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An Economic Overview of Ethanol Co-Product Utilization in Nebraska

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Summary

To better understand co-product utilization, inclusion rates, pricing and storage strategies, Nebraska cattle producers were surveyed regarding their co-product feeding and pricing practices. Although nearly 91% of cattle on feed in Nebraska were being fed ethanol co-products in 2007, many types of co-products were being utilized from both ethanol plants in Nebraska and surrounding states. As illustrated by the price data collected, especially those for wet distillers grains plus solubles, opportunities existed for pricing and storage strategies, although more price variation was present in the data collected from the survey as compared to the prices reported by the Agricultural Marketing Service.

Introduction

The variability in co-product prices over time and across markets suggests changing fundamental supply and demand factors are influencing prices. USDA Agricultural Marketing Service (AMS) reports daily average cash prices and a range of prices across multiple plants. Prices paid for co-products by individual cattle producers may vary substantially from these averages depending upon quantities purchased, contract pricing and other factors. One objective of this study was to collect price data from producers and compare the data to AMS prices based on ethanol plant reported prices. Another objective was to collect data on ethanol co-product pricing and storage strategies, co-product inclusion levels in feedlot rations and the percentage of operations utilizing co-products, as well as several other ethanol co-product issues relevant to Nebraska cattle feeders.

Procedure

In February 2008, 1,370 Nebraska cattle feeders and ranchers were surveyed to solicit information about their co-product use and views on feeding and contracting co-products. In addition to distributing surveys to attendees of the 2008 UNL Beef Feedlot Roundtable meetings (n = 87), surveys also were mailed to individuals on the mailing list for the UNL Beef Feedlot Roundtable meetings (n = 399) and the Nebraska Cattlemen Farmer/Stockman and Feedlot Councils (n = 886). Operations listed in the cattle feeder list published by the Ag Promotion and Development Division of the Nebraska Department of Agriculture (n = 36; revised October 2003) and the 2008 Beef Spotter (n = 15) that were not included in the Feedlot Roundtable mailing list also were mailed surveys. Lists were cross-referenced, so the response rate could be calculated using the number of unique individuals surveyed.

Several issues were addressed in the survey, including a general description of the operation, the operation's use of ethanol co-products in feedlot rations, cattle performance in response to feeding co-products and co-product storage and pricing strategies. Individuals also were asked to complete a co-product information sheet for each type of co-product purchased in 2007. If the co-product was purchased from more than one plant, a separate information sheet was completed for each plant. The co-product information sheet included the type, amount and price of the co-product purchased, as well as the location of co-product origination and producer satisfaction regarding several co-product characteristics (e.g., co-product consistency, guaranteed nutrient analysis). All data collected from the survey are for 2007 purchases and feeding use.

Results

From the 1,370 surveys distributed to Nebraska cattle feeders and ranchers, 251 surveys were returned, yielding an 18.3% survey response rate. In order to have an understanding of the type of operations surveyed, general information was collected regarding feedlot size and composition. Of the respondents, the average one-time capacity and current number of cattle on feed were 5,760 head and 4,764 head, respectively (includes feedlots fewer than 100 head to more than 100,000 head). Of the total number of cattle on feed, 49.8% were owned by the feedlots, while 50.2% of cattle on feed were custom fed. Of the total number of cattle custom fed, 48.3% were owned by Nebraska investors, whereas 51.7% were owned by out-of-state investors.

While 59.4% of all cattle operations surveyed included ethanol co-products in feedlot rations, 87.0% of operations with a one-time capacity of more than 1,000 head reported utilizing co-products in rations. As a result, 91.2% of Nebraska cattle on feed represented in this survey were being fed co-products as a component of their ration in 2007. Operations reported purchasing wet distillers grains plus solubles (WDGS) most often for use in their feedlot rations, followed by modified wet distillers grains plus solubles (MWDGS), Sweet Bran® and wet corn gluten feed (WCGF). Furthermore, according to survey results, approximately 11.9% of total ethanol co-products utilized in Nebraska feedlot rations in 2007 were imported from surrounding states, with 82.6% of the co-product being imported from Iowa, followed

by Missouri, South Dakota, Kansas, Colorado and Wyoming.

Information regarding cattle performance also was obtained. Seventy-five percent of survey respondents reported that cattle performance (e.g., average daily gain [ADG], feed-to-gain ratio [F:G]) improved when cattle were fed rations containing ethanol co-products compared to rations without co-products. Only 1.9% stated that performance worsened, while 23.6% stated cattle had no change in ADG or F:G when fed ethanol co-products. In addition to cattle performance, respondents were asked to rank their level of agreement (strongly agree, agree, neutral, disagree or strongly disagree) with four statements regarding ethanol co-product characteristics (i.e., co-product consistency, guaranteed nutrient analysis, DM consistency). The statements and average survey responses are shown in Table 1.

Ethanol co-product pricing strategies also were surveyed, and most co-product was priced in 2007 using some sort of contract that was accompanied with a fixed price for the duration of the contract (Table 2). The largest proportion of respondents (54.3%) stated that their typical contract length was 12 months. Additionally, 43.4% of respondents stated they were required to take delivery of a minimum quantity of co-product each week. Of those who reported a minimum delivery requirement, the median minimum delivery was reported as 105.0 tons (approximately four to five semi-loads) per week. (The average minimum delivery requirement was 309.2 tons [approximately 12 semi-loads] per week although this average is relative to a non-normal distribution of data.) Furthermore, 38.4% of the co-product purchased was priced FOB plant while the remaining 61.6% was priced FOB feedlot. Survey responses that did not state whether the co-product was priced FOB plant or FOB feedlot were omitted from all price data analysis (Figures 1 and 2). All price data reported FOB feedlot were adjusted to FOB plant using an assumed mileage charge of $3.50 per loaded mile and an assumed 25 tons of co-product per load. Transportation costs then were calculated by multiplying the number of miles the feedlot is located from the ethanol plant (as reported by survey respondents) by the mileage charge and dividing by the assumed tons of co-product per load. The average calculated transportation cost was $9.70/ton.

Survey respondents also were asked to record the price paid for every type of ethanol co-product purchased each month of 2007. Figure 1 shows the average price paid (FOB plant) for WDGS, MWDGS and corn on a DM basis. On average, WDGS was priced

(Continued on next page)

Table 1. Producer satisfaction regarding ethanol co-product characteristics.

	% Strongly Agree	% Agree	% Neutral	% Disagree	% Strongly Disagree
The consistency of the product from load to load is satisfactory.	25.12	50.24	15.46	6.76	2.42
I am willing to purchase and use this product again.	39.13	51.21	7.73	0.97	0.97
This product has a guaranteed nutrient analysis.	18.41	42.79	28.86	5.97	3.98
This product has a consistent DM.	21.46	42.44	22.44	11.71	1.95

Table 2. Co-product pricing methods.

	Percent of Respondents[1]
Negotiated each month	5.71
According to the corn price	24.29
Contracted (price is fixed for entire contract)	76.19
Negotiated each load (no contract)	6.67
Other	0.48

[1]Percentages will not total 100 due to the ability of respondents to select multiple answers.

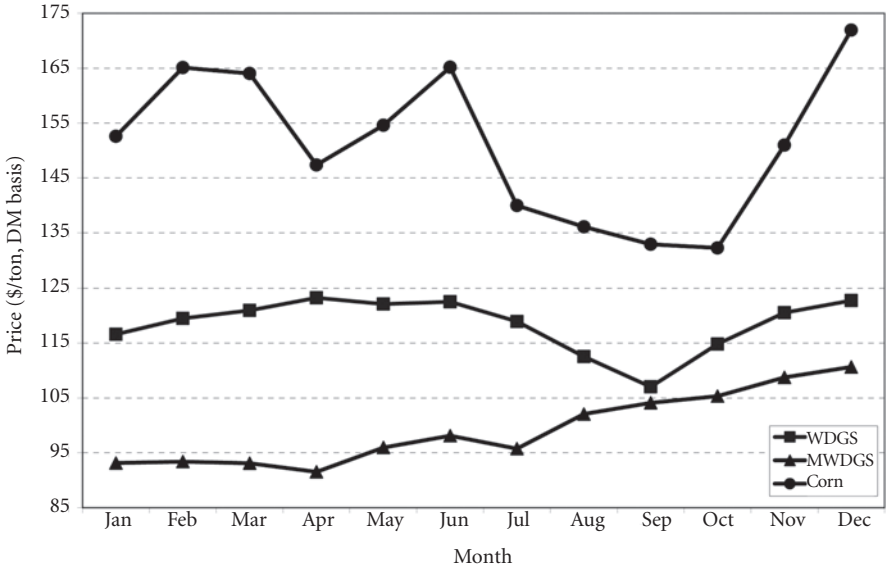

Figure 1. Average WDGS and MWDGS prices paid by producers, FOB plant, and ethanol plant average corn price, dry matter basis, Nebraska, 2007. Corn price from LMIC and USDA AMS (Nebraska Ethanol Plant Report).

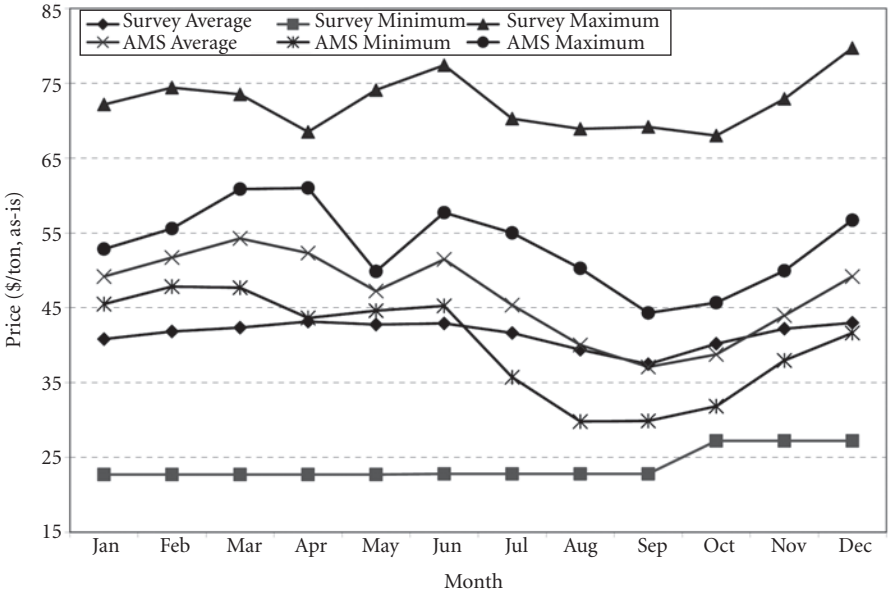

Figure 2. WDGS prices paid by Nebraska producers and reported by AMS, as-is basis, FOB plant, 2007.

(FOB plant) at 78.8% the price of corn, while MWDGS was priced (FOB plant) at 66.3% the price of corn on a DM basis. The large price differential between WDGS and MWDGS for the majority of 2007 may partially be due to the difference in WDGS demand relative to MWDGS during that time period, as only a few Nebraska ethanol plants were marketing MWDGS in 2007. Additionally, the lack of understanding regarding the moisture content of the two co-products may be driving producers to pay more for WDGS than MWDGS on a DM basis. Although MWDGS price tended to increase steadily throughout 2007, WDGS showed a seasonal price trend with lower prices in the summer (and the opportunity for co-product storage). The seasonal low in WDGS price during the late summer months supports the seasonal price trend that has been illustrated by WDGS prices reported by USDA AMS (Figure 2). Although the average survey price is slightly lower compared to that reported by AMS, the minimum and maximum survey prices are nearly $20/ton (as-is) different from the AMS minimum and maximum prices. Prices reported by AMS are multiple plant averages, so some variability in co-product price may be masked as producers are purchasing or contracting co-product above and below the price data reported by AMS. Because of this, it is important for producers to contact ethanol plants or co-product merchandisers when forecasting or estimating co-product prices.

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