Livestock Cost of Production Impact From Higher Grain Prices

The Economics Department at Iowa State University has been preparing and publishing the monthly Estimate Livestock Returns Series since at least the early 1970s. This series is based on a set of production assumptions that are held constant over time and prices for feed, feeder animal, and selling prices are changed each month to estimate the profit or loss that livestock producers may be experiencing. Periodically, the assumptions are updated to more closely reflect production systems in the industry. Such a revision occurred with the January 2007 report.

There is great interest in the impact of higher corn and soybean meal prices stemming from the bioeconomy on livestock cost of production. While this long running series can help answer this question, it is important to not compound the analysis by using different production assumptions. The table below shows five different feed price scenarios and the resulting cost of production for four livestock enterprises using the 2007 production assumptions.

The four livestock enterprises are: farrow to finish and finishing feeder pigs hog enterprises and finishing calves and yearlings cattle enterprises. The details of the 2007 production assumptions for these enterprises is available at: http://www.econ.iastate.edu/faculty/lawrence/Lawrence_website/livestockreturns.htm

The five feed price scenarios include:

- 2001-06 average to reflect where we have been recently
- January 2007 to represent the current price levels
- Dr. Robert Wisner’s forecast farm level prices for 2007-08 crop year
- CARD Ethanol report that indicated corn prices would average $4.05/bu
- The 1996 average price to reflect prices the last time they were at this level.

It is important to keep in mind that the objective of the Estimated Livestock Returns series is to be a barometer of profitability for an industry rather than a representative of any one farm. The series is modeled to represent above average production efficiency and recognize that there is a great deal of variation in cost and returns across farms.

Results

The 2001-06 average was the lowest corn price considered and had SBM prices similar to January 2007 and Wisner ’07-08 prices. Not surprisingly the higher corn and SBM prices led to higher cost of production. Note that the non-feed cost for the feeder pig finisher and cattle feeders included the purchase price of the
feeder animal. Feeder animal prices are the actual monthly prices in the 2001-06 period and are consistent across all scenarios.

The farrow to finish feed cost per head increases $14 from the 2001-06 average and the January 2007 level and approximately $20-23 per head for the three remaining scenarios. The cost of production increases over 20% at the three higher corn price scenarios. Feeder pig finishers’ feed cost will increase $15-17 per head. These producers will attempt to push at least some of these higher feed costs back to the feeder pig seller in the form of lower bids for pigs.

Cattle feeders use more corn per head than do hogs and will have a larger per head impact on feed cost, but smaller percentage change in cost of production. Cattle feeding also uses very little SBM and more distillers grains and solubles than do hogs. Feed cost per head increases $74-96 per head for calves and $64-84 per head for yearlings. On a percentage basis, cost of production for calves and yearlings increases 9-11% and 6-8%, respectively. Feedlots will attempt to push the higher feed cost back to the cow-calf producer in the form of lower bids for feeder cattle. For perspective, the $74-96 increase in calf feed cost is approximately 12-16% of the average purchase value of feeder calves during the 2001-06 period.

Iowa State University Estimated Livestock Returns, Estimated Cost of Production Using 2007 Production Assumptions and Selected Corn and SBM Price Scenarios

<table>
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<tr>
<th></th>
<th>2001-06 average</th>
<th>January 2007</th>
<th>Wisner '07-08 forecast</th>
<th>CARD Ethanol forecast</th>
<th>1996 average</th>
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<td>Corn price $/bu</td>
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**Farrow to finish**
- Feed cost $/hd: 49, 63, 69, 72, 71
- Non feed cost $/hd: 48, 48, 49, 49, 49
- Total cost $/hd: 98, 112, 117, 120, 120
- Total cost $/cwt: 36.13, 41.31, 43.51, 44.59, 44.41

**Feeder to finish**
- Feed cost $/hd: 35, 45, 49, 51, 51
- Total cost $/hd: 113, 124, 128, 130, 130
- Total cost $/cwt: 41.88, 45.75, 47.39, 48.23, 48.00

**Finishing calves**
- Feed cost $/hd: 174, 229, 251, 271, 248
- Non feed cost $/hd: 748, 749, 750, 750, 749
- Total cost $/hd: 922, 978, 1000, 1021, 997
- Total cost $/cwt: 80.16, 85.02, 86.99, 88.75, 86.73

**Finishing yearlings**
- Feed cost $/hd: 154, 202, 221, 238, 218
- Non feed cost $/hd: 849, 845, 844, 842, 844
- Total cost $/hd: 1003, 1047, 1065, 1081, 1062
- Total cost $/cwt: 80.23, 83.75, 85.18, 86.46, 84.99
Grain Markets React to Uneasiness in Financial Markets & USDA Outlook Forum

The sharp drop in corn and soybean prices in late February and March 1 came as a surprise to most analysts and traders. Many other commodity prices weakened at the same time. The declines appear in part to reflect uneasiness in global financial markets and reduced concern about inflationary pressures. A very sharp decline in the Chinese stock market began on February 27 and continued for two or three days. The break in prices appeared to be caused by talk of the Chinese government tightening its monetary policy to slow growth and reduce inflationary pressures. Weakness in the Chinese stock market triggered the largest decline in the Dow Jones Industrial Average Index since 9/11/01 and was accompanied by sharp declines in stock prices in other Asian and European markets.

Corn prices remain in a trading range, even with the late February and early March market decline. July futures briefly moved to a high of $4.585 per bushel level before dropping back into the $4.10 to $4.58 trading range. Despite reports of good crop prospects in South America, soybean prices trended upward in late January and most of February, 2007 in response to anticipation of a sharp decline in U.S. soybean plantings. The break at the end of February appears to reflect the same influences as corn, along with USDA acreage projections that probably are larger than many traders expected. Our projections indicate soybean carryover stocks in 2008, with favorable weather across the Midwest, are likely to remain fully adequate but moderately below this year’s expected 10.2 weeks supply. That’s with a 7.0 million acre drop in 2007 U.S. plantings. However, stocks appear likely to become much tighter in the 2008-09 marketing year because of prospects for further reductions in plantings in 2008. Soybean futures prices for delivery in the summer of 2008 already reflect that prospect and have strengthened old-crop prices.

News from USDA’s Annual Outlook Forum
A presentation by USDA’s Chief Economist, Keith Collins, should have been considered positive by grain traders and does not appear to be responsible for weakness in the corn market. His statement can be seen at http://www.usda.gov/oce/forum/2007%20Speeches/PDF%20speeches/KCollins_doc.pdf Collins indicated USDA projects corn processing for ethanol to increase from 2.15 billion bushels this marketing year to 3.2 billion bushels in the 2007-08 marketing year that begins on September 1, 2007. That’s an increase of 49%, although several private analysts expect an even larger increase. USDA also projects global grain stocks at the end of this marketing year to be the lowest in 30 years. Corn plantings are projected to be 8.9 million acres larger than in 2006. That would be the largest acreage since 1946. That’s a million acres larger than USDA showed in its mid-February 10-year projections.

USDA soybean acreage projections could be interpreted by some as negative to prices. Its latest projections show only a 5 million acre decline in plantings. That suggests U.S. soybean carryover stocks may decline less in the year ahead than had generally been expected. However, a case can be made for a larger decline in soybean plantings than these numbers imply. The USDA projections show 3.9 million of the increased corn plantings that are not accounted for by reduced soybean plantings. USDA also projects wheat plantings to be up 2.7 million acres (up 4.7%) from last year. That leaves about 6.6 million of the increased corn acres to be accounted for from other cropland. A shift from cotton to corn is anticipated in parts of the Cotton Belt.
Analysts close to the cotton industry expect this shift to be around 1.1 to 1.4 million acres. Total U.S. cotton planted acreage last year was about 14 million acres. A small amount of CRP, hay, and pasture land may also shift to corn. Also, farmers in the South and extreme southern Corn Belt may increase the amount of soybeans double cropped after wheat – thus tempering the decline in soybean acres. Even so, the drop in soybean plantings looks conservative when compared with the projected increase in corn plantings.

Keith Collins, in his presentation, indicated that “Corn production is expected to reach a record 12.2 billion bushels in 2007. Nevertheless, production could once again fall short of demand pulling ending stocks down further in 2007-08 and propelling corn farm prices even higher.”

**Signs of Some Feed Demand Rationing Ahead**
Strength in corn prices is being tempered by (1) prospects for a 12 million ton increase in Southern Hemisphere feed grain production and (2) prospects for increased wheat feeding in cattle feedlots in the Southern Plains as well as the southeastern U.S. this summer. However, this increased competition probably is not a serious threat to the corn market. It will not become a significant influence on feed usage until June. Feed demand and exports have been quite strong so far this marketing year, and modest rationing of demand is needed to maintain reasonable working carryover stocks at the end of August.

Cash wheat prices in the Texas panhandle at the end of February, as reported by USDA, were $4.76 to $4.95 per bushel. Corn prices at the same time were $4.40 to $4.59 per bushel. Wheat is about 10% higher per bushel in feed value than corn. Thus, incentives for wheat feeding in that area are not large at this writing. The higher value for wheat is due to 7.1% higher weight per bushel than corn and higher protein content. Wheat prices in North Carolina were $3.95 per bushel, compared with corn prices of $3.80 to $4.05 per bushel. These prices may provide some incentive to use a limited amount of wheat in hog and poultry rations in the southeastern U.S. New-crop wheat bids in North Carolina were 7 to 9 percent higher than old-crop bids at the end of February.

**Corn Export Sales Slowdown**
So far this marketing year, U.S. corn and soybean export sales have been sharply above a year earlier. For corn, the increase reflects reduced availability of feed wheat and sharply reduced corn production in the Southern Hemisphere last spring. For soybeans, it reflects much less concern about bird flu than last season, good Asian demand, and strong demand for vegetable oils in Europe to support the EU’s aggressive biodiesel fuel program. After many weeks of strong sales, U.S. corn and soybean export sales dropped sharply for the week ending February 22, 2007. Corn export sales were 12.5 million bushels, a marketing year low and down 48% from a year earlier. Soybean export sales were 15.3 million bushels, 33% under the 4-week average but up 13% from the same week last year. The abrupt slowdown in sales may reflect users’ desires to wait for soon-to-be-harvested South American crops and lower-cost foreign feed wheat this summer. Weekly export sales will be an important market indicator from now through summer.

**What’s Ahead for Prices?**
The driving force in the grain markets is the need for sharply increased 2007 corn plantings to supply corn for an ethanol industry that is expanding at an annual rate of 50 to 60 percent. The amount of production needed will also depend on the amount of corn used for feed and exports. Our projections are based on a 350 to 400 million bushel shrinkage in feed and export demand in the 2007-08 marketing year. A 9 to 10 million acre (9% to 11%) increase in plantings and very good weather may be needed this year to supply market requirements without additional rationing of corn demand beyond this amount. Our projections suggest soybean plantings could be down by 6.5 to 7.5 million acres (9% to 10%), with a higher percent of the crop being planted in lower-yielding areas of the Great Plains and double cropped after wheat. Early indications point to adequate U.S. and world soybean supplies this marketing year, provided growing conditions are favorable. However,
even with good weather, supplies are expected to tighten substantially in 2008-09, with increased world demand and a further reduction in U.S. plantings.

Our corn and soybean balance sheet projections to 2007-08 and 2008-09, including acreage, utilization, stocks, and prices are shown on our web site, http://www.econ.iastate.edu/faculty/wisner They are in the right-hand column, just below “Balance Sheets”, in the link titled “Longer-term tentative balance sheet projections with ethanol expansion”.

For the grain markets, the key unknown is whether current corn prices are enough higher than soybean prices to get the needed large increase in corn plantings. It would not be surprising to see prices for both corn and soybeans make at least one or two upward moves between now and mid-April to insure that needed acreage shifts will occur. Prices for both corn and soybeans may retest the highs of late February. USDA’s March 30 planting intentions report will be a key market indicator to watch for. If intended corn acreage is up from last year by significantly less than 9 million acres, further strength in prices would be almost certain. For soybeans, a drop in acreage of more than 7 million acres would be likely to bring further strength in prices.

It would not be surprising to see prices this spring move high enough to encourage at least slightly more corn plantings than are needed, and then to weaken some in the fall. Cash market weakness could come from weakness in futures and from a weak basis, as the grain industry struggles to receive, handle, and drying as much as 12% to 16% more corn than last fall. Needed storage capacity, based on our projections, may be up 2% to 3% from last season. Reduced carryover stocks will offset a substantial part of the increased production. For the April-early June period, further strength in the corn and soybean basis appears likely in many areas. The greatest strength likely will be in areas close to feed mills, processing plants, large livestock feeding operations, and river markets.

Robert Wisner