10-31-2013

Developing Planning Prices for Commodities

Nicholas Jorgensen
South Dakota State University

Matthew Diersen
South Dakota State University, Matthew.Diersen@SDSTATE.EDU

ECONOMICS COMMENTATOR

South Dakota State University No. 546 October 31, 2013

DEVELOPING PLANNING PRICES FOR COMMODITIES

by

Nicholas Jorgensen
Graduate Research Assistant
and
Dr. Matthew Diersen*
Professor & Wheat Growers Scholar
of Agribusiness Management

Planning is a management step that can greatly benefit a farm or ranch. Commodity prices, especially, are factors in agriculture that are difficult to plan for. Once made, reasonable estimates of future commodity prices are helpful when farmers and ranchers need to make production decisions, prepare budgets, and make cash flow estimates.

In this *Commentator*, we provide information about where to locate price forecasts and how to adjust them to realistic estimates for South Dakota. Information includes forecast sources and adjustments for corn, soybeans, wheat, cattle, and other commodities common in South Dakota.

Overview of Useful Sources

The USDA is one source of short-run price forecasts. The USDA releases monthly "World Agriculture Supply and Demand Estimates" (WASDE) reports that contain fundamental information for many major commodities (USDA, 2013). The Economic Research Service (ERS) also provides other livestock-related prices (ERS, 2013). For crops, the price forecasts are for the current marketing year. For livestock, the forecasts vary, but are usually for the current and next calendar year. The forecasts are reported as a range of possible prices, the midpoint of which can serve as a point forecast that can be adjusted to South Dakota levels.

The Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri is another source of price estimates for many commodities. Their fall update contains information about market conditions and multi-year price forecasts (FAPRI, 2013).

Futures markets are another source of information about prices. Futures prices provide information on market expectations. Basis adjustments may be needed to relate the information to a given area.

When only one source of price estimates is available for a commodity, we use only that source with the adjustments outlined in this report as the planning price. When more than one source for a planning price is available, an average of the adjusted forecasts is used.

Major Crops

Corn, soybeans, and wheat are crops with national price forecasts available from sources such as WASDE, FAPRI, and futures markets. Each source requires slightly different adjustments to relate them to South Dakota.

U.S. forecasted prices for corn, soybeans, spring wheat, and winter wheat can be scaled by adjustment factors (Table 1). From 2003 to 2012, the marketing year average corn price for South Dakota has on average been 94% of the U.S. price. Hence, multiplying FAPRI's 2014/15 corn price forecast by 0.94 adjusts the forecast to a South Dakota planning price. The adjustments for soybeans, spring wheat, and winter wheat are calculated in the same manner giving relevant adjustment factors (Table 1).

Futures prices for corn, soybeans, spring wheat, and winter wheat can be adjusted with basis expectations. The typical harvest basis for corn in South Dakota is $-0.71, which can be added to the futures price to obtain a South

*Contact the author at matthew.diersen@sdstate.edu or 605-688-4864.

Dakota planning price. The same process is used to adjust soybean, spring wheat, and winter wheat futures prices (Table 2).

Table 1. Adjusting U.S. Forecasts

South Dakota Price	2014 Forecast Price	Adjustment Factor
Corn	U.S. Corn Price	0.94
Soybeans	U.S. Soybean Price	0.96
Spring Wheat	U.S. Wheat Price	1.07
Winter Wheat	U.S. Wheat Price	0.94

Table 2. Adjusting Futures Prices

South Dakota Price	2014 Futures Price	2014 Basis
Corn	Dec. Corn	$-0.71
Soybeans	Nov. Soybean	$-0.83
Spring Wheat	Sep. MGEX HRS	$-0.66
Winter Wheat	Sep. KC HRW	$-0.64

The prices from fundamental and basis adjustments may not be the same. The adjusted FAPRI 2014/15 corn price is $4.10 and the basis adjusted Dec 2014 corn futures price is $4.03. The average of these prices, rounded to the nearest $0.10, gives the 2014 corn planning price of $4.10 (Table 4). If a large discrepancy exists, subjective adjustments may need to be made to decide if one source is more appropriate than another when assigning weights.

Feed Grains and Hay

Feed grains such as oats, sorghum, feed barley, and millet, are commodities without widely available forecasts. The WASDE contains forecasts for oats, sorghum and barley, but only for the current marketing year. Another process for developing planning prices for these commodities is to relate them to the price of corn. Because many crops are substitutes for corn in a feeding situation, their prices can be related to corn. Over the past five years, the South Dakota marketing year average price of feed barley has averaged 90% of the South Dakota marketing year average price of corn, so multiplying the 2014 corn planning price of $4.10 by 0.9 gives the 2014 feed barley planning price (Tables 3&4). The same comparisons are made for sorghum, oats, and millet giving other adjustment factors (Table 3).

The relationship between the hay price and corn price is not as stable, but FAPRI forecasts a U.S. all hay price. The all hay price in South Dakota can be compared to the nationwide all hay price, and that relationship can be used to adjust the 2014 FAPRI all hay price forecast to obtain a South Dakota planning price. From 2008 to 2012, the South Dakota marketing year average all hay price has averaged 76% of the U.S. marketing year average all hay price, so multiplying the 2014 FAPRI forecast by 0.76 yields a South Dakota level all hay price (Tables 3&4).

Table 3. Feed Grains and Hay Adjustments

South Dakota Price	2014 Reference Price	Adjustment Factor
Feed Barley	SD Corn	0.9
Sorghum	SD Corn	1.6
Oats	SD Corn	0.6
Millet	SD Corn	1.1
All Hay	FAPRI All Hay	0.76

Sunflowers

A sunflower forecast is not readily available, nor is there a futures contract for sunflowers. Instead, soybean components can be used to generate a sunflower planning price. Sunflowers, like soybeans, are an oilseed, and processing yields oil and meal. Sunflowers, once dehulled, are roughly 60% meal and 40% oil by weight. Using these shares and using soybean meal and oil price forecasts, a sunflower price can be estimated.

Over the last 5 years, the South Dakota marketing year average sunflower price has averaged 75% of the value of the U.S. soybean meal and oil components. The sunflower hull is also 25% of the weight of the seed. Sunflowers are usually quoted per cwt., soybean meal per ton and soybean oil per lb. The sunflower planning price ($/cwt.) reduces to: (soybean meal price/2000*45) + (soybean oil price*30). FAPRI provides 2014/15 price forecasts and the December 2014 futures prices are also available for soybean meal and soybean oil.

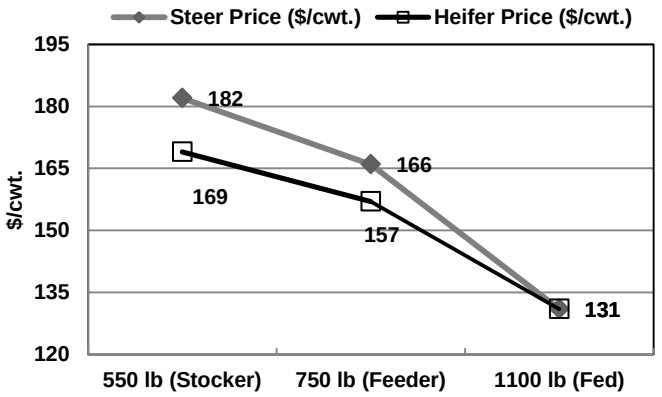
Cattle

Cattle price forecasts are produced by the USDA and FAPRI for fed and feeder steers. The futures market is another source for fed and feeder cattle price forecasts. The average of the 2014 live cattle futures contracts is a market expectation of fed cattle prices. The average of the 2014 feeder cattle futures contracts is a market

expectation of feeder cattle prices. The fed cattle planning price is the average of the 2014 WASDE fed cattle forecast price and the 2014 live cattle futures contracts. The feeder steer planning price is the average of the 2014 ERS estimate of feeder steer forecast price and the 2014 feeder cattle futures contracts.

These selected prices could be used to develop a complete slide/spread set of planning prices for other weights (Figure 1). Stocker steer prices are not as readily available, but can be projected by adjusting the planning of the feeder steer price for basis. The 5-year November average basis for stocker steers in South Dakota is $16/cwt. Adding that value to the 2014 feeder steer planning price of $166/cwt. produces a stocker steer planning price of $182/cwt.

Figure 1: Steer/Heifer Prices



Basis adjustments can also be used to estimate feeder and stocker heifer prices. The 5-year average basis for stocker heifers is $13/cwt. under the stocker steer price. Subtracting $13 from the stocker steer planning price of $182 gives a stocker heifer planning price of $169. Similarly, the 5-year average basis for feeder heifers is $9/cwt. under the feeder steer price. Subtracting $9 from the feeder steer forecast price of $166 produces a feeder heifer planning price of $157.

Other Livestock and Dairy

The swine, lamb and dairy markets all pose challenges when trying to obtain South Dakota planning prices.

The WASDE report has quarterly and annual price forecasts for the hog market. It is a barrow and gilt price on a live weight basis. FAPRI has a similar forecast. A live price can be divided by 0.75 to obtain a lean-equivalent forecast. The WASDE price for 2014 live hogs is $60. This price divided by 0.75 is $80, a 5% change from 2013. Futures prices for lean hogs are also actively traded and the average of the 2014 contract prices provides a market expectation of hog prices.

The ERS has a quarterly forecast of slaughter lamb prices. However, the reference price is for San Angelo, Texas. The price for 2014 is $98 per cwt., or alternatively, a 0.5% change from 2013.

The WASDE and FAPRI also issue forecast several prices for milk. Using the WASDE forecast price for Class III milk in 2014 is $18.70 per cwt., or a -4% change from 2013. Futures prices for Class III milk are available and the average of the 2014 contract prices provides a market expectation of milk prices.

2014 South Dakota Planning Prices

Bringing the various sources together on October 29, 2013 gives a complete set of planning prices for 2014 (Table 4). The planning prices are either the adjusted forecasts or an average of the adjusted forecasts and the adjusted futures prices, rounded slightly.

Table 4. 2014 Planning Prices as of 10/29/13

Commodity	Price
Corn (bu.)*	$4.10
Soybeans (bu.)*	$10.20
Spring Wheat (bu.)*	$6.60
Winter Wheat (bu.)*	$6.20
Feed Barley (bu.)	$3.70
Oats (bu.)	$2.50
Sorghum (cwt.)	$6.60
Millet (cwt.)	$4.50
Hay (ton)	$114.00
Sunflowers (cwt.)*	$20.00
Stocker Steer (cwt.)	$182.00
Stocker Heifer (cwt.)	$169.00
Feeder Steer (cwt.)*	$166.00
Feeder Heifer (cwt.)	$157.00
Fed Steer (cwt.)*	$131.00
Fed Heifer (cwt.)*	$131.00
Lean Hog (cwt.)*	$87.00
Slaughter Lamb (cwt.)	$98.00
Grade A Milk (cwt.)*	$16.90

* Denotes a futures component for the commodity

Summary and Conclusion

This report outlines methods to obtain planning prices for South Dakota commodities. Adjustment factors are presented for U.S. and other price forecasts. Basis adjustments are also suggested for many of the futures prices. The planning prices can thus be updated as fundamental and market information changes. For example, one could also use forecasts from the Livestock Marketing Information Center (LMIC) or the *USDA Agricultural Projections to 2022*.

The methods shown are not the only ways to derive planning prices. Forecasting models could be developed for all of the prices at the state or local level. Subjective adjustments could be made to the models and forecasts. It is also a good practice to see if the various prices are internally consistent. For example, one could determine if the feeder cattle price seems reasonable given the planning prices for corn and fed cattle.

References

FAPRI. (August 2013). *August 2013 Baseline Update for U.S. Agricultural Markets.* FAPRI-MU Report 04-13.

ERS. (September 18, 2013). *Livestock, Dairy, and Poultry Oulook.* LDP-M-231.

USDA. (September 12, 2013). *World Agricultural Supply and Demand Estimates.* WASDE-522.

****

ECONOMICS COMMENTATOR

****

Department of Economics
South Dakota State University Phone: 605-688-4141
Box 504 Scobey Hall Fax: 605-688-6386
Brookings, SD 57007-0895 E-Mail:Penny_Stover@ sdstate.edu

50 copies of this newsletter were produced at a cost of less than $100

SOUTH DAKOTA STATE UNIVERSITY
Economics Department
Box 504
Brookings, SD 57007-0895

Change Service Requested