

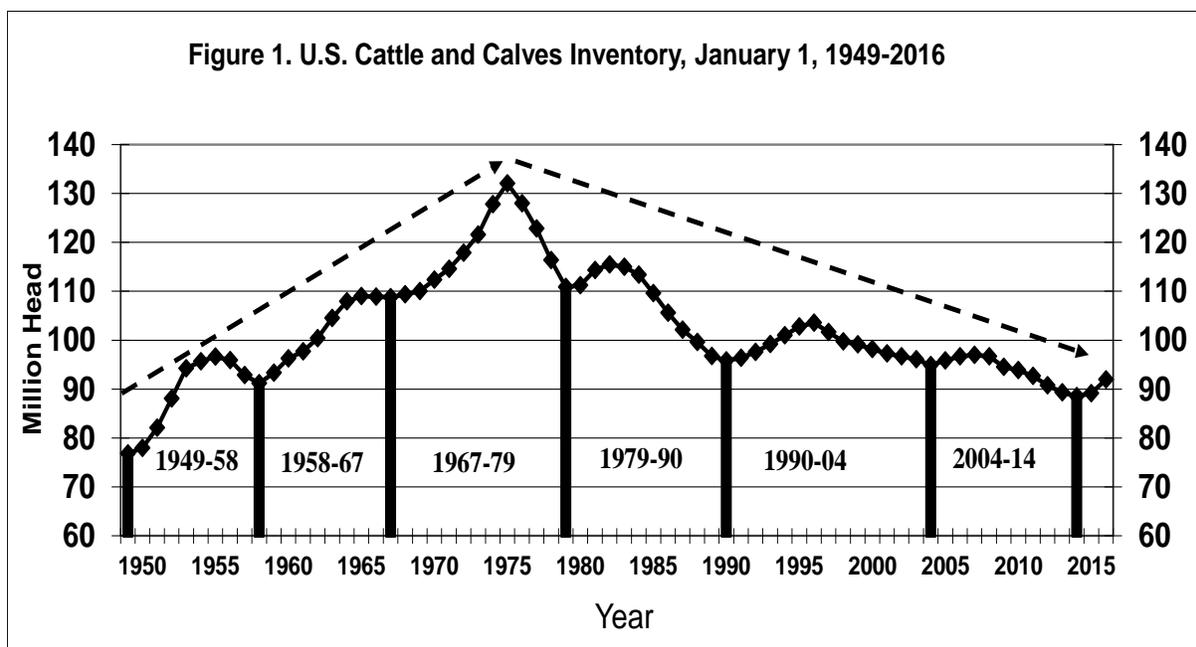
2017 Beef Cattle Market Outlook

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The U.S. beef cattle industry has historically been a large contributor to U.S. cash receipts of agricultural commodities. During 2015, the U.S. beef cattle industry accounted for approximately \$79 billion (21 percent) of the \$377 billion of total U.S. cash receipts of agricultural commodities (Economic Research Service, USDA). Supporting this large dollar contribution of the U.S. beef cattle industry to the U.S. agricultural economy is a beef industry that is widely dispersed throughout 50 states and composed of numerous specialized production enterprises (seed-stock, extensive and intensive cow-calf, stocker, backgrounder, and feedlot enterprises). These enterprises expand and decrease over time as a result of an infinite number of variables that affect the levels of cattle inventory numbers and pounds of beef production.

The U.S. cattle inventory numbers have shown significant increases and decreases over the last six decades. Figure 1 describes the expansion and contraction of the U.S. cattle inventory between 1949 and 2016. Two distinct observations are notable in Figure 1 regarding cattle and calves inventory.



First, there was an increasing trend between 1949 and 1975 followed by a decreasing trend between 1975 and 2016 in U.S. cattle and calves inventory (denoted by the dashed lines with arrows). Between 1949 and 1975 U.S. cattle and calves increased from 77 to 132 million head, an increase of 55 million head or 77 percent. Then inventories declined between 1975 and 2016 from 132 to 92 million head, a decrease of 40 million head or -30 percent. The decline in U.S. cattle and calves inventory since 1975 has been caused by higher levels of efficiency in all sectors of the U.S. beef industry (more pounds of beef per brood cow), larger levels of competing meats, and a wider array of other goods and services demanded by U.S. consumers. This chart documents in the most recent cattle cycles (1990-04 and 2004-14) that the increases and decreases of cattle inventory numbers have been more moderate

compared with historic cattle cycles which suggests that we may see only modest declines in cattle inventory numbers during the current cattle cycle. Arguably, U.S. policy and regulatory decisions, consumer beef demand, weather, and competition for land, labor, capital, and management, will influence the future size of the U.S. cattle industry.

Secondly, the mound shapes between the vertical bars in Figure 1 are cattle cycles. A cattle cycle is measured as the period of time from the lowest cattle and calves inventory to the next lowest level of inventory over time. Many cattle producers describe the cattle cycle as being from trough to trough. Since 1949 cattle cycles have ranged between 10 and 15 years in length. During the cattle cycles between 1949 and 1979 cattle and calves inventory increased by 18 to 23 million head during each cycle followed by a smaller decline in inventory numbers. Since 1979 the cattle and calves inventory increased by only 2 to 8 million head during each cycle followed by much larger declines of -8 to -20 million head. As should be expected, higher market prices (profits) lead to increases in cattle and calves inventory and lower market prices (losses from oversupply) lead to decreases in cattle and calves inventory. The current 2016 cattle and calves inventory level is similar to those of the mid-1950s.

2016 Cattle and Beef Supply Situation

U.S. cattle inventory numbers are currently surveyed once per year by the USDA as of January 1 of each year. U.S. cattle producers told the USDA their January 1st, 2016 cattle inventory numbers and this information was reported in the publication entitled “Cattle.” The total cattle and calves inventory estimate was 92 million head. Figure 2 details the 2016 inventory levels for specific categories of cattle.

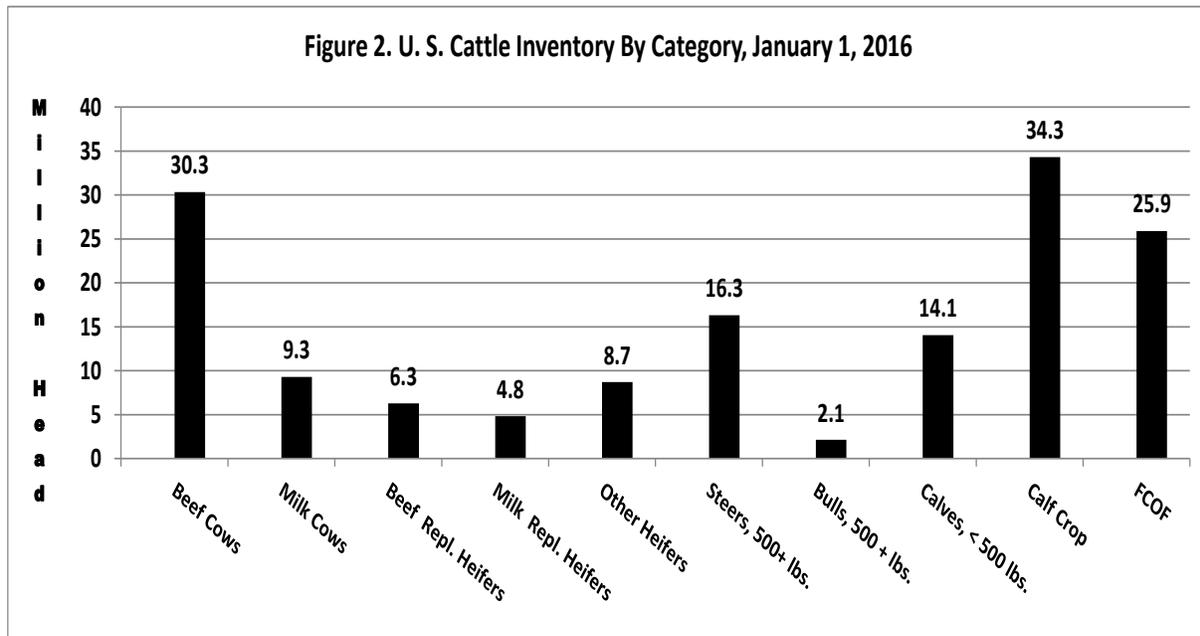
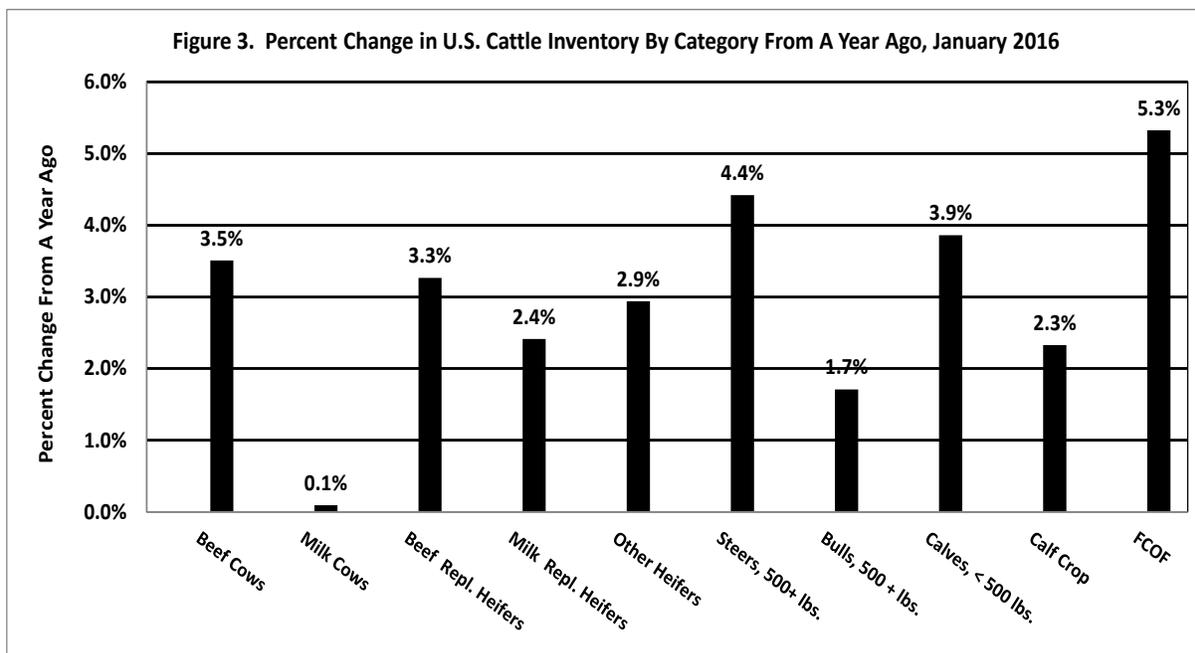


Figure 3 reports the percent change in the U.S. Cattle Inventory by category from a year ago (January 1, 2015 vs January 1, 2016). Increases were realized in all categories of the U.S. cattle inventories. Higher than average cattle prices, improved grazing conditions, lower production costs (feed, fertilizer, fuel, etc.), and profits are cited as the major factors supporting the increases in all categories of the U.S. cattle inventory.



The January 1, 2016 USDA survey reported that cattle producers had about 1.04 million head (2.7 percent) more cows that had calved than a year ago. Beef cows that had calved were 30.3 million head, up 1.03 million head (3.5 percent) from a year ago. Dairy cows that had calved increased about 8,000 head from a year ago to 9.32 million head (0.1 percent). Beef cow replacements increased about 199,000 head from a year ago to 6.3 million head (3.3 percent). Dairy cow replacements at 4.8 million head were up 114,000 head (2.4 percent) from a year ago. In summation, an increase in total cows (1.04 million head of beef and dairy cows) and total replacements (313,000 head of beef and dairy replacements) between January 1st, 2015 and January 1st, 2016 documents that robust herd expansion is underway in the U.S. cattle industry.

Additionally shown in Figure 3 were increases in inventory estimates compared with one year ago for other heifers (2.9%), steers, 500+ pounds (4.4%), bulls, 500+ pounds (1.7%), calves less than 500 pounds (3.9%). These increases provide support for a larger estimate of the inventory of cattle and calves when the January 1, 2017 Cattle Report is released.

A larger inventory of cattle and calves and larger calf crop during 2016 is expected to result in higher levels of beef production during 2017. USDA projects U.S. beef production during 2016 to be about 24.9 billion pounds which would be up 5.3 percent from the 2015 estimate of 23.7 billion pounds. This level of beef production will be influenced by any adjustments in average carcass weights and the level of feeder and live cattle imports (from Canada and Mexico). Due to significantly cheaper feedstuffs, slaughter weights should be heavier during 2016 and 2017.

Expected Outlook

- 2016 U.S. beef production is expected to increase to a total of 24.9 billion pounds, up about 1.2 billion pounds (5.3 percent) from 2015. The 2017 U.S. beef production is expected to increase to a total of 25.8 billion pounds, up about 0.9 billion pounds (3.4 percent) from 2016.
- 2016 U.S. beef exports are expected to increase to 2.5 billion pounds, up 0.2 billion pounds (8.6 percent) from 2015. 2017 U.S. beef exports are expected to increase to 2.6 billion pounds, up 0.1 billion pounds (4.9 percent) from 2016 due to improving trade agreements, lower beef prices, and world population growth. As should be expected with approximately

10 percent of U.S. beef currently being exported, any increase or decrease in the levels of U.S. exports of beef and/or competing meats (pork and poultry) will have a significant impact on U.S. domestic beef prices.

- 2016 U.S. beef imports are expected to decrease to 3.0 billion pounds, down 0.4 billion pounds (-12.3 percent) from 2015. 2017 U.S. beef imports are expected to decrease to 2.6 billion pounds, down about 0.4 billion pounds (-12.0 percent) from 2016 due to larger domestic beef production and other domestic competing meats.
- 2016 net beef supply (domestic beef production plus beef imports minus beef exports) is expected to increase to 25.4 billion pounds, up 0.6 billion pounds (2.6 percent) from last year. The 2016 increase is the result of an increase in domestic beef production (1.2 billion pounds or 5.3 percent), a decrease in beef imports (-0.4 billion pounds or -12.3 percent), and an increase in beef exports (0.2 billion pounds or 8.6 percent). Beef and veal imports are expected to be about 3.0 billion pounds during 2016, while exports are expected to be about 2.5 billion pounds. The resulting beef trade deficit (exports minus imports) of about -0.5 billion pounds is expected to be realized during 2016.
- 2017 net beef supply is expected to increase to a total of 25.8 billion pounds, up 0.4 billion pounds (1.5 percent) from 2016. The increase in 2017 is the result of an increase in domestic production (0.9 billion pounds or 3.4 percent), a decrease in beef imports (-0.4 billion pounds or -12.0 percent), and an increase in beef exports (0.1 billion pounds or 4.9 percent). Beef and veal imports are expected to be about 2.6 billion pounds, while exports are also expected to be similar at about 2.6 billion pounds during 2016. The resulting 2016 beef trade surplus/deficit (exports minus imports) is expected to be about even.
- 2016 competing U.S. meat production (pork and poultry) is expected to show a modest increase compared to a year ago. Pork production during 2016 is expected to show an increase of 0.4 billion pounds (1.6 percent) and broiler production is expected to increase by about 0.9 billion pounds (2.1 percent). Pork and broiler production are expected to total 24.9 and 40.9 billion pounds during 2016, respectively.
- 2017 competing U.S. meat production (pork and poultry) is also projected to increase compared with 2016. 2017 pork production is expected to increase 0.6 billion pounds (2.5 percent) and broiler production is expected to increase by about 1.1 billion pounds (2.7 percent). Pork and broiler production are expected to total 25.5 and 42.0 billion pounds, respectively.

Competing Meats

All three major meats, beef, broilers, and pork, are expected to increase during 2016 and 2017. During 2016 the three major meats are expected to increase to 90.7 billion pounds (up 2.5 billion pounds or 2.8 percent from 2015). Likewise, 2017 U.S. meat production of beef, broilers, and pork is expected to increase to 93.3 billion pounds (up 2.6 billion pounds or 2.8 percent). Figure 4 shows the U.S. beef, broiler, and pork production levels for 2013-2017. 2016 and 2017 are projected estimates by USDA as of 9/16/16. Notice the upward trends for each commodity.

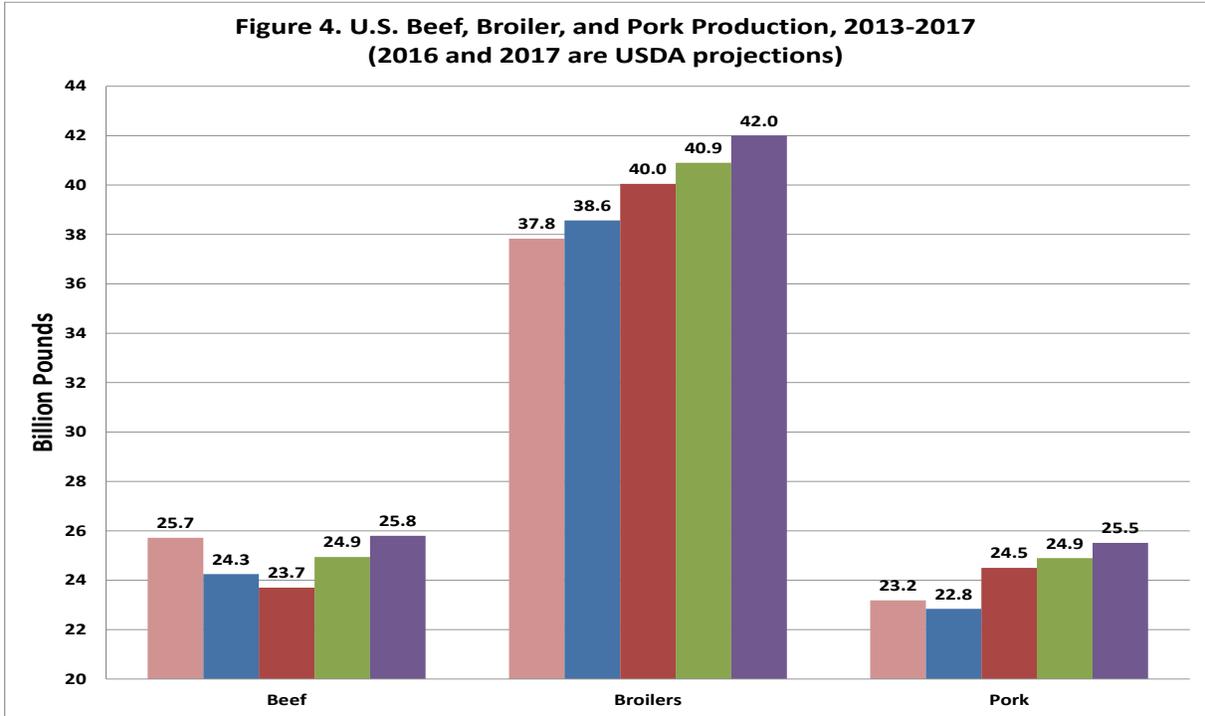
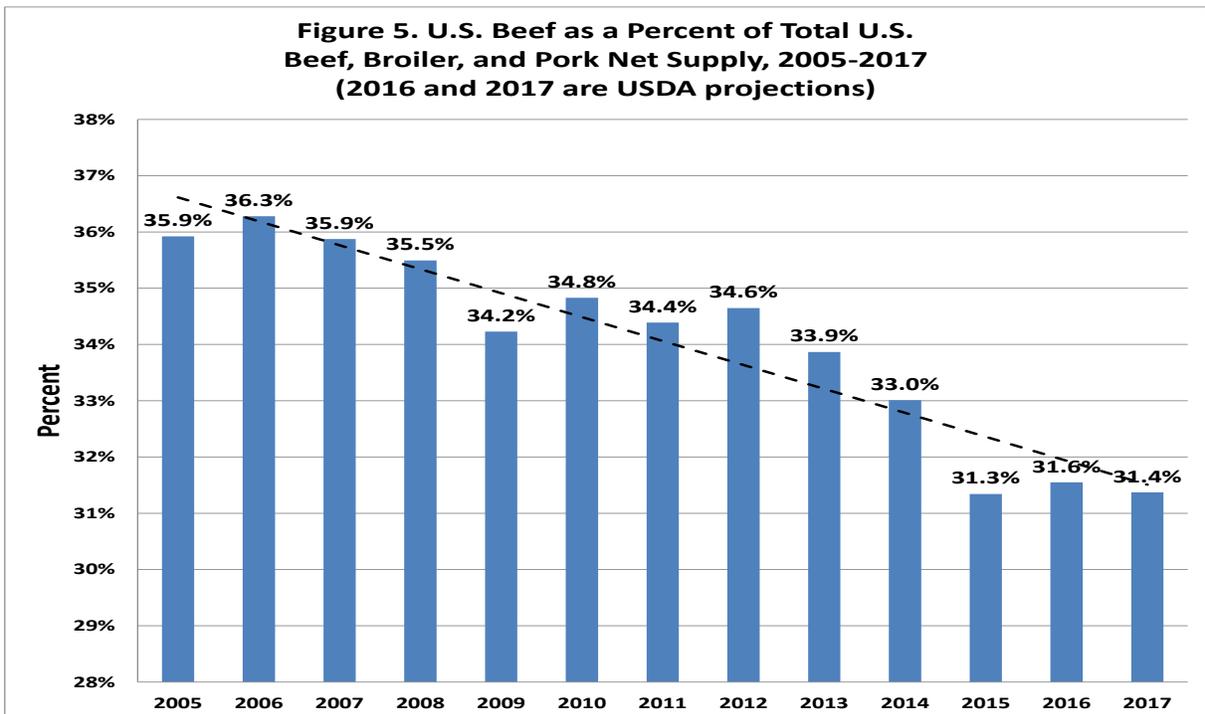


Figure 5 describes U.S. beef as a percent of total U.S. beef, broiler, and pork net supply between 2005 and 2017. U.S. beef as a percent of total U.S. beef, broiler, and pork net supply has ranged between 31.3 and 36.3 percent during the 13 years evaluated. The trend line shows that U.S. beef as a percent of U.S. beef, broiler, and pork net supply is decreasing over time. In order to reverse this trend a combination of actions will be necessary such as increased cattle and forage performance, lower production costs, favorable weather for forage production, improved consumer beef demand, and reasonable profits are needed to encourage future increased beef production.



Any changes in these production, import, and/or export levels of beef, pork, and broilers could have a significant effect on U.S. beef prices. Additionally, any increases or decreases in production input prices will likely alter these 2017 production projections. A watchful eye on the production and export levels of competing meats and input prices will help identify potential changes in beef production and prices.

Feed and Forage Conditions

The 2016 growing season of the major corn and soybean growing regions started with a normal planting schedule, but with more acres planted. Above average weather and growing conditions have caused yield levels to return to or exceed trend levels in most major grain growing areas (Crop Production, 09/12/16).

The 2016 corn production is forecast to be the highest level of production on record for the United States at 15.1 billion bushels. The area harvested for grain is forecast at 86.6 million acres, 7 percent above last year. The 2016 soybean production is forecast to be 4.2 billion bushels. The area for harvest in the United States is forecast at a record 83.0 million acres, up 1 percent from 2015.

Additionally, harvest weather is currently adequate in most areas for a timely harvest. If these production levels are realized, corn production will be about 1.66 billion bushels larger than a year ago (11 percent) and soybean production will be about 0.29 billion bushels larger than a year ago (7 percent).

2016 corn and soybean futures prices have decreased corresponding to the forecasted larger crops that were projected this season. Since the beginning of their respective futures contracts, the December 2016 corn futures prices ranged from a high of about \$4.49 per bushel on 06/17/2016 to a low of \$3.14 per bushel on 08/31/2016, while November 2016 soybeans ranged from a high of \$11.86 per bushel on 06/13/2016 to a low of \$8.59 per bushel on 11/10/2015. December 2016 corn is currently trading at \$3.39 per bushel (CME Group, 10/07/16), while November 2016 soybeans is at \$9.56 per bushel. The current futures prices represent a decrease in futures prices for corn and soybeans of about -25 percent and -19 percent from the highs during 2016, respectively. Corn and soybean prices are expected to move slightly lower as the 2016 harvest season continues. Therefore, livestock producers with storage facilities should take advantage of these lower prices and buy their feedstuffs during the 2016 crop harvest. If these lower grain prices continue, many sectors of animal agriculture will continue to see expansion.

Another factor that affects feed prices, feeder calf prices, and feeder cattle prices is the level of export demand for corn and soybeans. Any major changes in world grain supplies and/or export demand for these commodities could significantly move cattle market prices. Economic growth in several Asian countries has begun to slow down which may affect export grain demand. Additionally, the strength of the U.S. dollar is certain to influence the world grain export demand (a strong U.S. dollar negatively impacts U.S. grain export demand and vice-versa).

Total 2016 U.S. hay production is expected to be larger than a year ago. USDA's September Crop Production Report (9/12/16) estimated total hay production at about 140 million tons. That is up about 6.1 million tons (4.5 percent) from last year. Average yield is expected to increase marginally and acreage harvested is expected to increase slightly for hay production. Average yield is expected to increase from 2.47 to 2.50 tons per acre (1.2 percent). Harvested acreage is estimated to be up 0.68 million acres (3.1 percent) from 2015.

Pasture and range conditions have been better over many of the cow-calf states this year. The pasture and range conditions as of September 27, 2015 rated as poor or very poor was 18 percent of the total U.S. acreage compared to 22 percent last year (Crop Progress, 10/03/16). The current U.S. pasture and range conditions rated as good to excellent was 50 percent of the total U.S. acreage compared to 44 percent this time last year. These improved pasture and forage conditions coupled with increased hay supplies should continue to encourage some herd expansion even with moderately cattle prices being realized during 2016.

Beef Demand and Trade

U.S. beef demand has enjoyed moderate growth during the last several years despite a slow U.S. economic recovery. 2017 domestic beef demand is expected to be tested as significant increases in beef and competing meats are realized and consumers are expected to experience rising interest rates and prices for most goods and services. If consumer disposable income does not rise proportionally, shopping habits and choices will shift forcing consumers to substitute and/or reduce the bundle of goods and services they have consumed in the past.

Per capita consumption of beef is expected to increase during 2016. Domestic disappearance is expected to result in beef per capita consumption of 55.2 pounds per person in 2016. The combination of higher domestic beef production, a decrease in imports, and slightly higher exports are expected to show an increase in domestic net beef supply in 2016 (0.6 billion pounds or 2.5 percent) compared with a year ago. USDA has estimated per capita beef consumption for 2017 to be 55.6 pounds per person.

The 2015 average retail beef price was \$6.29 per pound. Monthly average retail beef prices during the first eight months of 2016 averaged 28 cents per pound lower than a year ago (\$6.07 vs. \$6.35). The 2016 average retail beef price is expected to be about 3-4 percent lower than 2015. Average retail beef prices during 2017 are also expected to show a decrease of 3-4 percent due to expanding beef and competing meat supplies.

Additionally, it is very important that the U.S. beef industry continues to sustain and/or grow beef export markets. The U.S. currently exports about 10 percent of domestic beef production each year. The beef export market commonly adds between 12-18 percent of the value of a steer marketed (based on sales of beef, offal, and hides, etc.). For example, during August 2016 the added export value of beef slaughter contributed \$257 per head to the value of each slaughter beef. Furthermore, the growth in beef export markets will also help to moderate the price impacts should any weaknesses occur in U.S. broiler and pork exports.

2017 Beef Price Outlook

The 2017 cattle market will likely experience lower average cattle prices compared with 2016 due to increased net beef supply, increases in domestic competing meat production, and weaknesses in the U.S. economy. The decrease in cattle market prices should be moderate and not as precipitous as the decreases experienced during 2016 and the second half of 2015. Volatile price movements in either direction are possible with abrupt changes in levels of meat production, beef demand, trade issues, and other economic variables.

The 2015-2017 U.S. net beef supply estimates are shown in Table 1. U.S. net beef supply is domestic beef production plus beef imports minus beef exports. The net beef supply is the amount of beef that is consumed in U.S. markets. The 2016 U.S. net beef supply is expected to show an increase of about 0.6 billion pounds ($25.437B - 24.804B = 0.633B$, 2.55 percent) compared with 2015. The 2017 U.S. net beef supply is expected to show an increase of 0.4 billion pounds ($25.820B - 24.437B = 0.383B$, 1.55 percent) compared with 2016.

Table 1. U.S. Net Beef Supply (Billion Pounds), 2015-2017.¹

Item	2015	2016	2017
	(Billion Pounds)		
U.S. Domestic Beef Production	23.698	24.942	25.800
U.S. Beef & Veal Imports	3.371	2.955	2.600
U.S. Beef & Veal Exports	2.265	2.460	2.580
U.S. Net Beef Supply	24.804	25.437	25.820

¹USDA data estimates reported as of September 16, 2016. Columns may not sum exactly due to rounding.

Minor changes in future U.S. beef import and/or export levels (due to beef demand, food safety, exchange rates, politics, regulations, etc.) can significantly change the U.S. net beef supply and consequently domestic beef prices. Additionally, the strength of the U.S. dollar will have a major influence on the levels of U.S. beef exports and imports. If the U.S. dollar trades stronger against currencies of our trading partners, expect less U.S. beef exports to these countries and more lean U.S. beef imports.

Total 2016 U.S. net supply of beef, broilers, and pork is expected to increase about 1.5 billion pounds (1.9 percent) compared with 2015. Likewise the 2017 U.S. net supply of beef, broilers, and pork is expected to increase about 1.7 billion pounds (2.1 percent) compared with 2016. Individually, 2016 U.S. net broiler supply is expected to increase 0.6 billion pounds (1.8 percent) and net pork supplies are expected to increase 0.2 billion pounds (1.1 percent), while U.S. net beef supply is expected to increase 0.6 billion pounds (2.6 percent). The increased supplies of beef and competing meats will likely limit beef prices during 2016.

Supplies of beef, broilers, and pork are expected to respond quickly to changes in demand. Any significant changes in domestic demand and/or foreign demand of these three competing meats could cause major movements in beef prices. Each industry is very capable of significantly altering production levels and is subject to wide changes in export and import levels.

Given the above projections regarding the 2017 U.S. net beef supply, beef cattle price projections were estimated for 2017. Beef cattle negotiated price projections were estimated by quarter for choice slaughter steers (basis USDA 5-area slaughter cattle), feeder steers, 750# (basis Florida), feeder steer calves, 550# (basis Florida), and breaking utility cows (basis Florida), as shown in Table 2. These auction market prices represent the range over which the particular class of cattle would average for the indicated quarter. For example, Choice slaughter steers during the first quarter of 2017 are expected to average between \$97 and \$107 per hundredweight. The highest average prices are expected during the second quarter for choice slaughter steers, the second quarters for 750# feeder steers, the second quarter for 550# feeder calves, and the second quarter for breaking utility cows of 2017.

Table 2. Estimated average cattle market prices by quarter, 5-area fed slaughter and Florida, 2017¹.

Item	2017 1 st Qtr.	2017 2 nd Qtr.	2017 3 rd Qtr.	2017 4 th Qtr.	2017 Avg.
Choice slaughter steers, 5-area, \$/cwt.	\$97-\$107	\$98-\$108	\$90-\$100	\$91-\$101	\$94-\$104
Feeder steers, 750#, Florida, \$/cwt.	\$93-\$103	\$98-\$108	\$90-\$100	\$87-\$97	\$93-\$103
Fdr. steer calves, 550#, Florida, \$/cwt.	\$107-\$117	\$113-\$123	\$106-\$116	\$101-\$111	\$107-\$117
Breaking utility cows, Florida, \$/cwt.	\$44-\$54	\$48-\$58	\$43-\$53	\$38-\$48	\$43-\$53

¹The authors reserve the right to update these price projections as more economic information enters the marketplace.

For 2017, choice slaughter steers (basis USDA 5-area slaughter cattle) are forecast to post an annual average price between \$94 and \$104 per hundredweight. Florida feeder steers (750#) are expected to report an annual average price between \$93 and \$103 per hundredweight, Florida feeder steer calves (550#) between \$107 and \$117 per hundredweight, and Florida breaking utility cows between \$43 and \$53 per hundredweight. Breeding heifer, cow, and bull prices are expected to show decreases as the demand for herd replacements becomes weaker.

Factors to watch in 2017 that impact U.S. cattle markets include the growth of the U.S. economy, levels of unemployment, consumer confidence, domestic and international beef demand, input prices, exchange rates, interest rates, energy prices, levels of competing meats, adverse weather events, and outliers (food safety, war, terrorists incidents, etc.). Any significant movement of one or some combination of these factors is believed to have an overwhelming effect on U.S. business and consumer spending and cattle prices. As should be expected, the 2017 cattle market has the potential for some large price swings. Abrupt changes in the levels of the factors mentioned above could add much volatility to 2017 cattle market prices. Cattle producers will need to search for ways to lower their unit cost of production (what it costs to produce a pound of beef) and ways to enhance market prices in order to achieve higher levels of profitability during 2017.