Drought Has Pushed Us to the Point That We Are “Out of Cattle”

Derrell S. Peel, OSU Extension Livestock Marketing Specialist

Exactly two years ago I wrote an article about the implications of declining cattle numbers (“At What Point Do We Run Out of Cattle”, Cow Calf Corner, November 15, 2010). In that article I suggested that after many years of herd liquidation, we had reached a point where it was not possible to maintain beef production without herd rebuilding. The article suggested that beef production would drop without herd rebuilding and that herd rebuilding would squeeze cattle supplies even more in the short run. The article further suggested that the only possible postponement to those consequences would be the temporary one if more herd liquidation occurred.

Little did I know that November of 2010 was the beginning of the driest and warmest year in Oklahoma and the Southern Plains. The resulting cow liquidation and preempted herd rebuilding that occurred in 2011 and 2012 delayed those impacts but has brought to the point where the impacts I anticipated many months ago are now upon us. Feedlot placements have dropped sharply the last four months and feedlot inventories are declining and will continue to decline in the coming months. In my mind the bigger question is not why we have such a dramatic decrease in feeder cattle supplies now but why it has taken so long for the situation to manifest itself. I believe there are several reasons.

The biggest and most obvious one is two years of drought which provoked additional liquidation, and postponed heifer retention thereby moderating declining overall cattle numbers. It seems to me that drought and high cattle prices the last two years have had the effect of bringing cattle “out of the bushes” in a way that we have not seen for many years and may not be fully reflected in the cattle inventory data. Another factor is veal calf slaughter, which is a minor part of the total, but responds as you would expect in these conditions. Veal slaughter decreased about 11 percent from 2008 to 2011 and is on pace to decrease another 11 percent in 2012. Compared to 2010, the decrease in veal slaughter the past two years has added roughly 120,000 head to feeder supplies. Finally, feeder cattle imports from Mexico and Canada have augmented declining U.S. feeder supplies since 2009. In the last two years, increased feeder cattle imports have boosted feeder supplies by roughly an additional 300,000 head. In the first half of 2012, Mexican imports were continuing that trend with a record pace of drought forced sales of cattle.

As we move into 2013, some things about cattle supplies are more clear and some are still uncertain. What’s clear is that two more years of liquidation have put the industry in an even deeper hole with respect to feeder supplies. The 2013 U.S. calf crop will be the smallest since 1942, based on my estimates. What is also clear is that feeder cattle imports will drop dramatically. Mexican cattle imports have decreased sharply in late 2012 and may decrease feeder supplies in 2013 by 600 to 800 thousand head year over year compared to 2012. What is unclear is the drought question. Continued drought will moderate the short run effect by provoking more liquidation and postponing heifer retention. If drought conditions improve, herd inventories will stabilize and some heifer retention may begin in 2013.

Feedlots have not only placed fewer cattle but recent placements have been heavier weight and will move through feedlots faster. It will be increasingly difficult to find placements to follow current feedlot inventories. A significant decrease in cattle slaughter and beef production is unavoidable in 2013 and 2014. Continued drought may continue to impact the timing somewhat, but any short run moderation of tighter supplies due to drought liquidation will be at the expense of more drastic impacts later; just as the situation now is more drastic than it was two years ago.
In July 2012, Mike Duffy at Iowa State University posted an article “Comparing the stock market and Iowa land values: A question of timing” on their Ag Decision Maker website. We’ve repeated what he did, using Oklahoma data for pastureland and non-irrigated cropland. The U.S. Department of Agriculture regularly reports agricultural land values and associated cash rents for Oklahoma. Oklahoma farmland values have shown annual increases every year since 1997 for both cropland and pastureland. Non-irrigated cropland values have shown gains for 33 of the past 43 years. In similar fashion, pastureland values have increased every year but 9 times during the same period since 1970. Values in 2012 for both categories reached record territory in nominal terms and have more than doubled since 2000. However, in inflation-adjusted terms, the 2012 cropland value is not a record and is still 30% below the peak set back in 1980. In contrast, pasture prices have kept pace with the rate of inflation and are roughly equal to 1980 values.

The composite value of the stock market, as measured by the Standard & Poor’s 500 Index (S&P) average, has recovered from the disastrous 2008 year. Even though the S&P lost 34 percent of its value between 2000 and 2008, its overall record has been impressive since 1970. Stock values rose from 90.05 in 1970 to a June 2012 close of 1,323.48, a 13-fold increase despite the late-2000s recession.

Methodology

The returns to land or stock shares are composed of two parts. First is a capital gain or increase in value. (In some years, a capital loss occurs if values decrease.) The second component is yearly returns. Yearly returns are affected by both revenue and costs associated with the property.

Land ownership has annual costs not associated with stocks. For example, property taxes must be paid and should be included in a comparison of owning stocks or farmland. In addition, if farmland is held as an investment and not by an owner-operator, a professional farm manager may be involved and the fee for this service should be considered. Some maintenance and insurance with farmland not associated with owning stocks is also necessary.

The data used for this analysis comes from various sources. The Oklahoma non-irrigated cropland and pastureland values come from the USDA/National Agricultural Statistics Service (NASS). Land tax estimates per acre were calculated using data from the Farm Credit Associations of Oklahoma.

The S&P averages and yearly dividends from 1970 to 2012 were obtained from the website of Robert J. Shiller at Yale University. The value used is the December close of each year with the exception for 2012 being the month of June.

A few assumptions are necessary in the study. For the first analysis summarized in Figure 1, it is assumed $1,000 is invested in each alternative at the end of the first year (1970). The initial amount of land or stock purchased was based on the 1970 value. For example, the average dryland cropland value in Oklahoma was $257 per acre in 1970. Thus, 3.89 acres could have been purchased for $1000.

A second assumption is that all net land rent or dividend earnings in any year will be reinvested in the land or the stock market. This will increase the number of units held. To continue the example above, average cropland rent in 1971 was $9.50 per acre. Average taxes in 1971 were $0.58 per acre. Using a management fee equal to 7 percent of gross rent and a 6 percent of gross rent charge for insurance and maintenance, the net return per acre in 1971 was $7.68.

The net rent in 1971 represents a 2.91 percent return since the average cropland value had increased to $264 per acre. For the $1,000 investment, this would be a return of $29.10. If the entire return were invested to purchase additional land, .11 acres could have been added to the portfolio. Thus, at the end of 1971, the investor would have 4 acres worth $1,055. The process is repeated each year.

Results

Considerable annual variation was noted in the investments examined. Non-irrigated cropland values increased an average of 4.5 percent with a standard deviation of 9.8 percent. The annual percentage change ranged from a negative 16.9 percent to a positive 27.8 percent. Pastureland values grew an average of 5.8 percent annually with a standard deviation of 12.7 percent. The annual percentage change ranged from a negative 18.3 percent to a positive 48.9 percent. The Standard & Poor’s 500 Index yearly closing value showed an average percentage change of 8.1 percent with a standard deviation of 16.9 percent. The yearly percentage change in the S&P ranged from a negative 40.7 percent to a positive 35.0 percent. In summary, the stock market as reflected in the S&P offered a higher overall percentage gain than agricultural land, but also demonstrated more volatility as shown by its standard deviation.

The annual rate of return for non-irrigated cropland using cash rental rates as a proxy for income and subtracting taxes, management fees, insurance and maintenance has
averaged 3.5 percent since 1970. The standard deviation of the yearly return to land has been 0.8 percent. The maximum yearly return was 4.7 percent while the low was 1.7 percent. For pastureland, the annual return averaged 2.0 percent with a standard deviation of 0.7 percent. The maximum annual return was 2.8 percent while the low was 0.7 percent. The S&P yearly dividend averaged 3.0 percent of the S&P closing level. The standard deviation was 1.3 percent, the maximum yearly return was 5.4 percent, and the lowest yearly return was 1.2 percent.

Figure 1 shows the return to $1,000 invested in 1970 for all three investments. At that time, $1,000 would have purchased 3.89 acres of cropland, 7.08 acres of pastureland or 11.1 shares of the S&P. Using the assumptions above, an investor at mid-year 2012 would have 15.31 cropland acres worth $21,285, 15.62 pasture acres worth $18,078 or 36.49 shares of the Standard & Poor’s worth approximately $49,270. In other words, the value in either farmland category would be less than half the value of the S&P investment. Note the dramatic swings in the S&P since 1999 in contrast to the steady climb in farmland values.

However, timing is everything. A starting point other than 1970 would lead to different results. The initial purchase date and subsequent purchases based on reinvestment of returns are important and realistically, farmland does not lend itself readily to reinvestments similar to stocks.

Figure 2 shows a comparison of the returns through June 2012 based on alternative years for the initial investment using the same methodology shown in Figure 1 (buy, hold or reinvest as income allows). It represents returns to Oklahoma farmland as a percent of the returns to the S&P. Values in excess of 100 percent correspond to farmland with a higher value and conversely, if the value is below 100 percent, then the S&P would have a higher value for the initial $1000 investment made in that year. For example, an initial investment in farmland beginning in 1970 as shown in Figure 1 would have returned less than half of the stock market.

Figure 2 demonstrates that the timing of the investment makes all the difference in which appears to be a better investment. A decision to invest in agricultural real estate would have yielded a higher value in just about every year from 1991 through 2011 (the late-2000s recession being an exception). Looking back, agricultural land values in Oklahoma began their rapid rise in mid-1970s and peaked in 1981. After years of devaluation during the 1980s, land values began a slow but steady rise in the 1990s. Oklahoma farmland and the S&P have offered roughly equal returns on their investment since 2009. Given the recent rapid increase in farmland values, this result may not be intuitive. But remember that despite healthy farmland value increases, farmland rents in Oklahoma have not kept pace resulting in declining rates of return. At the same time, investors buying into the stock market have seen substantial appreciation since the late 2000’s recession with very competitive returns. It will be interesting to see what this chart will look like in 20 years relative to recent economic conditions.

Conclusions

So the question remains. Is Oklahoma farmland or the stock market a better investment? It is a complicated question and one for which there is no one right answer. As mentioned previously, the timing of the initial purchase, subsequent purchases, and reinvestments of returns influence the returns to either stock or farmland investments.

Several assumptions were made in this study. Real estate taxes, a management fee, insurance and maintenance were subtracted from the return to land (represented by
Which is a Better Investment: The Stock Market or Farmland? (cont.)

cash rent) and were the only ownership costs assumed for land. Other costs vary with individual circumstances. This study also assumed no transaction costs associated with either the purchase of land or the purchase of stocks. Finally, this study assumed average performance for land values, rents and the stock market. Deviations from average performance would produce different results.

The majority of land is purchased by existing farmers. They purchase the land for a variety of reasons including factors beyond traditional investment theory. Farmland has been a competitive investment compared to the stock market over the past 20 years (Figure 2).

What will happen to the value of farmland over the next several years is difficult to predict. Agricultural land represents an income-producing asset and its value is essentially driven by current and expected earnings. Agricultural land values have risen more quickly than rents in recent years. In the short term, an increase in both are likely to continue given a strong cattle economy, high grain prices, low interest rates, and continued nonfarm investor interest. In the longer term however, changing market conditions, government policies and/or interest rate increases could adversely impact values and earnings.

The performance of the stock market over the next several years is also not clear. The S&P 500 used as a benchmark includes companies with significant global investments and earnings. Thus, economic conditions throughout the world matter.

Farmland and the stock market are different types of investments and assets. This simple comparison was based strictly on averages. Oklahoma farmland has outperformed the S&P in some periods since 1970, but not all years. Yes, timing is everything.

References

Ag Decision Maker, Iowa State University, http://www.extension.iastate.edu/agdm


OSU Agricultural Land Value Website: www.agecon.okstate.edu/oklandvalues


New OSU Extension Team Member: Gant Mourer, Beef Cattle Value Enhancement Specialist

Gant Mourer has joined the Extension Team as the Assistant Extension Specialist in Beef Cattle Value Enhancement housed in the OSU Department of Animal Science. With support from the Oklahoma Cattlemen’s Association, this position provides primary coordination for the Oklahoma Quality Beef Network (OQBN) program.

Gant is a native of Carrier, OK where he grew up on a wheat pasture stocker operation. While working on his Bachelors of Degree in Animal Science at OSU, he worked on a number of cattle operations and as a veterinary technician. After graduation, he was hired as the herd manager of OSU’s Range Cow Research Center - North Range Unit west of Stillwater. While working as herd manager, Gant conducted research and completed the requirements for a Master of Science Degree from OSU in Beef Cattle Nutrition and Management.

He and his wife, Melisa, and two children, Colton and Emma, will continue to reside in Stillwater. Gant is excited about working with the OSU Extension team and the Oklahoma Cattlemen’s Association to expand the OQBN program and develop and promote additional programs that can help improve revenue for Oklahoma beef cattle producers. Gant started in this position October 1, 2012.

For additional information or questions about the Oklahoma Quality Beef Network, contact your local OSU Extension Office or Gant Mourer, Beef Value Enhancement Specialist at 405-744-6060 or at gantm@okstate.edu. Additional information may also be found at www.beefextension.com or www.oqbn.okstate.edu.

IFMAPS: A Free, Confidential Service Available for Oklahoma Producers

The intense and ongoing drought has most likely caused you or somebody you know an abundance of stress. Producers coping with drought and financial stress are encouraged to utilize IFMAPS, a free and confidential service through OSU’s Department of Agricultural Economics that helps producers with a variety of topics, including analyzing alternative farm business plans. For more information call the IFMAPS Center toll free number or visit our web page

1-800-522-3755
www.agecon.okstate.edu/ifmaps
Importance of Genetic Management in Multi Sire Pastures

Megan Rolf, OSU State Extension Beef Specialist

The key to management of herd sire genetics in a multisire pasture is paternity testing. This type of genetic testing will help evaluate a bull’s reproductive performance as part of a multi sire breeding program. A bull’s worth in a commercial cattle operation is relative to his abilities to sire calves, with additional value captured when he sires calves with superior performance. The second objective can be evaluated and selected for using EPDs. However, in multi-sire pastures, the bull’s ability to sire calves can be hard to pinpoint without additional information.

Genetic testing to establish parentage in multi-sire pastures can be an invaluable tool. Knowledge of which bulls are making you money and which are a drain on limited resources is an effective, if not essential, risk management tool. Data from the California Commercial Ranch Project showed that calves sired by groups of bulls in multi-sire pastures resulted in large differences in gross revenue per sire. Due to vast differences in the number of calves each bull sired in a breeding season, the gross revenue varied from $4,881 to $55,889 between sires.

All bulls in this scenario were declared sound breeders, but some bulls sired as few as 7 calves out of a total of 5 calf crops, and as a consequence, generated only $4,881 in gross revenue during this period. The use of genetic testing for parentage determination would allow identification of bulls that are not pulling their weight so that they may be replaced. Regardless of whether a sire possesses superior EPD’s, a bull that doesn’t sire very many calves is still a drain on available resources. Additionally, if the bull that sires the largest number of calves has the worst set of EPDs, the average performance of the resulting progeny may be lower than expected. To increase performance in the calves, you may wish to cull that bull either to allow bulls with better EPDs to breed more cows, or to replace him with another bull with better performance data. In either scenario, the numbers speak for themselves. Knowing the quantity of calves that are being sired by each bull in multi-sire pastures can help to better manage bulls to maximize return on your investment.

Source: Alison VanEenennaam, “Uses of DNA information on commercial cattle ranches”


Figure 1. Total gross revenue (number of male calves sired shown inside the bars) derived from all of the steer progeny produced by two cohorts of yearling bulls purchased in successive years. Both groups served in multisire breeding groups for 5 breeding seasons on a US commercial ranch. Offspring were marketed at an average of 314 days of age to the feedlot, and an additional carcass-based quality premium was paid to the commercial producer.
With only one month left until the end of 2012, many are wondering if a 2012 farm bill will be passed or if the farm bill debate will continue into 2013. The 2008 Farm Bill expired on September 30, 2012. The Senate passed its version of the farm bill earlier this year and the House agriculture committee passed its version as well. The bill stalled in the House as House leadership did not schedule floor time for debate despite the persistent urging by many commodity groups for the bill to go to the House floor prior to the expiration of the 2008 farm bill and the November election. Now that the election has passed with no major changes in leadership in the agriculture committees, it is still unclear if a new farm bill will be passed soon or if the 2008 farm bill will be extended. Many are concerned that the 2008 farm bill has expired with no extension and no 2012 farm bill. In reality, it is actually not uncommon for a farm bill to expire without an extension or a new farm bill in place. In the past 40 years, only 2 farm bills were enacted prior to the September 30 deadline. In addition, farm bill extensions are really not that common either since discretionary programs can be continued with appropriations. The exception includes programs expiring before the end of the 2008 farm bill and programs with no baseline budget funding after FY2012.

If Congress chooses to do nothing before the end of the year, permanent 1938 and 1949 legislation would go into effect. The permanent legislation is quite different than U.S. farm bill policies in the past 50 years and could result in commodity support prices above current market prices leading to higher subsidies. Congress does have several options, including (1) pass a new 2012 farm bill, (2) pass an extension of the 2008 farm bill, (3) do nothing and revert back to permanent legislation, (4) suspend permanent law without passing a new farm bill or an extension, and (5) repeal permanent law. Due to the consequences of doing nothing, the most likely options include extending the 2008 farm bill or passing a new 2012 farm bill. However, it is still not clear when Congress will make this decision. With limited ‘working’ days remaining in the lame duck session, along with various housekeeping items following the election and the need to consider important expiring tax provisions and automatic cuts before the end of the year, farm bill action could be an unlikely event in 2012.

So what does all of this actually mean to producers and consumers (since about 80% of total farm bill spending goes to food and nutrition programs)? Until January 1, 2013, nothing will really change and most programs will continue with little to no disruption. This includes crop insurance, commodity programs, conservation programs, and the Supplemental Nutrition Assistance Program (SNAP) program. The crop insurance program is permanently authorized by the Federal Crop Insurance Act so it is not affected by the farm bill expiration. The SNAP program is a mandatory program funded by annual appropriations so these programs will likely continue to operate as normal. Many conservation programs have funding beyond 2012 so they would be unaffected as well. For commodities, the last year of support under the 2008 farm bill is the 2012/2013 crop year (that is, crops harvested in 2012 and marketed in 2013). So, producers eligible for commodity payments for the 2012/2013 crop year will still receive payments in 2013 under the 2008 farm bill. Payments for the Average Crop Revenue Election (ACRE) program are generally not disbursed until October-November in the year following harvest. So, if a producer is eligible for a 2012 ACRE payment, the payment would still be issued in October-November 2013.

If Congress doesn’t act before January 1, 2013, some programs will be affected, including the Conservation Reserve Program (CRP). Producers with existing CRP contracts would not be affected but no additional land can be enrolled into the CRP program without further action on the farm bill. Dairy price supports will also end on January 1, 2013 if no farm bill action occurs since they expire on December 31, 2012. Producers eligible for commodity programs would likely not be affected until late spring of 2013 if no farm bill action takes place.

Looking forward at potential programs in the new farm bill, a common theme remains in the House and Senate. Both show a continued focus on providing a safety net to producers with a strong emphasis on risk management, while continuing support for conservation programs to protect our nation’s fragile lands, and nutrition programs to support those in need of food assistance. Livestock disaster assistance programs continue to receive support and are included in both the House and Senate versions of the farm bill. Nutrition program spending has been a rather contentious issue in the farm bill debate, which is not surprising since it represented 80% of total spending for the 2008 farm bill. A key change to commodity programs is the elimination of direct payments. Combined commodity and crop insurance changes are similar in both bills, with a few key differences in program details. Both the Senate and House bills provide shallow loss revenue coverage to complement existing crop insurance programs. The shallow loss programs are delivered through two approaches: (1) commodity program covering an 11% loss (Senate bill) or a 15% loss...
Canola as a Source of Protein for Cattle

Chris Richards, OSU Animal Science Department

While canola is relatively new to many Oklahoma cattle producers, it has been commonly used as forage that can be grazed or harvested and as a grain crop. Processing of the grain results in a protein meal that is common cattle feed in Canada and the northern US. Canola seed is a small, round seed containing approximately 42% oil that is extracted as a premium vegetable oil. Canola is an offspring of rapeseed which was bred to have low levels of low levels of glucosinolates in the meal because they were toxic and unpalatable to most animals.

From a regional production standpoint, it is gaining popularity because it utilizes the same equipment as other small grains. It is being promoted as a rotation crop for wheat acreage that increases productivity of wheat acreages compared to continuous wheat systems. Additionally, using canola in the crop rotation allows for weed control measures not available with continuous wheat production.

Below is a comparison of the nutrient composition of canola meal with a number of common feed ingredients. As cattle feed, canola meal is best utilized as a protein source that can be found in a meal or pelleted form. From an energy standpoint, the TDN value of canola meal is approximately 20% lower than that found in corn gluten feed or distillers grains. Therefore, from an economic standpoint, canola meal is most commonly compared to soybean or cottonseed meal on a cost per unit of crude protein basis. Cost per unit of crude protein can be calculated as:

Nutrient on an As-fed Basis:

\[ \text{Cost per ton of protein} = \frac{\text{cost per ton}}{\left(\frac{\% \text{ crude protein}\ (\text{as-fed basis})}{100}\right)} \]

Nutrient on a Dry Matter Basis:

\[ \text{Cost per ton of protein} = \frac{\text{cost per ton}}{\left[\left(\frac{\% \text{ DM}}{100}\right) \times \left(\frac{\% \text{ crude protein}}{100}\right)\right]} \]

So for this example, if canola pellets were $400 per ton:

\[ \frac{400\ \text{per ton}}{\left(\frac{90.7}{100}\right) \times \left(\frac{40.0}{100}\right)} = \$1,102.53\ \text{per ton of protein} \]

Sulfur levels in canola meal are higher than any of the other feeds listed. These would be of concern if we were to feed high levels of the product. However, the practical use of canola meal is as a protein source, so when it is fed at levels to meet cows or stockers protein needs, sulfur levels should not be a concern.

<table>
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<tr>
<th>Item</th>
<th>% Dry Matter</th>
<th>Protein, %</th>
<th>TDN, %</th>
<th>Fat, %</th>
<th>Ca, %</th>
<th>P, %</th>
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<tr>
<td>CANOLA MEAL</td>
<td>90.7</td>
<td>40.0</td>
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<td>7.4</td>
<td>0.74</td>
<td>1.12</td>
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<td>COTTONSEED MEAL</td>
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<td>DRIED DISTILLERS GRAINS</td>
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<td>51.3</td>
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<td>SOYBEAN MEAL, EXTRUDED</td>
<td>92.3</td>
<td>44.6</td>
<td>94.4</td>
<td>13.4</td>
<td>0.29</td>
<td>0.68</td>
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Farm Bill Update (cont.)

(House bill) using the previous 5 year Olympic average marketing year prices and yields and (2) crop insurance program allowing producers to buy a county-level product to cover a portion of their individual insurance deductible. The House bill also provides an additional price protection option to protect against multi-year price declines.

Overall, changes in the next farm bill will lead to significant cuts to agricultural programs. If the farm bill is not considered separately but is included in a broader plan to cut overall spending and reduce the federal deficit, agriculture could face even larger cuts.
Enterprise Budget Software Can Make or Save You Money
Roger Sahs, OSU Extension Specialist

We are going into winter with very limited hay supplies or standing forage. Many cattle producers were planning on wheat pasture that so far has not received enough rain to grow. It looks like it’s time to consider Plan B (or C or D). Most of the alternatives after wheat pasture are not easy and will require additional business planning.

OSU Enterprise Budget Software can help identify the production and financial risks of these alternative plans before you commit/shift resources. These decision tools also provide the documentation necessary to project cash flows and obtain/maintain credit-worthiness. It will help you do the right things when managing costs during difficult times such as these.

Additional information on OSU Enterprise Budget software is available through your local county extension office, at http://agecon.okstate.edu/budgets or by calling Roger Sahs at 405-744-7075.

Other software tools such as “Sell Cows Now or Later?” and monthly Cattle Inventory sheets can be found on beef.extension.com under Cow-Calf, Calculators.

Merry Christmas