

# **THE U.S. CATTLE CYCLE AND AGRICULTURAL LENDER RISK**

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## **EXECUTIVE SUMMARY**

The United States is the world's largest producer of beef and the world leader in the production of grain-finished cattle. Both supply and demand factors determine beef prices and, in turn, the prices of fed cattle and calves. Fed cattle prices averaged over \$126/cwt in 2013 compared to only \$70/cwt between 1990 and 2000. Fed cattle prices will probably average close to \$150/cwt in 2014. Correspondingly, calf prices averaged \$174/cwt in 2013 and are forecasted to be close to \$240/cwt in 2014.

The inflation-adjusted prices of both of these commodities have increased over the past decade. In the past, such increases have encouraged an expansion of the U.S. beef breeding herd. However, this has not occurred in the beef cattle industry in the past decade. The lack of supply response runs counter to historical behavior that reaches as far back as the Civil War era.

Although beef cattle numbers have declined since the mid-1970s, beef production has not followed in lock step. Increasing beef cattle productivity has offset, to a degree, reductions in cattle numbers. However, cattle numbers have declined to the point that the United States has experienced declining beef production over the past two years.

Current record-high calf prices have occurred (in inflation-adjusted terms) three times since 1920 -- in 1951, 1973, and 1979. In each case, price spikes were caused by a combination of low cattle numbers and unusual market situations. Each of these record-high price events was short-lived -- less than two years. In general, prices declined by 50% as macroeconomic conditions reversed themselves (e.g., Korean War purchases and incomes declined, and OPEC oil shocks permanently increased production costs and substantially reduced beef demand). But, cattle inventories also increased for a short time in response to high prices in each of these cases.

Agricultural lenders are certainly concerned about the duration of high cattle prices. Many livestock producers use intermediate-term debt to purchase breeding stock and machinery and use long-term debt to purchase ranch land. The security of such loans depends greatly upon the behavior of cattle prices over the next several years. If history repeats itself, then record high cattle prices will not exist for an extended period of time. However, if the factors that have caused current high prices do not reverse themselves, and cattle inventories do not increase substantially, then cattle prices are likely to remain at relatively high levels. Although we believe that the probability of a historically precipitous decline from record levels in the near future is small, smaller declines could certainly occur. Consequently, lenders should include such scenarios in balance sheet stress testing and capital management actions.

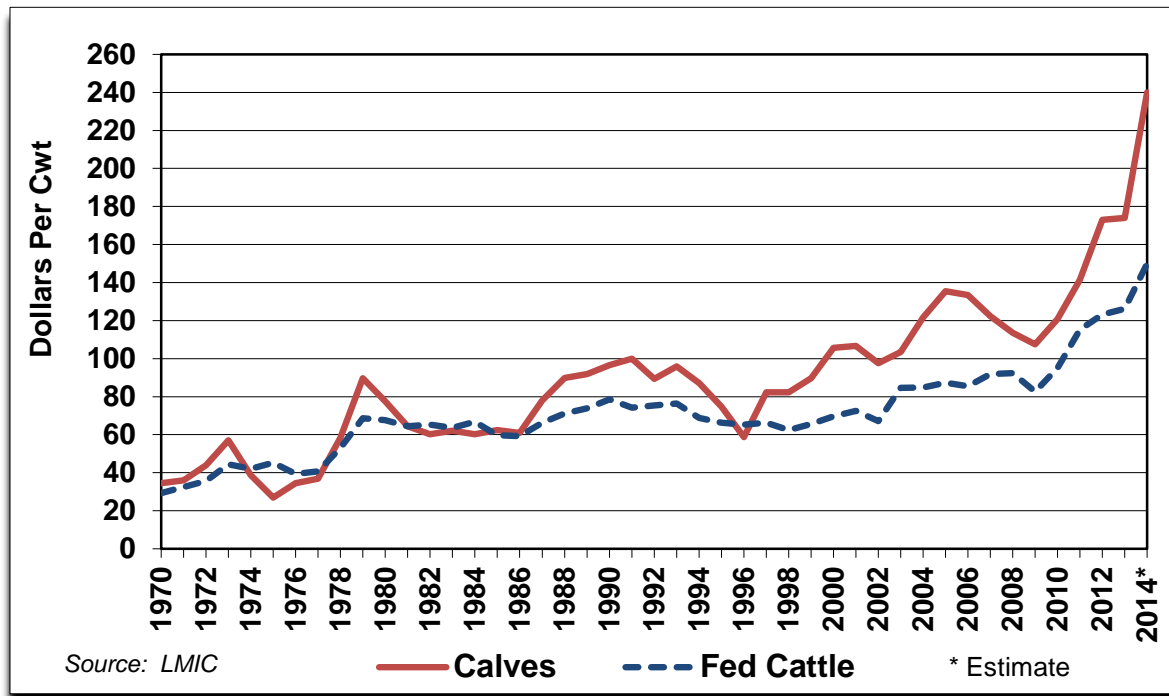
# THE U.S. CATTLE CYCLE AND AGRICULTURAL LENDER RISK

## Introduction

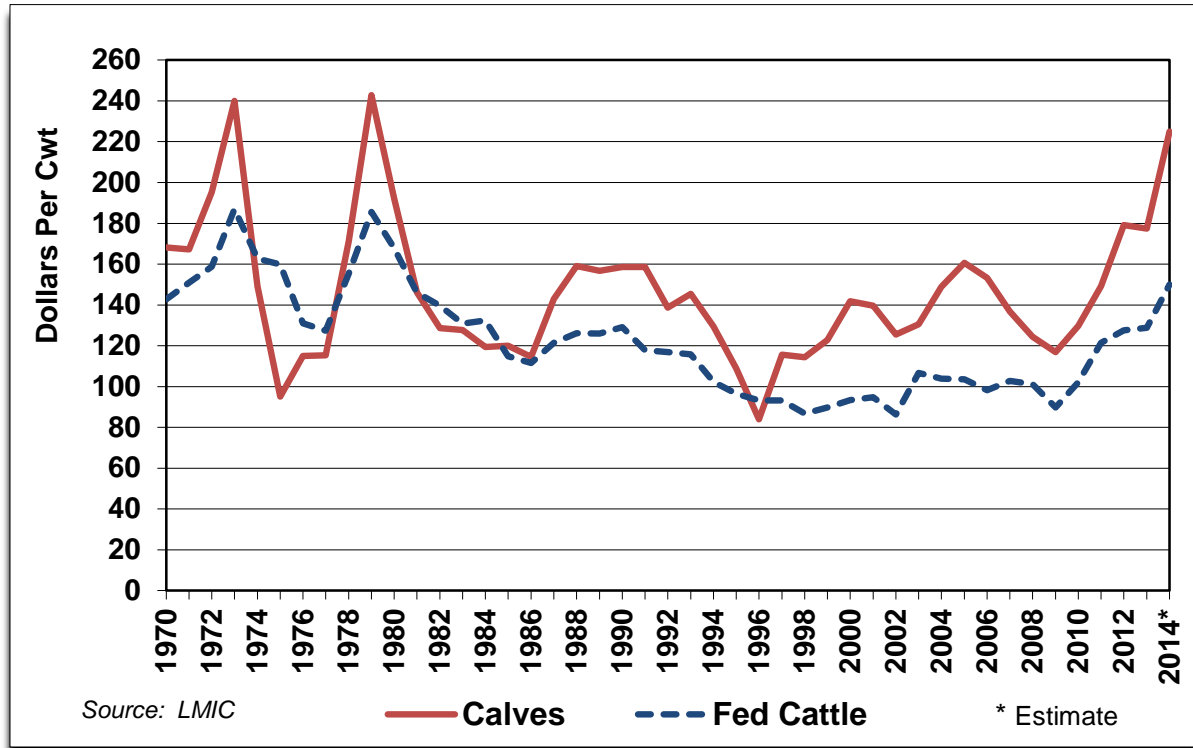
The United States is the world's largest beef producer and the world's leader in the production of grain-finished cattle. Canada also produces grain-finished cattle, but its industry is only about 15% as large as the United States'. The European Union, Australia, and New Zealand use some grain in cattle finishing rations but not to the extent of the United States or Canada.

Both supply and demand factors determine beef prices and, in turn, the prices of fed cattle and calves. Fed cattle prices averaged over \$126/cwt in 2013 compared to only \$70/cwt between 1990 and 2000 (figure 1). Fed cattle prices will probably average close to \$150/cwt in 2014. Correspondingly, calf prices averaged \$174/cwt in 2013 and are forecasted to be close to \$240/cwt in 2014. The inflation-adjusted prices of both of these commodities have increased over the past decade (figure 2).

***Figure 1. U.S. Fed Cattle and Beef Calf Prices***



***Figure 2. Real U.S. Fed Cattle and Beef Calf Prices***



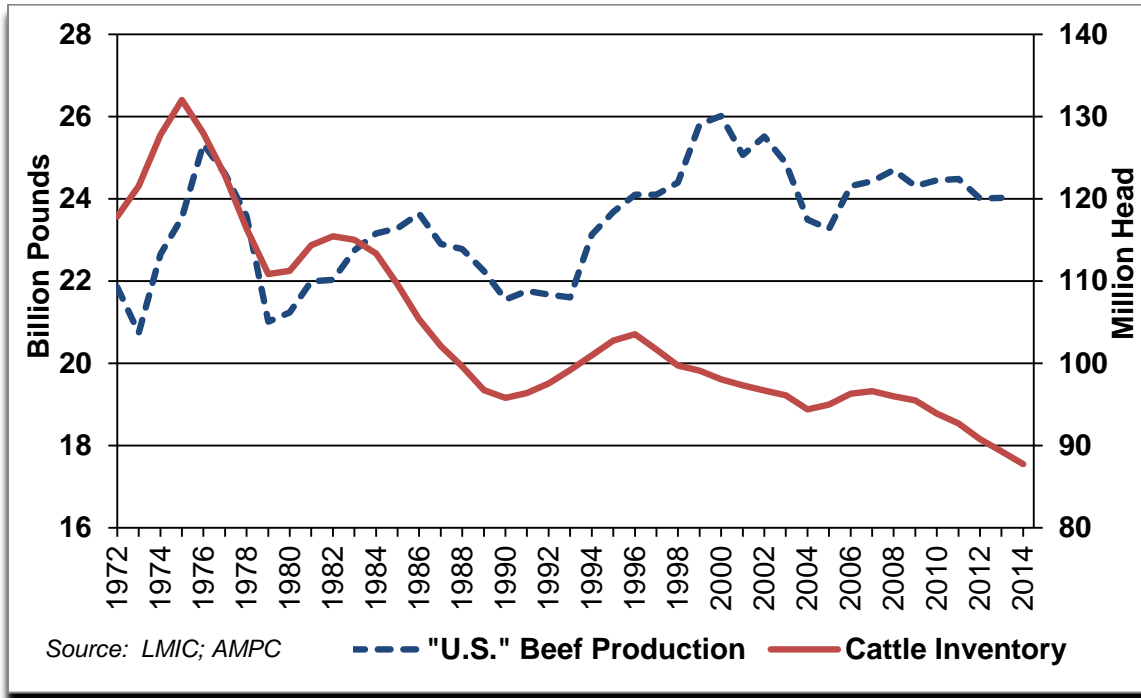
### U.S. Cattle Inventories

U.S. beef cattle inventories increased from 78 million head in 1950 to 132 million head in 1975. Since 1975, however, inventories have steadily declined and totaled only 87.7 million head on January 1, 2104 (figure 3). Because of productivity increases, however, beef production from the U.S. beef breeding herd in 2013 was similar to that occurring in 1975.

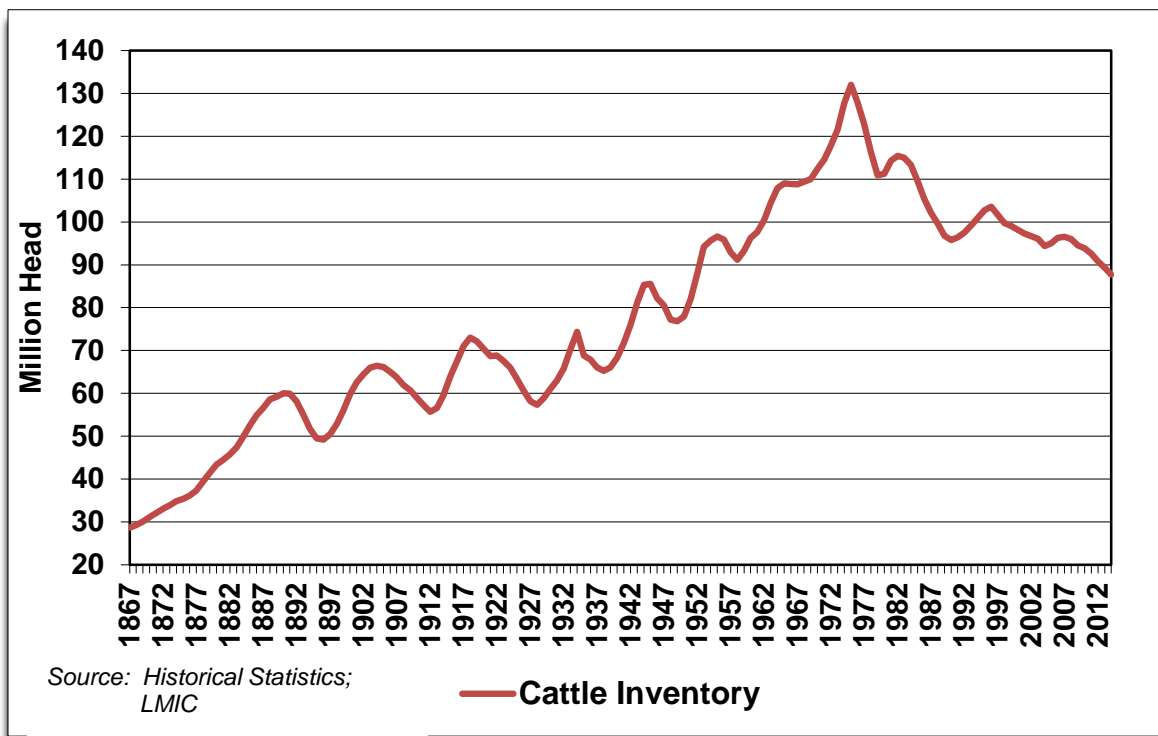
### U.S. Cattle Cycle

U.S. cattle inventories have been among the most repeatable economic cycles across the entire U.S. economy for more than 130 years (figure 4). Beginning in 1867, U.S. cattle inventories experienced peaks (or troughs) approximately every 10 to 12 years. Until 1976, however, the cycle trended upwards. Since that time, cycles appear to be more muted, and cattle numbers have trended downward.

**Figure 3. U.S. Beef Production and January 1 Cattle Inventory**



**Figure 4. U.S. January 1 Cattle and Calf Inventory**

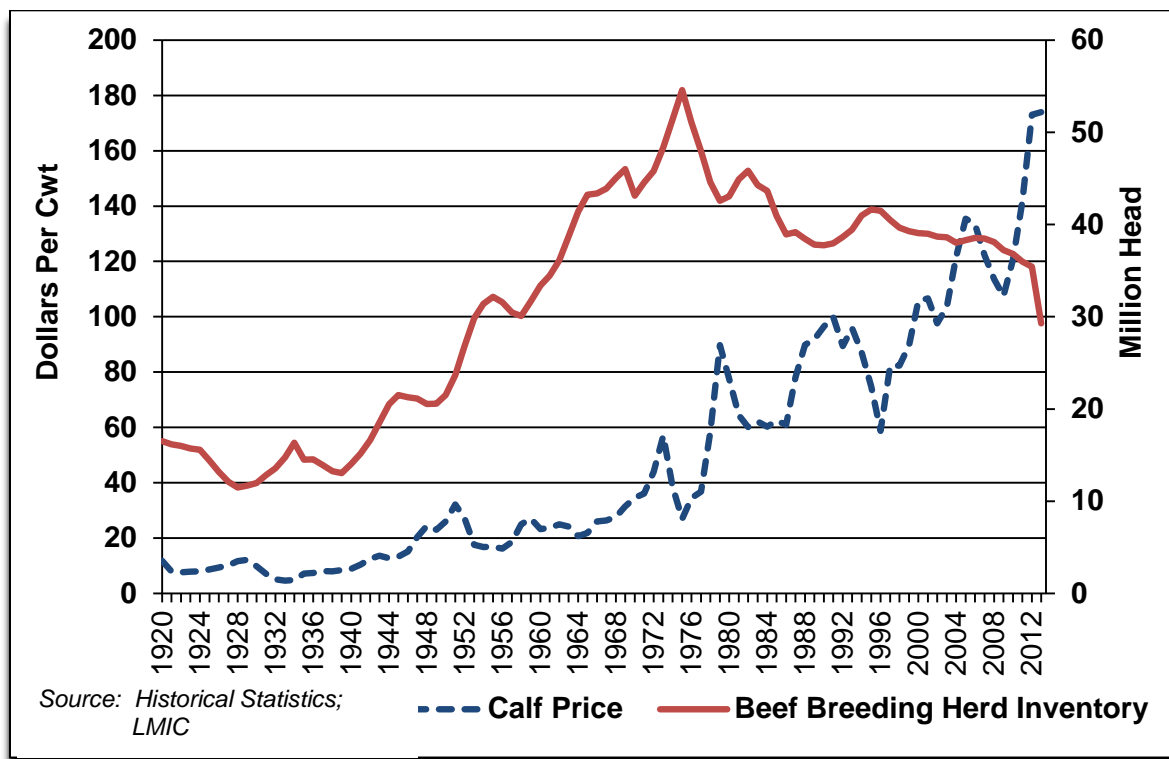


Cattle cycles occur because of price expectations and cattle reproduction biology. When cattle and beef prices increase or are expected to be relatively high in the future, cattle producers respond by producing more cattle. This process takes several years to accomplish not only because more female cattle have to be withheld from the beef market, but also because it takes at least two years for a female calf to reach breeding maturity. Although this reduces beef production for a year or two, the added production capacity eventually increases inventories and results in larger beef supplies. Without commensurate increases in demand, larger supplies eventually cause prices to decline. Subsequently, cattle producers have incentives to reduce the size of their cattle herds.

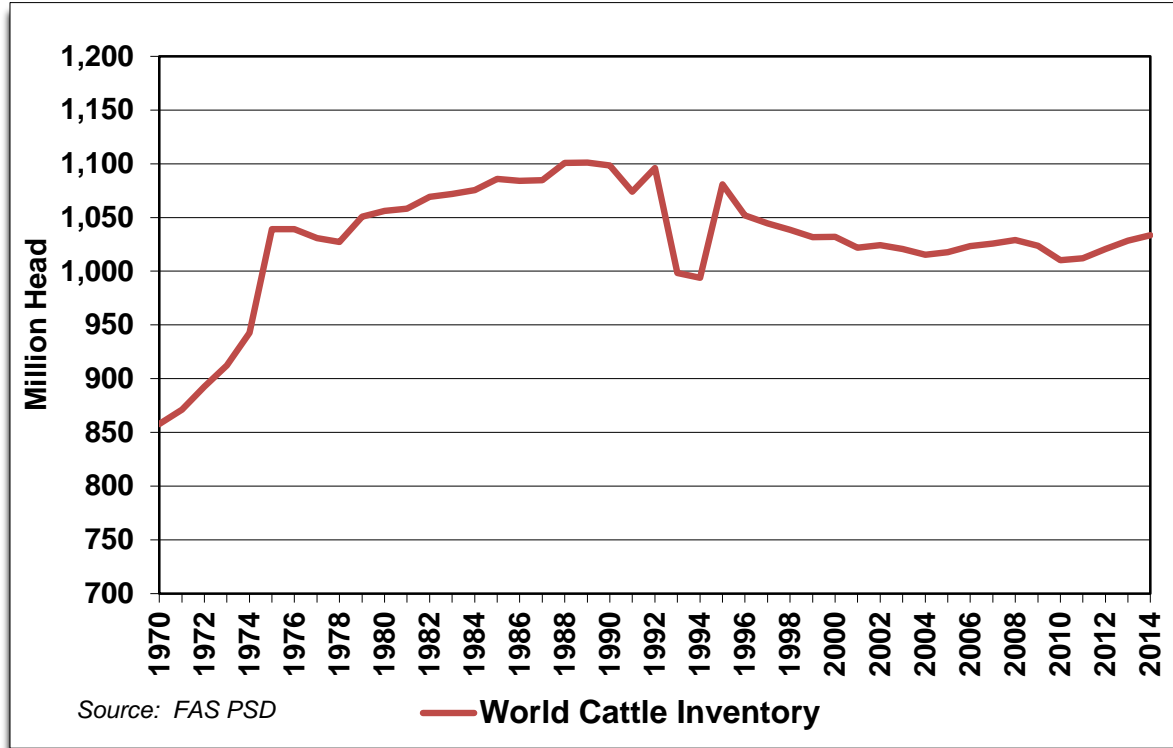
Consequently, high calf prices tend to be followed by herd expansions (figure 5). Although not perfectly predictable, such cycles have been occurring with remarkable regularity. Beginning around 1997, however, this pattern seems to have either disappeared or been highly muted. That is, for most of the past two decades, U.S. cattle and beef prices have exceeded their long-term averages in inflation-adjusted terms. Based on previous cattle market adjustments, cattle inventory numbers (specifically, the beef cow breeding herd) should have increased in response to those higher prices. But, this has not occurred.

Current record high cattle and beef prices are a product of solid domestic and foreign beef demand and limited U.S. (and world) beef cattle inventories (figure 6). Whether or not these inventories increase in the future will be the primary determinant of future cattle prices. Given that cattle and ranch land are often purchased with the use of agricultural credit, repayment capacities and lending strategies depend heavily upon the behavior of the cattle cycle.

**Figure 5. U.S. Calf Price and Beef Breeding Herd Inventory**



***Figure 6. January 1 World Cattle and Calf Inventory***



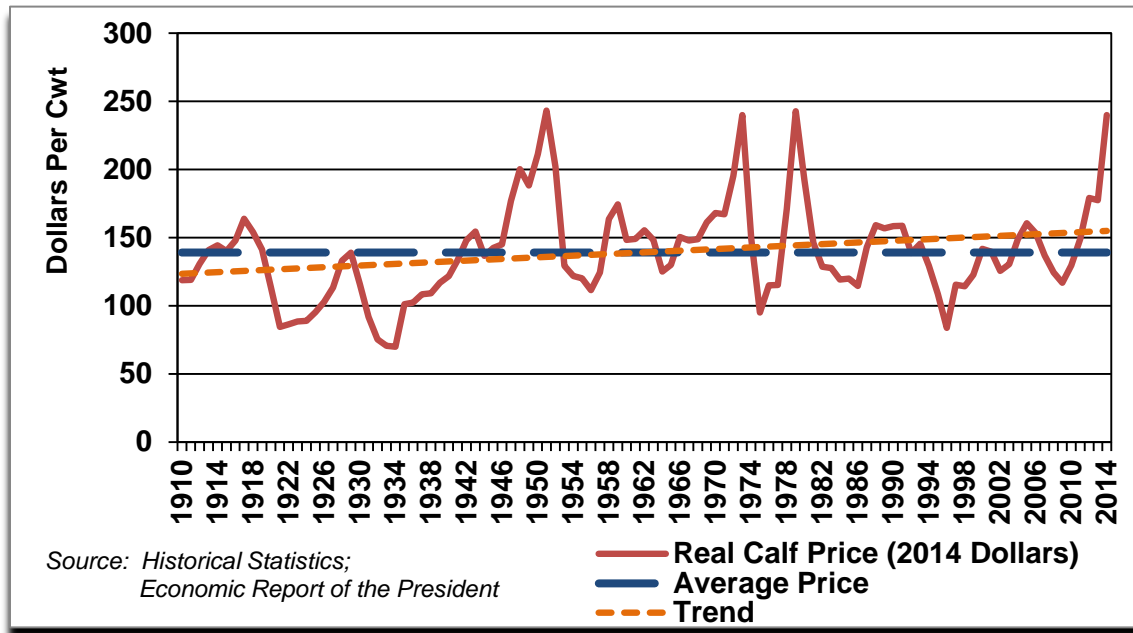
### **A Historical Perspective on Record Cattle Prices**

Long-run, real (inflation-adjusted into 2014 dollars) U.S. calf prices have averaged \$139.13/cwt since 1910 (figure 7).<sup>1</sup> Furthermore, real prices have experienced only a slight upward trend over the past 100 years. Spikes in real calf prices have occurred on several occasions during the past century. The record real price levels experienced in 2014 have occurred in three other years -- 1951, 1973, and 1979. Within 2-4 years after each of these record-setting price spikes, calf prices declined by more than 50%. An examination of the conditions surrounding each of these previous price increases and subsequent declines may provide some intuition regarding the likelihood of a similar event occurring within the next few years.

The 1951 price spike has been largely attributed to the initiation of the Korean War. Many countries feared that the Korean War could be the harbinger of another world conflict, which increased concerns about food security. Low food supplies that occurred during World War II continued to be a major societal concern for many countries. Hence, many countries increased their purchases of raw agricultural commodities as a hedge against food supply disruptions. Prices declined rapidly after 1951, however, as countries reduced their inventory purchases and real net incomes declined because of the war effort.

<sup>1</sup>Price data are unavailable for years prior to 1910.

***Figure 7. Real U.S. Calf Price***



The 1973 and 1979 price spikes occurred prior to the first and second OPEC oil price shocks. In both cases, other factors caused high cattle prices in advance of these shocks. In 1972, the Soviet Union purchased large amounts of wheat (440 million bushels) and corn from the United States using export credit subsidies. In addition, a sharp reduction in Peruvian fish meal (a major livestock feed protein source) also occurred. Concurrently, world production of wheat, rice, and corn declined, which increased the export demand for U.S. agricultural commodities. Hence, grain prices reached record levels. The beef cattle industry had just entered a rebuilding phase, and the number of hog enterprises declined in response to low returns that occurred in 1971. Nominal calf prices reached a new record level in 1973. Given that the 1973 inflation rate was 6.2%, the resulting record real calf price of \$243/cwt is even more remarkable. Real beef cattle prices declined to near record lows over the next two years, however, as the first OPEC oil embargo quadrupled the price of crude oil, which substantially increased production costs. More importantly, however, was that the increase in crude oil prices caused large declines in consumer disposable income and greatly reduced the demand for beef. In 1974 and 1975, inflation rates were 11.0% and 9.1%, respectively. These higher rates also contributed to the much lower real calf prices in those years (figure 7).

The 1979 real calf price spike occurred following a 20 million head decline in cattle inventories between 1975 and 1978. This low point of the liquidation phase generated high calf prices. Given that the inflation rate was 11.3% in 1979, the inflation-adjusted price of \$243/cwt (the same as in 1973) is even more surprising. The high prices, however, were short-lived as the 1979 OPEC oil shock increased cattle production costs and reduced consumer demand at the same time that herd inventory rebuilding had begun. Thus, the rebuilding phase lasted only two years (1980 and 1981) before low profitability encouraged herd liquidation. The following

elongated liquidation phase was primarily the result of declining U.S. beef demand throughout the 1980s and into the early part of the 1990s.

The only similarity between the events which caused the three previous price spikes, and the one occurring in 2014, involves low cattle numbers. Consequently, whether the current spike represents a long- or short-term price level depends to a great extent on the ability and desire of cattle producers to increase breeding herd inventories.

### **Prospects for U.S. Cattle Inventory Expansion**

Given that U.S. inflation-adjusted cattle prices have increased over the past 15 years and nominal prices have set new records in each of the past three years, it is surprising that cattle inventory numbers continue to decline. Historically, calf price increases have triggered inventory expansions, as producers respond to higher profitability by producing larger quantities. There may be several reasons, however, why this has not occurred over the past decade.

First, most of the major beef cow production regions in the United States have experienced at least one year of drought over the past decade. Although drought has been regional in nature, the West, Southeast and, more recently, Southwest regions of the United States, have each been subject to recent multiple-year droughts that have limited opportunities to increase cattle numbers because of uncertainties regarding the availability of grazing resources.

Second, drought and increasingly high feed and food grain prices have reduced the production of hay and increased hay prices. Hay is a major cost driver for the maintenance of cow herds.

Third, agricultural labor has become relatively more expensive in recent years for a variety of reasons. Hence, agricultural producers have economized on labor usage by increasing the use of capital (i.e., machinery). This substitution is much more easily accomplished in the crop production sector relative to the livestock sector. This is especially true given technological advances in machinery widths, global positioning systems, and genetically-modified seed varieties. Furthermore, the average size of beef cow herds has increased in recent years. This may be an indication that smaller producers are exiting the industry and increasing their presence in crop production.

Fourth, the age profile of agricultural producers continues to increase. As producers age, they certainly try to reduce physical aspects of agricultural production. Livestock production is much more physically demanding than crop production. Consequently, older agricultural producers are likely reducing their focus on livestock production and moving towards crop production. This is especially the case as crop prices have set new record high levels in recent years.

Fifth, livestock production has historically been used by many agricultural producers as a means for income diversification and income risk management. However, over the past two decades, subsidized crop insurance products have been developed and offered for most crops in the United States. These products can be used to reduce both production and price risks. Hence, they likely



provide a less expensive and less labor intensive means for income risk management than diversification strategies which involve livestock production.

Sixth, U.S. agricultural producers continue to face increasing restrictions on land use. That is, a variety of non-agricultural uses of traditional grazing lands are increasingly competing with livestock production. Examples include increases in wilderness areas which reduce access to grazing, non-profit organization purchases of grazing land for open-space or hunting access, and to a lesser extent, urban encroachment.

Seventh, although cattle numbers have declined in the United States for the past 30 years, beef production has remained at levels consistent with a much larger inventory. This has been accomplished through technological advances. Some of this technology has been in the form of improved genetics, which are manifest in larger cows. Although larger cows are able to produce larger calves and, consequently, more beef per animal, larger cows also require more forage than smaller cows to maintain themselves. Hence, the U.S. grazing base may not be able to sustain increased cow numbers.

## **Empirical Analyses**

Breeding herd and cattle inventory data were subjected to several quantitative analyses. From a time-series perspective, the data were evaluated for cyclical behavior and changes in those cycles. Spectral analyses indicated that in the early 1980s (most likely in 1982), a major change in the response of breeding cattle inventory to changes in calf prices occurred. Specifically, breeding herd inventories continue to respond directly to calf prices. That is, when calf prices increase, breeding herds also increase. The converse, however, is also true. The major difference is that, since 1982, breeding herd adjustments to changes in calf prices have been much smaller than that occurring before 1982. That is, breeding herd inventories still respond to changes in calf prices (the output produced by a beef breeding animal). But, the magnitude of those changes is almost 59% smaller than that occurring prior to 1982. It could be that several factors have permanently increased the cost structure of beef calf production.

Regression analyses were also conducted on these data. Specifically, the impacts of factors, such as calf prices, crop insurance usage, and hay prices on breeding herd inventories, were evaluated using simple regressions. Increases in crop insurance usage and hay prices had a detrimental effect on breeding herd inventories. Conversely, increases in calf prices had a positive impact on breeding herd inventories. Each of these factors was evaluated in a simple regression framework in which breeding herd inventory was regressed on each factor individually. However, the appropriate technique is to use multiple regressions in which all factors are considered simultaneously. Unfortunately, the non-stationarity of the data and complex collinearity among the explanatory variables weakened the multiple regressions results. Consequently, one can only say that there is some evidence, although not conclusive, that the factors noted above have muted breeding herd inventory supply responses.

## **Future Cattle Price Levels**

The impact of the cattle cycle on agricultural lender risk is certainly contingent on the behavior of calf prices over the next several years. In general, spikes in calf prices have been preceded by low cattle inventories. And in each case, prices declined quickly as cattle inventories increased in response to expected continued high calf prices. Nonetheless, there have been many times in which cattle numbers were at a low point in the cattle cycle and calf prices increased but not to the lofty levels experienced in 1951, 1973, and 1979.

The current price spike is different from the three previous record setting events. In the past, macroeconomic and world events coupled with low cattle numbers caused calf prices to increase rapidly. Current U.S. (and worldwide) cattle numbers are relatively low, and beef production has declined from just a few years ago. Coupled with relatively high beef demand, calf prices have reached record levels.

It should be noted that current reductions in per capita consumption are not synonymous with declines in beef demand. Domestic (and foreign) beef demand is solid although U.S. per capita consumption has declined. The delineation between a reduction in demand and a reduction in consumption depends on the cause of the decline. In both cases, less beef is being consumed. But, if a decline in demand occurred because of, say a reduction in disposable income, then less beef would be consumed at all price levels. The current situation, however, is much different. Consumption has declined because of an increase in beef prices resulting from lower supplies. Lower beef supplies necessarily result in lower per capita consumption, and higher prices serve as a rationing mechanism. For example, U.S. beef supplies (i.e., the sum of U.S. beef production and imports) totaled 28 billion pounds in the latter part of the previous decade. In 2013, however, U.S. beef supplies totaled only 26 billion pounds. Hence, higher prices ration reduced product availability as some consumers purchase less beef while others may stop beef purchases altogether. Consequently, the cattle industry needs to be concerned about whether reductions in consumption are the result of higher prices or a demand-reducing factor.

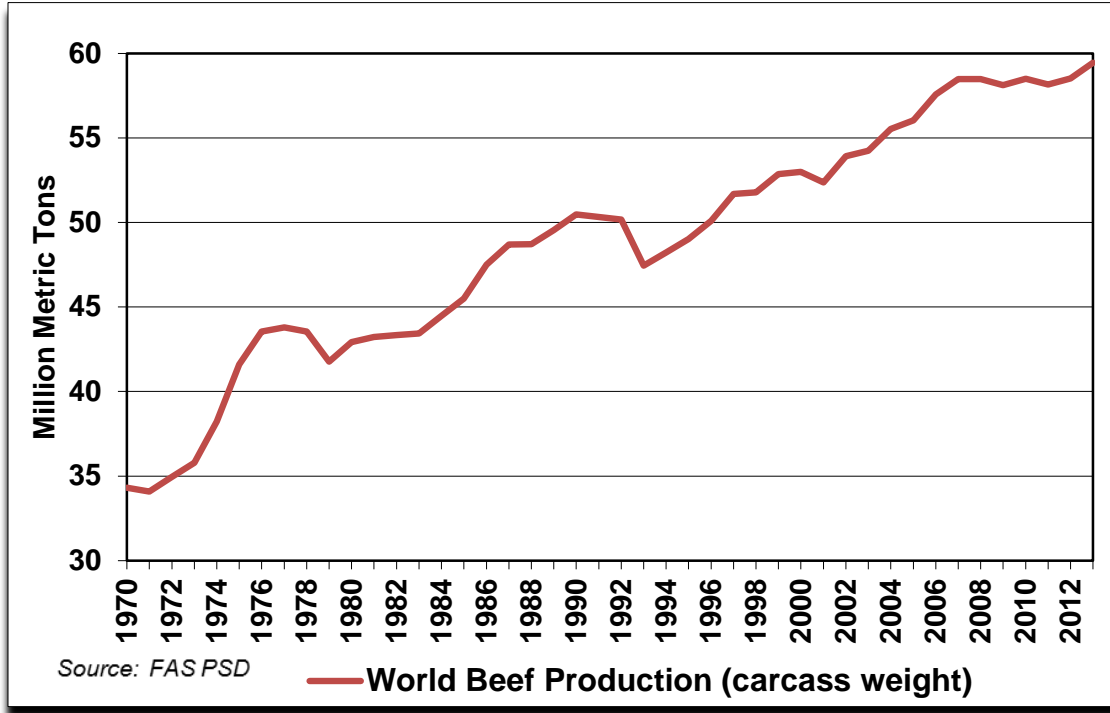
Whether calf prices remain at relatively lofty levels will depend upon demand and supply factors. On the demand side, increasing incomes worldwide bode well for strengthening of demand. Barring a beef food safety issue, it seems unlikely that demand will decline precipitously especially in light of population growth.

Assuming that negative demand shocks do not occur, world and domestic supply factors will have the largest influence on calf prices over the next five to ten years.

### *World Supply Factors*

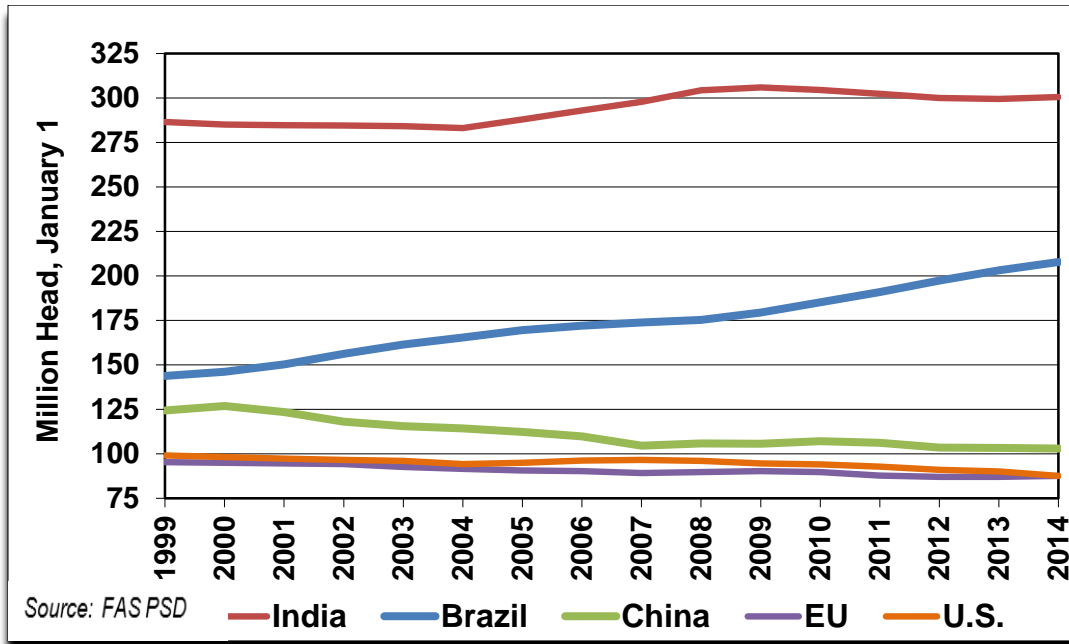
Figure 6 illustrates that world cattle inventories declined over the past two decades. Concurrently, world beef production was relatively flat between 2006 and 2012 but increased slightly to a new record level of 59.4 million metric tons in 2013 (figure 8). It is interesting to

**Figure 8. World Beef Production**



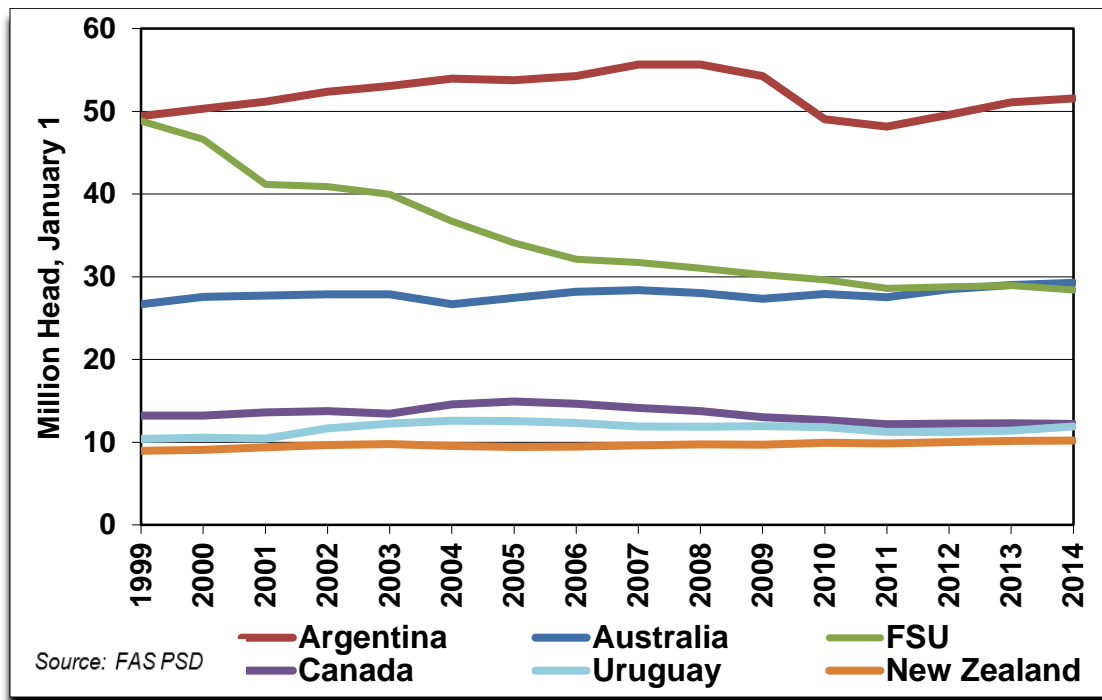
note the countries for which cattle inventories and production have changed. Figure 9 presents cattle inventory data for those countries with the largest herds – India, Brazil, China, the European Union, and the United States – since 1999.

**Figure 9. Large Country Cattle Inventories**



India and Brazil's cattle inventories have collectively increased by approximately 100 million head since 1999, while those in China, the United States, and the European Union have collectively declined by about 42 million head. Figure 10 illustrates cattle inventories of the smaller beef-producing countries of Argentina, Australia, the Former Soviet Union, Canada, Uruguay, and New Zealand.

***Figure 10. Small Country Cattle Inventories***

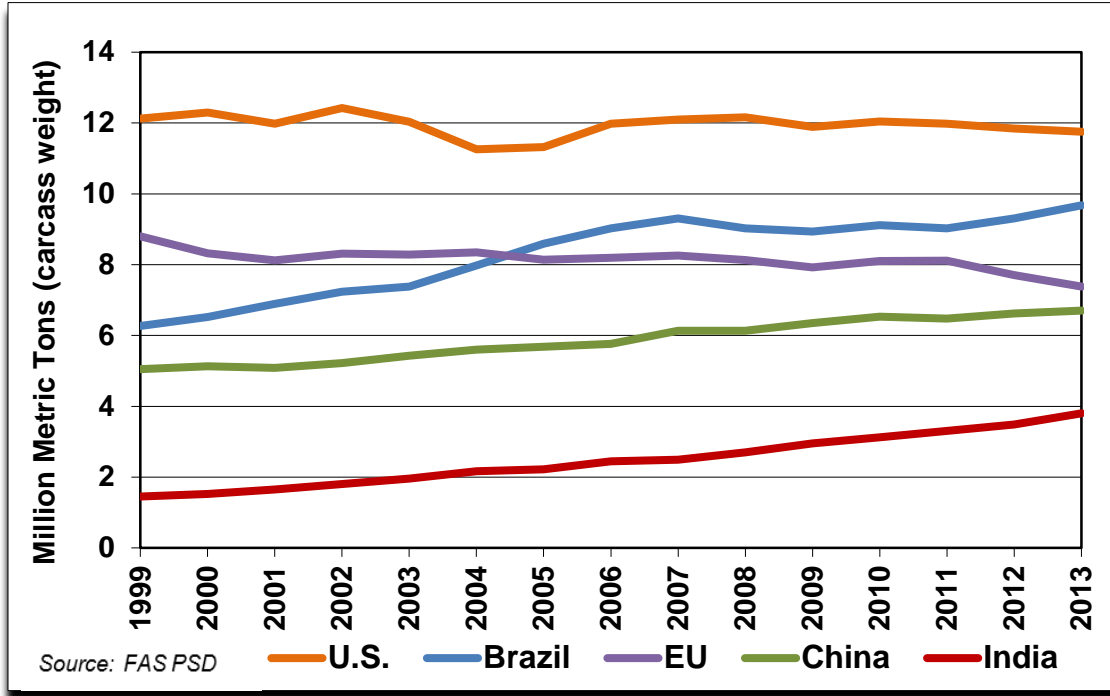


Except for the Former Soviet Union, for which cattle numbers have declined by about 50%, cattle inventories in the other small countries have been relatively flat since 1999.

Figure 11 presents beef production totals for those countries with relatively large cattle inventories. United States and European Union beef production have been relatively flat. However, production has increased in Brazil, China, and India. Brazil and India both experienced large increases in cattle inventories over this period, which accounts for their increased production. Although China's cattle inventory declined, increased beef production presumably represents increased productivity.

Figure 12 presents beef production totals for those countries that have relatively small cattle inventories. Production in the Former Soviet Union has declined, but all others have experienced relatively flat production since 1999.

**Figure 11. Large Country Beef Production**



**Figure 12. Small Country Beef Production**

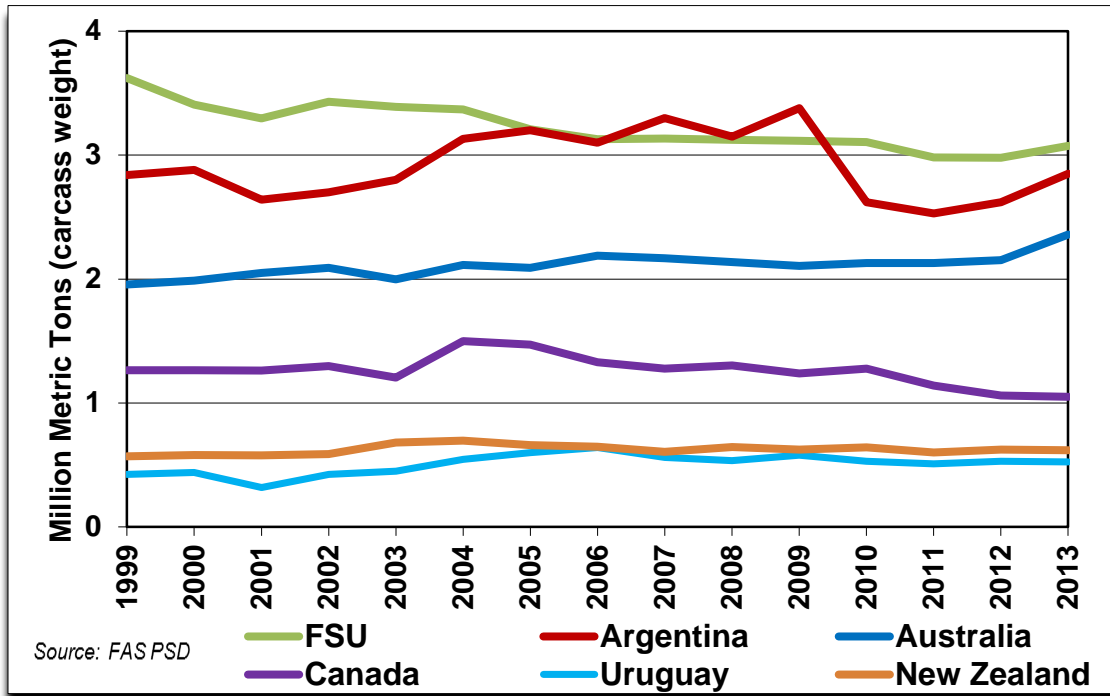
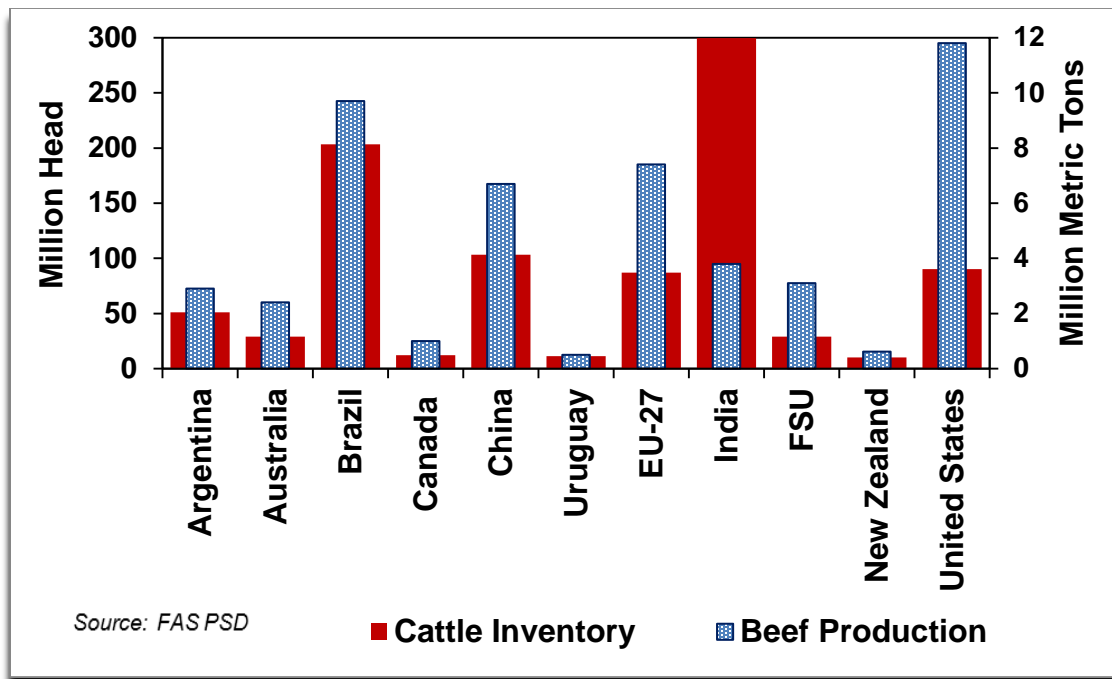


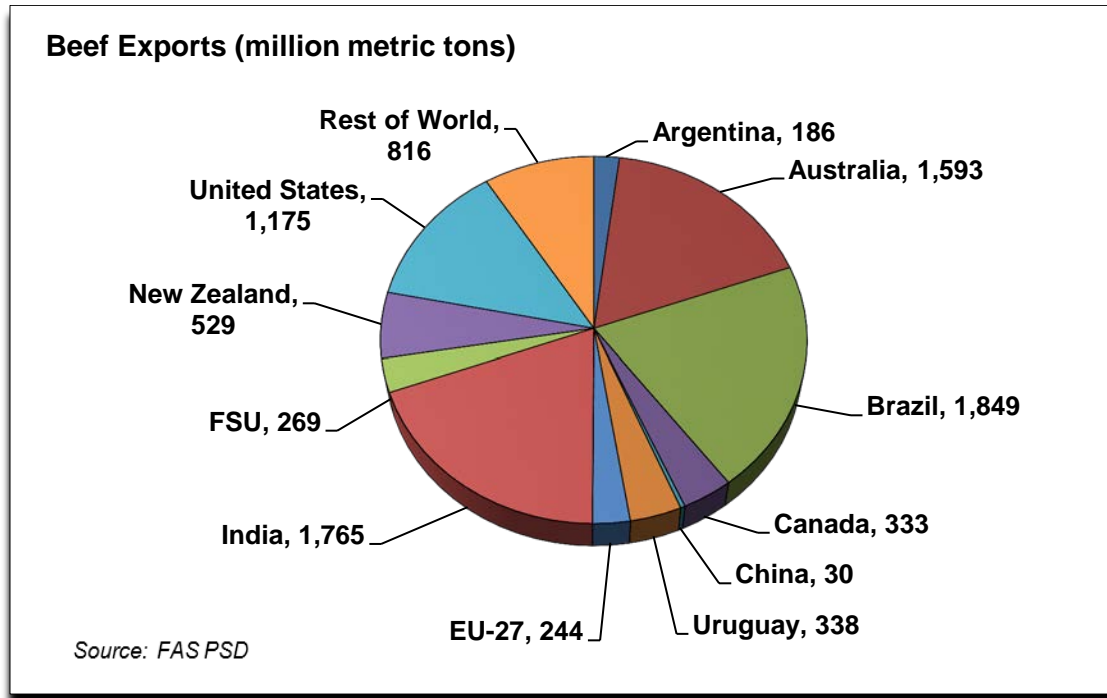
Figure 13 presents the productivity for various countries in terms of beef production. The wide bars indicate January 1, 2013, inventory of cattle in each country. The narrow bars represent the production of beef in each of those countries in 2013. The height of the narrow bar relative to the wide bar is a measure of the productivity of each country's beef production system. For example, the United States produced almost 12 million metric tons of beef in 2013 using an inventory of less than 90 million head. The European Union had almost the same number of cattle but produced less than 7.5 million metric tons of beef. The productivity of India is very poor for a variety of reasons, including the use of dual purpose and draft animals and religious convictions. Brazil, however, also has very low productivity as they have more than twice the number of cattle as the United States but produce less than 10 million metric tons of beef. The primary reason is that the genetics needed for animal survival in tropical climates is much different than in temperate climates. And, those genetics are not able to support highly productive animals. In addition, grass feeding systems, disease, and a questionable entrepreneurial environment also contribute to lower productivity. Although less tropical, similar problems exist in Argentina and Uruguay. While it is less obvious because of exports, Canada has similar productivity as the United States. Australia and New Zealand have lower productivity because of their reliance on grass finishing systems.

***Figure 13. 2013 Beef Productivity By Country***



The quantities of beef exports in 2013 from major beef-producing countries are presented in figure 14. Brazil, India, Australia, and the United States are major beef exporters. Brazil's major export market is the European Union, while India exports beef primarily to the Middle East. The major U.S. beef export markets are the Pacific Rim, Mexico, and Canada. Australia and New Zealand's major beef export markets include the Pacific Rim and the United States.

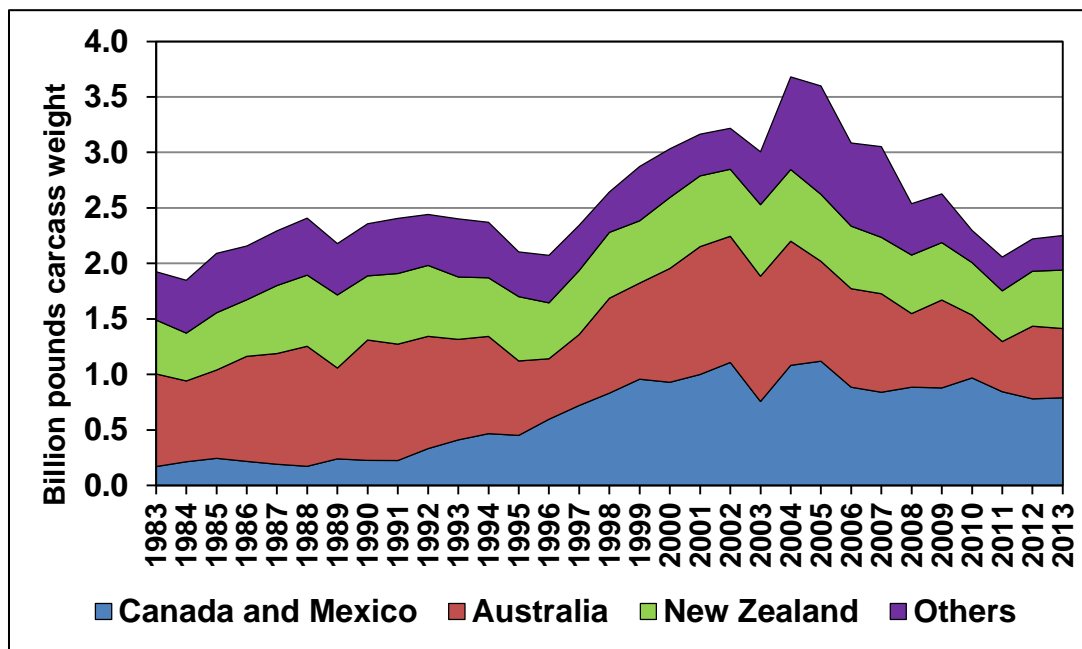
**Figure 14. 2013 Beef Exports By Country**



Although the United States is a major beef exporter, it is also the world's largest beef importer (followed closely by Russia). However, the composition of U.S. beef exports and imports is quite different. The U.S. exports high- and lower-quality beef cuts and edible and inedible offal to many different countries. Except for imports of Canadian beef and calves from Mexico, most U.S. beef imports consist of lean trimmings obtained from grass finishing regions. These imports are essential for the viability of the U.S. beef system. Approximately one-half of the meat obtained from U.S. grain finished cattle is consumed in the form of hamburger. However, the hamburger obtained from much of the U.S. grain finishing industry contains 40%-50% fat which is unpalatable. Consequently, the U.S. beef processing industry uses cull cows and bulls to reduce fat content in ground beef to a palatable consistency. The U.S. industry does not have enough cull animals to make hamburger palatable without sourcing lean beef from Oceania and South America. The primary sources of U.S. beef imports are Canada (fed and cull cattle), Mexico (mostly in the form of calves), Australia (lean trimmings) and New Zealand (lean trimmings) (figure 15).

Since 1999, only Brazil and India have substantially increased beef cattle inventories and exports. It does not appear that large increases will occur elsewhere. Furthermore, the United States is not likely to import beef from India because of quality issues. In addition, Brazil's competitive advantage is supplying lean beef trimmings. Hence, it does not appear that world cattle supplies are likely to increase to levels that will dramatically influence U.S. beef prices in the near future.

***Figure 15. U.S. Beef Imports By Source***



*Domestic Supply Factors*

Domestically, increased beef supplies could result from various events. The rebuilding of herds has historically been the primary mechanism for increasing beef production. If cattle producers substantially increase breeding herds, beef production will eventually increase and drive beef and calf prices lower. But, increased productivity caused by technological change could also increase beef production. Furthermore, reductions in exports or increases in imports could increase U.S. beef supplies. However, the United States is not as insulated from world supply and demand conditions as was the case several decades ago. Consequently, relative changes in imports and exports will probably have little effect on U.S. beef prices.

The issue is whether or not the domestic supply side factors noted above will reverse themselves. It is unlikely that the average age of farmers and ranchers will decline. Furthermore, the use of crop insurance as an income risk management tool is not likely to decline soon. Although feed and food grain commodity prices have declined in 2014 because of excellent world weather conditions, these prices will remain quite high as long as the Renewable Fuels Standard is in place. Hence, one can expect high feed costs in the future. It is certainly the case that drought conditions could ease across the United States, which would expand grazing opportunities. But, grazing access and hay production have declined over the past two decades, and the demand for recreation and open space is not likely to dwindle. While many producers are contemplating reducing cow sizes, this is primarily the result of a lack of grazing resources. And, it appears that many small producers have exited the cow-calf industry. Consequently, it could well be the



case that remaining cow-calf producers are those who are dedicated to maintaining a stable business structure rather than expanding/contracting in response to changes in expected prices.

Nonetheless, high calf prices will certainly generate at least a modest herd expansion. Whether or not such an expansion is substantial enough to dramatically reduce cattle prices is an important consideration for lenders. The combination of U.S. beef production and imports will probably total 26.5 billion pounds in 2014, and fed cattle prices will likely average \$150/cwt (with resulting high calf prices). In 2010, fed cattle prices averaged \$100/cwt (and calf prices were near \$150/cwt), while U.S. beef supplies totaled 28.5 billion pounds. Hence, if demand conditions and imports remain similar over the next 10 years as they have been the past 10 years, then domestic beef supplies would have to increase by 7.5% to reach 28.5 billion pounds. After accounting for continued small increases in productivity, this means that cattle inventories would have to increase by at least 6% from the January 1, 2014, level of 87.73 million head to about 94 million head. Of course, the January 1 cattle inventory measure includes breeding stock and younger animals. Consequently, the U.S. beef cow herd would have to increase by 4-5 million head, over the current level of 29 million head, for calf prices to decline to \$150/cwt. That represents a relatively large increase giving the current grazing and feed cost environment.

## **Summary**

Inflation-adjusted cattle prices have been increasing over the past decade. In the past, such increases have encouraged an expansion of the U.S. beef breeding herd. That is, higher prices generally lead to higher profitability. Profit maximizing producers respond to higher profitability by increasing the amount of that good or service that is creating additional profits. However, this has not occurred in the beef cattle industry in the past decade. The lack of supply response runs counter to historical behavior that has existed since the Civil War era.

It is somewhat misleading to simply focus on beef cattle numbers as the only supply response factor. That is, beef cattle numbers have declined since the mid-1970s, but beef production has not followed in lock step. Increasing beef cattle productivity has offset, to a degree, reductions in cattle numbers. However, it is clear that cattle numbers have declined to the point that the U.S. beef production has declined the past two years.

The level of current record high calf prices has been experienced (in inflation-adjusted terms) three times since 1920 -- in 1951, 1973, and 1979. In each case, price spikes were caused by a combination of low cattle numbers and unusual market situations. And in each case, dramatic decreases in demand caused prices to decline to trend levels within two years. While cattle numbers are currently at a low point in the cattle cycle, it is difficult to identify unusual market conditions that could be contributing to record calf prices. Furthermore, demand side factors are certainly favorable for the beef industry at this time.

It could be that the costs of producing beef cattle have increased to the point that supply has been permanently reduced. For example, high crop prices have increased crop production profitability, while increased labor costs and producer age profiles may have encouraged some beef cattle producers to exit the industry. In addition, crop producers may now find the use of

highly-subsidized crop insurance a reasonable substitute to cattle production as a means for reducing income risk. Grazing availability and hay production have declined which has resulted in higher prices for both. And, it appears that technological change has favored crop production in terms of substituting capital for increasingly costly labor.

The record high real calf prices that occurred in the 20<sup>th</sup> century were short lived -- less than two years. In general, prices declined by 50% as macroeconomic conditions reversed themselves (e.g., Korean War purchases and consumer incomes declined, and OPEC oil shocks permanently increased production costs and substantially reduced consumer demand). But, cattle inventories also increased in response to high prices in each of these cases.

Agricultural lenders are certainly concerned about the duration of high cattle prices. Many livestock producers use intermediate-term debt to purchase breeding stock and machinery, and use long-term debt to purchase ranch land. The security of such loans depends greatly upon the behavior of cattle prices over the next several years. If history repeats itself, then record high cattle prices will not exist for an extended period of time. However, if the factors that have caused current high prices do not reverse themselves and cattle inventories do not increase substantially, then cattle prices are likely to remain at relatively high levels.

Nonetheless, history has not been kind to the maintenance of record high calf prices currently being experienced. Although we have offered several reasons why cattle prices are not likely to decline as much or as dramatically as in the past, the historical record suggests there is much more than a trivial chance (e.g., as a basis to develop probabilities used to calculate loan portfolio value at risk or internal risk based capital adequacy levels) of a smaller adverse price movement. If prices follow their historical cyclical pattern, then it would take six years or more to reach the bottom of the price cycle. Prudent lenders should allow for the possibility of a 25%-50% decline in current prices as part of their portfolio management and stress testing. Of course, lenders also realize that even small probabilities of a negative price event can have large impacts on value-at-risk calculations on portfolios that are not well-diversified.

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