FM 560
8/79

HOW MUCH IS A FEED WORTH?

Valuing Feedstuffs On The TDN And Crude Protein In Corn And Soybean Meal

by
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There are several methods used to value various feedstuffs based on the value of crude protein (CP) and total digestible nutrients (TDN) in corn and soybean meal. One alternative is to use a method of simultaneous equations to solve this problem. This method most accurately indicates the value of TDN and CP in corn and soybean meal when considered together. The method outlined below is based on corn with 86% dry matter (DM), 81% TDN (as fed), and 8.9% CP (as fed); and soybean meal with 89% DM, 72% TDN (as fed), and 44% CP (as fed).

Current prices in dollars/cwt. for soybean meal and in dollars/bushel for corn are used in equation A. The dollars/bushel for corn and the solution to equation A are used in equation B.

$$\text{(A)}\quad \frac{\text{\$/cwt. for CP dry matter}}{} = \frac{(1.1236 \times \boxed{\text{\$/cwt. SBM}}) - (1.7836 \times \boxed{\text{\$/bu. corn}})}{.4055}$$

$$\text{(B)}\quad \frac{\text{\$/cwt. for TDN dry matter}}{} = \left(\frac{\boxed{\text{\$/bu. corn}}}{.4536}\right) - (.1099 \times \boxed{\text{\$/cwt. for CP DM}})$$

Equations C through G can be used for the feedstuffs you wish to value based on the corn and SBM price used in equations A and B. For the feedstuff you need the percent of TDN as fed, percent CP as fed, and the number of pounds in the unit you wish to consider.

$$\text{(C)}\quad \frac{\text{Amount of TDN DM in feedstuff}}{} = \frac{\boxed{\text{\% TDN as fed}} \times \boxed{\text{lb./unit}}}{100}$$

$$\text{(D)}\quad \frac{\text{Amount of CP DM in feedstuff}}{} = \frac{\boxed{\text{\% CP as fed}} \times \boxed{\text{lb. /unit}}}{100}$$

$$\text{(E)}\quad \frac{\text{Value of TDN DM in feedstuff}}{} = \frac{\boxed{\text{\$/cwt. TDN DM (B)}} \times \boxed{\text{amt. of TDN DM in feedstuff (C)}}}{100}$$

$$\text{(F)}\quad \frac{\text{Value of CP DM in feedstuff}}{} = \frac{\boxed{\text{\$/cwt. CP DM (A)}} \times \boxed{\text{amt. of TDN DM in feedstuff (D)}}}{100}$$

$$\text{(G)}\quad \frac{\text{Value of the feedstuff}}{} = \boxed{\text{value of TDN DM (E)}} + \boxed{\text{value of CP DM (F)}}$$

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Several limitations must be kept in mind when using this formula to value feeds. First, it gives you a "laid-in-the-manger" competitive price in relation to two common concentrate feeds. Therefore when considering bulky feeds (e.g. silage or hay) that have higher storage and handling costs, these higher costs must be deducted from this value before arriving at a "maximum bid price" for the feed.

Second, if no extra protein is needed--such as in a beef cow ration where a few pounds of quality legume hay are being fed--this method overstates the maximum value for that feed. The feed value should be estimated on the basis of the cost of an equivalent amount of TDN in corn or another lower priced concentrate feed in the area (e.g. barley in northwestern Minnesota).

Third, values for several different feeds should be calculated in order to determine the "best buy"--that is, to find out which one is the most underpriced relative to the common competitive energy source (corn) and the common protein source (SBOM).

These calculations can be made by the computer decision aid FEEDVAL. Some example output for several feeds is shown below at different corn and SBOM prices.

LAID-IN-MANGER
FEED VALUE RELATIVE TO CORN
SBM:$ 12.00 /CWT.

		AS FED BASIS			SBM AT $ 12.00 /CWT		PROTEIN NOT VALUED	
					CORN PRICE		CORN PRICE	
FEED		D.M. %	TDN %	CRUDE PROT %	$ 2.25	$ 2.50	$ 2.25	$ 2.50
CORN GRAIN #2	BU	86.0	81.0	8.9	2.25	2.50	2.25	2.50
CORN GRAIN WET	BU	75.0	70.6	7.5	1.93	2.15	1.96	2.18
EAR CORN DRY	CWT	86.1	73.2	7.5	3.50	3.91	3.63	4.03
EAR CORN SOFT	CWT	64.3	51.9	5.6	2.55	2.84	2.57	2.86
OATS AVERAGE	BU	90.2	70.1	12.1	1.44	1.55	1.11	1.24
OATS LIGHT	BU	91.3	60.1	12.1	1.36	1.45	.95	1.06
BARLEY COMMON	BU	89.4	77.7	12.1	2.25	2.44	1.85	2.06
BARLEY LIGHT WT.	BU	89.1	69.0	10.3	1.95	2.12	1.64	1.83
WHEAT 16 PCT.	BU	90.0	80.7	16.0	3.40	3.62	2.40	2.67
WHEAT 14 PCT.	BU	90.0	80.5	14.0	3.12	3.35	2.40	2.66
WHEAT SCREENINGS	CWT	90.4	68.7	15.0	5.15	5.44	3.41	3.79
SCREENINGS POOR	CWT	88.0	44.0	11.4	3.72	3.89	2.18	2.43
BEET PULP	CWT	88.0	63.4	9.0	3.62	3.95	3.14	3.49
CORN SILAGE GOOD	TON	32.0	22.0	2.6	22.68	25.06	21.83	24.25
CORN SIL. STUNTED	TON	30.0	16.5	2.3	18.64	20.36	16.37	18.19
CORN STOVER DRY	TON	87.0	43.5	5.2	45.12	49.82	43.15	47.95
CORN COBS	TON	90.4	45.7	2.3	32.63	38.26	45.34	50.37
ALF PELLETS 17 PER	TON	93.1	56.8	17.4	108.47	112.28	56.35	62.61
ALFALFA 1/10 BLOOM	TON	90.6	53.5	16.6	103.15	106.69	53.08	58.97
ALFALFA FULL BLOOM	TON	90.4	47.0	14.0	87.90	91.13	46.63	51.81
ALF.1/2 GRASS 1/2	TON	90.5	50.7	11.8	79.39	83.61	50.30	55.89
STRAW OATS	TON	89.7	44.9	3.9	39.72	44.89	44.54	49.49
STRAW WHEAT	TON	91.0	40.0	3.2	34.10	38.77	39.68	44.09
TIMOTHY HAY	TON	89.0	41.8	7.5	55.05	59.01	41.47	46.08
BROMEGRASS EARLY	TON	89.0	46.7	12.5	80.56	84.10	46.33	51.48
ALF. HAYLAGE GOOD	TON	40.0	21.0	6.8	41.82	43.14	20.83	23.15
ALF. HAYLAGE AVG.	TON	40.0	21.2	5.6	36.31	37.93	21.03	23.37