at this level , it would imply that the herd expansion pace has picked up since 2004, when the U.S. cattle herd grew just 1 percent.

Slaughter Cow Prices

The combination of smaller supplies of U.S. cow beef and the inability to import cull cows or cow beef from Canada helped support slaughter cow prices this year. In the Southern Plains, slaughter cow prices averaged 12 percent higher than a year ago during the first two quarters of this year and were actually 40 percent higher than the five-year average. Seasonally, slaughter cow prices usually peak in late June or early July and then weaken in the fall as producers increase their culling rate. The seasonal decline in cow prices got underway in August of this year, as prices dropped into the mid-$50's per cwt., which was about 6 percent below a year ago. If cow prices follow their normal seasonal pattern, they should bottom out in November and could average about $50 per cwt. in the fourth quarter.

Outlook

Cash slaughter cattle prices rallied in mid-September to the upper $80's per cwt. However, beef production this fall is expected to increase 3 to 4 percent compared to last year, while per capita beef supplies in the U.S. could rise 2 percent or more above a year ago. Last fall, Kansas slaughter steer prices averaged about $84 per cwt. Given larger beef supplies, look for slaughter cattle prices this fall to average in the low to mid-$80's per cwt.

Cattle slaughter this winter is expected to increase even more, relative to the prior year, than this fall. By winter, supplies of domestic cattle will be larger than a year ago, and slaughter cattle imported from Canada will further augment domestic supplies. As a result, cattle slaughter in the first quarter of 2006 could rise 5 to 6 percent above the prior year. Heavier cattle dressed weights could help push first quarter 2006 beef production up 6 to 7 percent, while per capita beef supplies are likely to rise 4 to 5 percent, both compared to the prior year. The increase in beef supplies is expected to keep cattle prices under pressure this winter. Western Kansas slaughter cattle prices averaged about $90 per cwt. during January-March 2005. Looking ahead, slaughter cattle prices in the first quarter of 2006 are expected to average in the low to mid-$80's per cwt.

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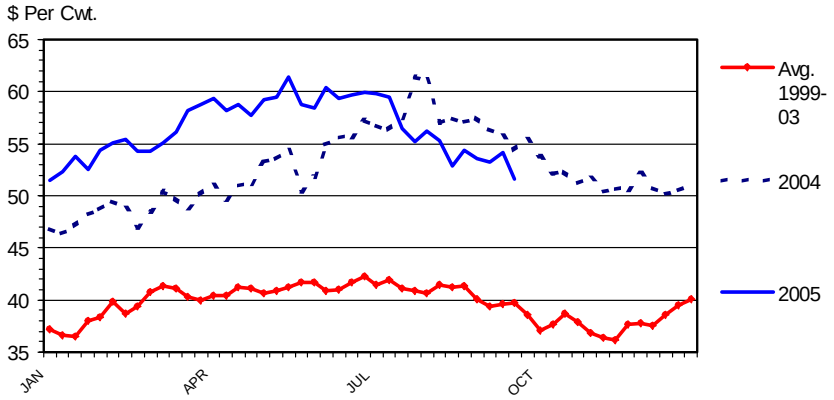
Highlighted Chart

SLAUGHTER COW PRICES
Southern Plains, 85-90% Lean, Weekly



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