How to Account for Differences in Moisture Content in Commodities

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One of the frequent questions I receive at the extension office involves converting the weight of a product at one moisture content to what it would weigh at a different moisture content.

Example 1: A corn producer has delivered a semi load of corn at 16.7% moisture to a cattle feedlot The net weight of corn is 33,420 pounds. The cattle feeder has agreed to take only a moisture shrink to 15.5%, but no drying shrink since this corn will be steamed and flaked before feeding. How many bushels should the corn producer be paid for?

Converting the weight from one moisture content to another requires a two-step mathematical process.

Step 1. Calculate the pounds of dry matter (weight at 0% moisture) of the original product.

From the moisture meter reading, we know 16.7% of the weight of the corn is water.

Stated differently, we know 100% - 16.7% = 83.3% of the corn delivered is dry matter.

To calculate the pounds of corn dry matter on the truck, multiply the net pounds of product by the percentage dry matter in the product. 33,420 x 0.833 = 27,839 pounds of dry matter.

Step 2. A standard bushel of #2 corn weighs 56 pounds at 15.5% moisture. Calculate the pounds of corn at standard moisture content (15.5% moisture).

Corn at 15.5% moisture content has: 100% - 15.5% moisture = 84.5% dry matter.

By dividing the pounds of dry matter from Step 1 by the dry matter content of standard corn, we can compute how much this load of corn would weigh at standard moisture.

27,839 pounds dry matter ÷ 0.845 dry matter = 32,945 pounds of corn at 15.5% moisture.

The producer should be paid for 32,945 pounds ÷ 56 pounds per bushel = 588.3 bushels.

Example 2: The elevator will pay for soybeans up to 13% moisture based on 60 pounds per bushel but will impose a moisture dock over 13%.

Lets look at case of a producer whose soybeans dried down so rapidly, one 125 acre field of soybeans tested 9% moisture when delivered to the elevator. The total weight of soybeans delivered from this field was 386,250 pounds, so the farmer was paid for 386,250 pounds ÷ 60 pounds per bushel = 6,437.5 bushels. At $9.66 per bushel, how much less money did this farmer receive compared to what they would have been paid had they been able to harvest this field at 13% moisture?

Step 1. 9% of the weight of the soybeans was water. The dry matter delivered was 100% - 9% = 0.91 x 386,250 pounds = 351,488 pounds of dry matter.

Step 2. If the beans had been 13% moisture, (100% - 13% = 87% dry matter), the weight delivered would have been 351,488 pounds of dry matter ÷ 0.87 = 404,009 pounds of soybeans.

If the beans would have been 13% moisture, the producer would have been paid for 404,009 pounds ÷ 60 pounds per bushel = 6,733.5 bushels.

The monetary loss on this field resulting from delivering 9% moisture soybeans instead of 13% moisture soybeans was 6,733.5 - 6,437.5 bushels = 296 bushels x $9.66 per bushel = $2,859.

Example 3: Tom and Bill both have hay for sale.

Tom has freshly-baled hay at 21% moisture which he has priced at $90 per ton.

Bill allowed his hay to dry more in the windrow before baling. This hay is 14% moisture. He is asking $95 per ton.

Assuming both products have the same nutrient content analysis on a dry-matter basis, whose hay is the better buy?

Step 1. Tom's hay is 100% - 21% moisture = 79% dry matter. A ton of this hay has 2,000 pounds per ton x 0.79 = 1,580 pounds of dry matter per ton.

Step 2. Each ton Tom's hay if converted to 14% moisture (86% dry matter) like Bill's hay, would weigh 1,580 pounds ÷ 0.86 = 1,837 pounds (163 pounds less than Bill's hay at the same moisture content).

The price per ton of Tom's hay, if corrected to 14% moisture, is actually (2,000 ÷ 1,837) x $90 = $98 per ton

On an equal moisture content basis, we find Bill's hay at $95 per ton is a slightly better bargain than Tom's hay at $90 per ton.

WINNING THE GAME™

Marketing Workshop, Feb. 27

University of Nebraska–Lincoln Extension will present a "Winning the Game" Marketing Workshop Friday, Feb. 27 at Horizon Bank, 10841 N. 142 St., Waverly (north side of the tracks). Enter from the west side of the bank and go to the basement. Registration and refreshments begin at 8:15 a.m. The workshop will start promptly at 8:30 a.m. and will conclude by noon.

There is no registration fee because Horizon Bank and the Nebraska Soybean Board is sponsoring the workshop. You do not need to be a Horizon Bank customer to attend.

Have you ever written a concise and practical marketing plan? During this workshop, producers will:

- Learn about the seasonal price trends in grain.
- Examine the key elements of a solid marketing plan.
- Learn about the role of crop insurance, target dates, target prices and "trump cards" in a marketing plan.
- Test their market planning skills using a marketing game with actual daily market prices from a year in the recent past.

This is one of 35 Winning the Game workshops slated across Nebraska in 2009.

Controlling Winter Annual Brome with Herbicides

Downy brome

Photos by Tom Dorn, UNL Extension in Lancaster County

Japanese brome

Early weeds like downy brome, cheatgrass and wild oats can be a big problem in pastures. They reduce pasture quality and carrying capacity.

Warm-Season Pastures

In pastures dominated by warm-season grasses, one control option is to spray one pint of glyphosate, like Roundup®, per acre as soon as weedy bromes start to green up in the spring but before warm-season grasses start growing. This will kill most of the downy brome and will knock out other early weeds like bluegrass without harming warm-season grasses.

Another option is to use 4–6 ounces of Plateau herbicide, which will also provide some residual herbicide activity for later-emerging weeds as well.

Cool-Season Pastures

Weed control in cool-season grass pastures is tougher. Both glyphosate and Plateau harm cool-season grasses. Gramoxone is a better choice, but don't spray until the weedy bromes are about to form seed heads. Gramoxone will kill all the green top growth it contacts, including weedy bromes. This will eliminate them producing seed this year and your intended grass will start to regrow in two to three weeks.

The seed of these grasses can last several years in the soil, which means you should plan to repeat these treatments for several years. Once you've gotten rid of the weeds, be sure to graze the pasture to maintain the vigor and competitiveness of the desired grasses.

Source: Bruce Anderson, Extension Forage Specialist

Master Conservationist Entries Due April 1

Nebraska adults and youth in both rural and urban areas who have implemented soil and water conservation practices are eligible to enter the 2009 Master Conservationist Recognition program. The deadline for entries is April 1. There are categories for youth groups and individuals, residences, communities and private businesses as well as production agriculture (farming and ranching). Master Conservationist program brochures are available at the UNL Extension office and online at http://owh.com (click on the "In the Community" link).