



Analysis & Comments

Livestock Marketing Information Center

State Extension Services in Cooperation with USDA

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www.lmic.info

Cattle Numbers and Comments: A Cow-Calf Perspective ¹

This past summer, drought caused a downsizing in the U.S. beef cowherd, which had already shrunk in recent years. High grain prices have caused some mixed cropping/cow operations in the Midwest and some additional states to reduce forage production (hay and pasture) and eliminate or downsize their livestock enterprise to focus on selling grain. Overall, three factors will continue to support cattle prices in the next few years: 1) tight cattle numbers; 2) strong export markets (beef and byproducts); and 3) rather tight domestic supplies of competing meats and poultry. Here, we will focus will be on cattle numbers and implications.

Cattle numbers are important, but how important? Historically, cyclical ups-and-downs in the number of head were often viewed as providing a basis for planning. In the last few years cattle producers have become all too familiar with record high and volatile input costs such as fuel and feedstuffs. The beef industry has also suffered through three unforeseen demand shocks since 2000 – the terrorist attacks on September 11, 2001, the late December 2003 case of a BSE cow, and the 2008 financial crisis that turned a normal recession into the worst economic contraction since the Great Depression. In spite of all that, Southern Plains annual average calf prices posted record highs in 2004, 2005, 2010 and 2011.

Over the years, cycle analysis has become less-and-less relevant to the cattle business. That is not to say that an understanding of cattle numbers and directions of change are not important in a business plan. It simply means that this is no longer a **highly** cyclical industry with inventory cycles lasting about 10-years. Compared to history, cattle inventory swings (cyclical amplitude) are now greatly dampened and their duration is more difficult to specify.

Unpredictability is not limited to the cattle cycle. Volatility can be found throughout today's economic environment. Changes in oil prices quickly reverberate through corn markets and impact feeder animal prices. Globalization has made foreign consumers and international trade policies drivers of beef and byproducts. A less cyclical and more volatile industry is one which requires management to focus on within-year and annual market drivers.

¹ This paper is a synthesis from proceedings and presentations given by LMIC staff in recent weeks.

Cattle Inventory: Where We Are

In terms of head, the U.S. total cattle and calf inventory is usually discussed using the USDA National Agricultural Statistics Service (USDA-NASS) annual report. That report is based on the most comprehensive annual survey of producers. USDA's estimates are reported as of January 1 of each year. Historically, USDA-NASS also provided a mid-year (July 1) U.S. cattle and calf inventory, but in October 2011 USDA decided to eliminate that important report.

As of January 1, 2011, NASS reported the U.S. total cattle and calf inventory at 92.6 million head, 1.4% below a year earlier and the smallest since 1958. That number has declined each year since 2007. U.S. cattle numbers peaked in 1975 at 132.0 million head. At the beginning of 2011, beef cows totaled 30.9 million head, down 1.1% from 2010's. Over the last 10 years, beef cow numbers were essentially flat or declined in most states, the exceptions were Oklahoma (up 100,000 head) and some states in the Great Lakes region where beef cows replaced some dairy herds (Wisconsin had the largest gain at 35,000 head.) During 2010, most of the year-on-year gains in beef cow numbers were in Kansas and to the north and west of that state.

Heading into 2011, the U.S. beef cowherd was expected to show signs of stabilizing, following several years of declines. But drought took that prospect away.

As of July 1, 2011, the total number of all cattle and calves was 1.1% (1.1 million head) below a year ago. That was the fifth consecutive annual decline. The number of beef cows, at 31.4 million head, declined by 1.1% (about 350,000 head) compared to a year earlier. According to the mid-year report, the number of beef heifers held as replacements continued to shrink and at 4.2 million head was the lowest July 1 number since USDA-NASS began the mid-year count in 1973. The year-on-year drop in heifers held for beef cow replacement purposes was large at 4.5%. By historical standards, the number of replacement beef heifers implies further beef cowherd reductions are ahead.

As the third quarter of 2011 progressed, drought intensified in Texas and reached west-to-east from Arizona, to Georgia and north into Kansas. Southern Plains pasture and range conditions were devastated and hay costs surged to all time record highs. As of mid-summer, over 25% of the U.S. beef cowherd was in major drought zones.

Besides cowherd declines in the U.S., in recent years the same situation has occurred in other important countries. The Canadian beef cowherd has declined and did so at a faster pace than the U.S. As of July 1, 2011 the Canadian beef cow inventory was 4.2 million head, which was 2.1% (90,000 head) below 2010's and it has shrunk each year since 2005 (down 1.2 million head between 2005 and 2011). In Argentina, cowherd numbers have been under pressure as pastureland continues to be converted into cropland due to: 1) high crop prices; and 2) government policies that limit cattle price increases. Australia has suffered from ongoing severe drought, which finally began to moderate in 2011.

As reported/estimated by USDA's Foreign Agriculture Service, cattle numbers in their summary of major world countries including the U.S. peaked in 2008 and since then has dropped by about 1.7%. Over that timeframe, major countries besides the U.S. with declines (from largest to smallest size of cattle herd) included: China, European Union (27 countries), Argentina, Australia, Mexico,

Russia, and Canada. Two major beef exporting countries significantly increased their cowherds over that timeframe, India and Brazil (India includes water buffalo).²

Production and Per Capita Consumption

In contrast to the multi-decade low in cattle numbers, U.S. beef production in 2011 is on schedule to be the smallest in just two years. Of course, the long-term shrinkage in cattle numbers has largely been made-up for by heavier carcass weights. In most years U.S. beef production has not declined even with a shrinking cowherd. Although beef production is the major contributor to domestic supply, a better representation of beef availability is per capita consumption (or more correctly disappearance per person).

Per capita consumption takes beef production, adjusts for two factors (international trade and stocks in cold storage), and then divides by population. The U.S. population is growing. U.S. per capita consumption of beef has been dropping quickly. Importantly, especially in recent years, declines in U.S. per person consumption reflect increasing purchases by overseas consumers. After adjusting for population and international trade (exports and imports), U.S. production is put on a retail weight basis (estimated weight at grocery store not actually eaten and including bones, etc). In 2010, per capita retail weight consumption of beef was 59.6 pounds, down 1.5 pounds from 2009's. This year that number is projected to be 57.5 pounds, which will be the smallest since before 1955. U.S. per capita beef consumption peaked at 94.6 pounds in 1976.

In recent years, increasing exports have compensated for lower U.S. per person beef consumption. Further, beef prices would not be where they are today if it were not for record export demand. On a tonnage basis, U.S. beef exports in 2011 will finally eclipse the pre-BSE levels. Remember, U.S. beef exports collapsed after the December 2003 BSE incident; on an annual basis, U.S. beef export tonnage represented 9.5% of production in 2004 and fell to 1.9% in 2004.

Of course, U.S. per capita beef consumption is **not** the same thing as beef demand; consumption is just one of two important components of the domestic beef demand relationship. Demand is a relationship that also incorporates a price dimension. Often, aggregate consumer demand for beef uses per capita retail sales weight and a rather crudely calculated inflation adjusted retail beef price by USDA using data collected to calculate the national rate of inflation (Consumer Price Index). According those quarterly indexes, beef demand has improves slightly on a year-over-year basis, but remains below pre-recession (e.g. 2008 levels).

Estimated U.S. Cow-Calf Returns

Economic incentives to expand beef U.S. cowherds have increased each of the last two years. Since the early 1970's the Livestock Marketing Information Center (LMIC) has estimated cow-calf returns over cash costs plus pasture rent based on typical production and marketing practices in the Southern Plains. The estimated numbers are designed for market analysis, thus actual cow-calf returns will vary considerably, especially in drought years like this year. For 2011, as calculated by the LMIC, most non-drought impacted cow-calf operations will cover their cash production costs plus they will have

² List based on table titled Cattle Selected Countries Summary in: Livestock and Poultry: World Markets and Trade, USDA Foreign Agriculture Service, October 2011.

significant money available for their fixed costs (management, operator labor, etc.). In fact, the estimated LMIC return will be about \$90.00 per cow, the highest since 2005.

Over time, estimated cow-calf returns have varied dramatically. The most recent negative return year was 2009 (-\$31.00 per cow). Years of positive and negative returns tend to be in clusters. In the last 37 years of LMIC estimates, 14 years or 38% had negative returns, with only five of those years posting losses greater than \$75 per cow (1975, 1976, 1983, 1984, and 1996). Over that same timeframe, seven years had estimated positive returns of over \$75.00 per cow (1987, 1990, 1991, 2003, 2004, 2005, and 2011).

Where Are We Headed?

On a national basis, another significant year-on-year cattle inventory decline will be reported as of January 1, 2012. Texas and Oklahoma, for example, could easily record their largest annual beef cowherd percentage drops ever during 2011. Many Northern states will increase their cowherds in 2011. Nationwide, if recent trends persist, the beef cow herd will decline by a full 2% this year.

Regional changes in the location U.S. beef cowherd will likely continue for at least the next year. The pattern of change in 2011 will be similar to 2010's, though the magnitude of changes may be different in several states. Besides drought impacted states, beef cowherd numbers will likely continue to shrink in some Midwest states as more mixed cropping/cow operations downsize or exit the sector. Some Southeast states also will continue to switch to intensive crop production at the expense of cows. In contrast, producers in many Northern states increase their cowherds in 2011. Beef cowherd increases will be most prevalent in the Northern Plains, Central Plains, and many Western states. In 2011, some of those cows, especially in the Central Plains, were relocated from drought-plagued states.

When looked at from a U.S. perspective, two key beef countries that had shrinking cattle numbers appear to be stabilizing their cattle numbers in 2011 and may begin increasing their beef output in the next two years – Australia and Canada. Still, several countries will probably continue shrinking cattle numbers during the next few years including: China, the European Union (27 countries), Argentina, and Mexico.

U.S. cow-calf returns in 2012 should exceed 2005's record (about \$150.00 per cow). Preliminary forecasts for 2013 suggest returns will set a new record high (exceeding \$170.00 per cow); because the up trend in calf and cull animal sale prices are forecasted to out-pace production cost increases.

If drought in the Southern Plains subsides significantly, 2012 will likely become a year of transition toward national beef cowherd stabilization. That is, cow slaughter will drop dramatically supported by a relatively young herd after several years of severe culling. Next year, some 2011 born heifers and dramatically more 2012 born heifers could begin to re-fill the breeding stock pipeline. Still, as reported by USDA-NASS, year-over-year increases in the number of beef cows that have calved in the U.S. could easily be delayed until January 1, 2015.

In 2012, the LMIC estimates beef production will drop to just over 25 billion pounds, the smallest since 2005. That will translate into per capita consumption of about 55.5 pounds (retail weight basis), down about 2 pounds from 2011's. Preliminary LMIC forecasts put that number even lower in 2013

(about 53.7 pounds), as cattle slaughter and beef production decline. If U.S. beef exports do not collapse, the amount of beef available to U.S. consumers per person will erode further after 2013.

There are implications of tighter beef supplies. Beef prices will continue to set record highs. How much will depend on the strength of both the U.S. and world economies. The growth rate of U.S. beef export tonnage will likely be capped by tight supplies and associated record high beef prices. Unfortunately for beef industry participants, given biological lags in the beef production system, poultry and pork may back-fill domestic and foreign consumer demand beginning as early as late 2012.

Some Comments: Managing In These Times

Four characteristics of the cattle industry operating environment are expected to dominate the next five years:

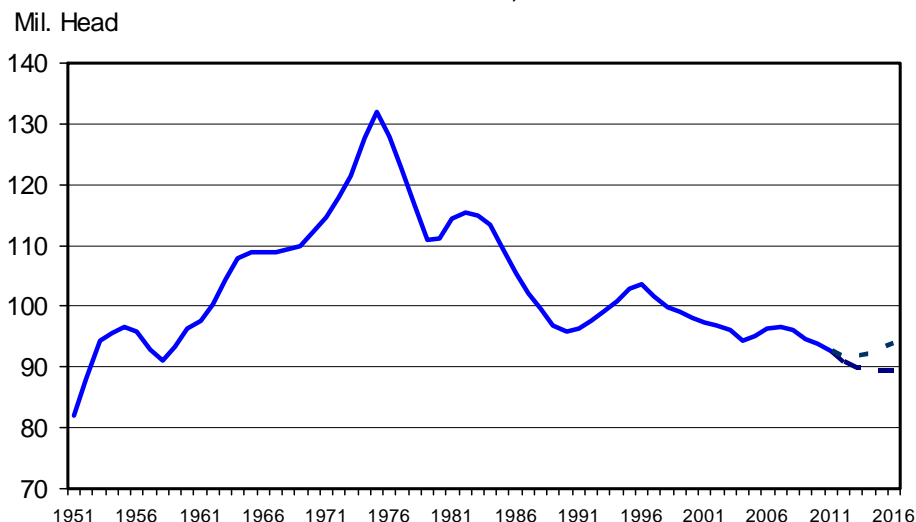
- 1) Supplies of feeder cattle will remain tight by historical standards.
- 2) Price volatility (inputs and outputs) and market shocks will continue.
- 3) Historically high feedstuff cost range will continue.
- 4) Export demand for animal protein and byproducts will grow.

Forecasts indicate that prices for beef and all types of cattle (e.g. breeding stock, calf and cull cow) have not yet reached their top. High cattle prices and high costs of production make mistakes on the ranch increasingly costly. For cow-calf operations this has many implications, a few of which are:

- The value of forage-based gain has changed (forage is much more valuable). Managing forage will be a key to success more than ever. The economics of range improvements have changed dramatically.
- Cow-calf operations need to critically look at the economics of their heifer enterprise, and evaluate using low-cost systems as part of a business plan.
- Cattle feeders and packers will face margin compression. So, the estimated returns of retained ownership can change quickly.

Agile and adaptable firms will have opportunities benefit in this economic environment. Reviews and evaluations of management and marketing plans will be more important than ever. Success will require periodic assessment (every 3-4 months at least), not annually based on the cattle cycle. Communications within the management team need to be clear so that major profit opportunities, which might be fleeting, are not missed.

JANUARY 1 TOTAL CATTLE INVENTORY U.S., Annual

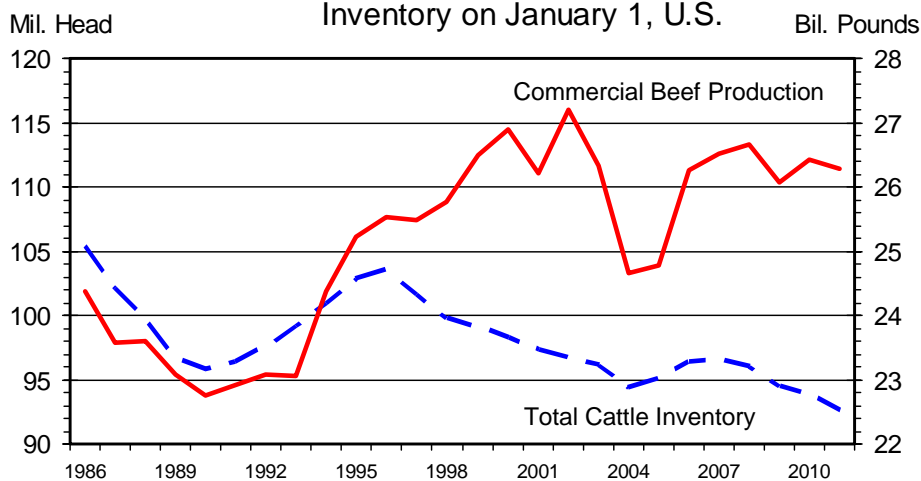


Livestock Marketing Information Center
Data Source: USDA-NASS

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BEEF PRODUCTION vs. CATTLE INVENTORY

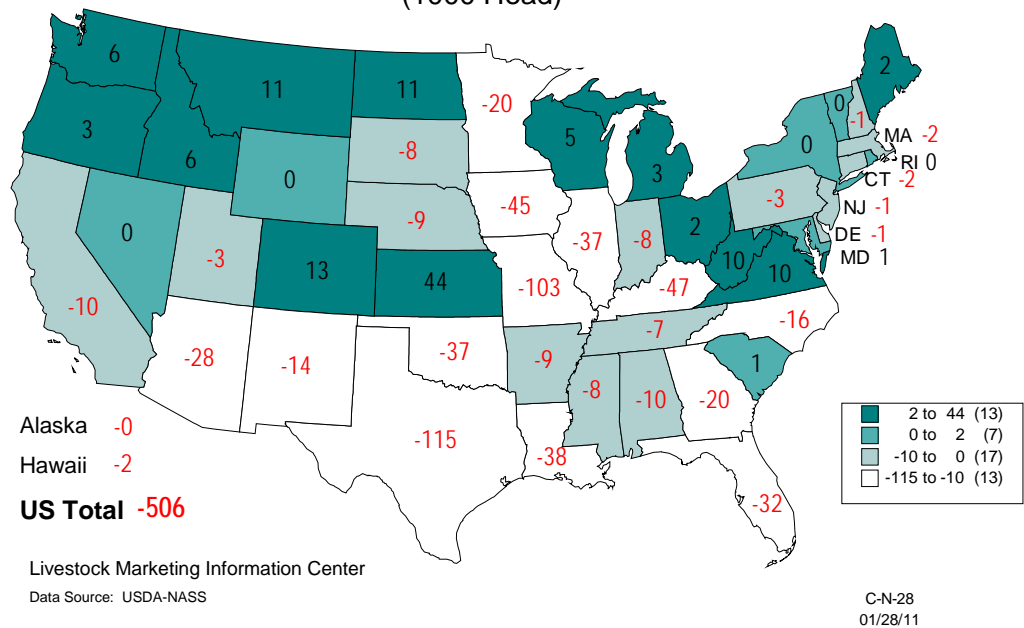
Inventory on January 1, U.S.



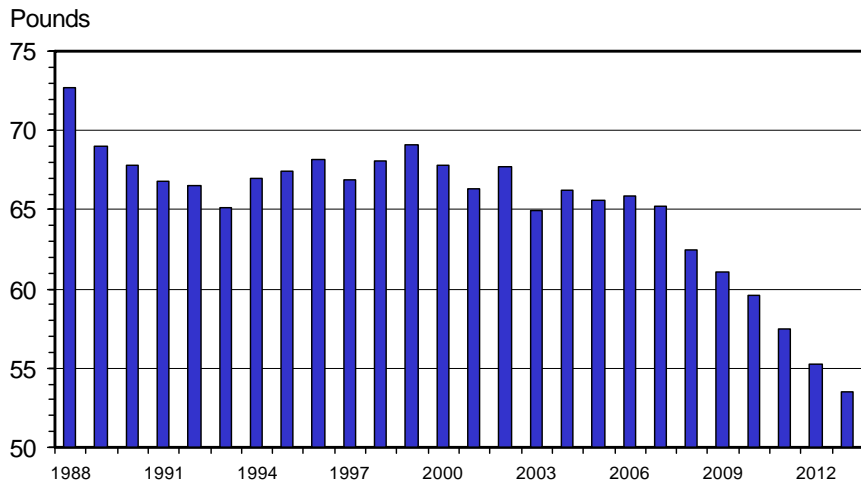
Livestock Marketing Information Center
Data Source: USDA-AMS, Compiled & Analysis by LMIC

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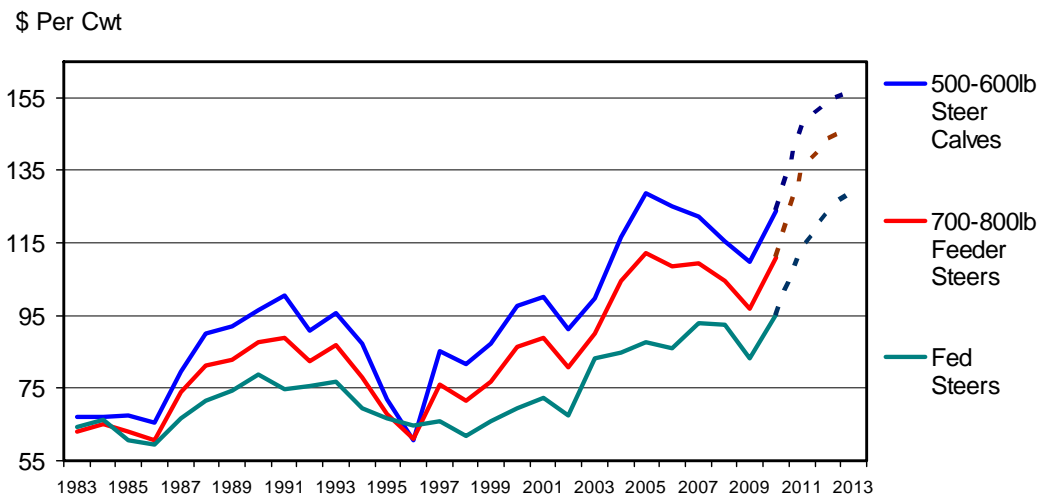
CHANGE IN BEEF COW NUMBERS JANUARY 1, 2010 TO JANUARY 1, 2011 (1000 Head)



U S BEEF CONSUMPTION Per Capita, Retail Weight, Annual



ANNUAL AVERAGE CATTLE PRICES Southern Plains



Livestock Marketing Information Center
Data Source: USDA-AMS, Compiled & Analysis by LMIC

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