



SheepSense

an applied research brief

Evaluating Distiller's Grains: Nutritional Value and Cost Efficiency in Lamb Diets

Summary

Sourcing feedstuffs that are both high quality and cost-effective is critical to the success of any feeding operation. Lambs being fed for slaughter require a diet high in energy and protein to support bone and muscle growth. Dried distiller's grains (DDGs), a byproduct of the ethanol industry, have been successfully used in formulating rations for feeder lambs. The following brief includes considerations for using DDGs in lamb rations.

Nutrient Profile

Dried distiller's grains (DDGs) are commonly a byproduct of corn ethanol production, but other grains such as wheat can be used as well. Coming in at 94 percent dry matter (DM), DDGs provide 12 percent crude fiber (CF), 43 percent neutral detergent fiber (NDF), and 17 percent acid detergent fiber (ADF). On a dry-matter basis, DDGs contain around 23 percent crude protein (CP), and are rated at 87 percent total digestible nutrients (TDN). Due to the higher phosphorous and sulfur content of DDGs, the use of these products can lead to conditions like urinary calculi and polioencephalomalacia (PEM)

in sheep if not properly balanced with other ingredients in the ration, namely calcium. To avoid these issues, the calcium-phosphorous ratio should be 2:1 and total sulfur content of the diet (including water sources) should not exceed 0.4%.^{1,2}

Color variation of dried distillers grain with solubles.



Quadros, D.G. San Angelo, TX, 2019.



Quadros, D.G. Champaign Urbana, IL, 2014.

Cost per Pound of Nutrient

Feed and transportation costs are perhaps the two biggest considerations for an affordable ration formulation. It is often helpful to calculate and compare the cost of a certain feed ingredient based on its nutrient content. Since protein is often the limiting factor in high-quality diets, it is often chosen as the basis for decision making. The delivered price for a feed, which includes the cost of feed and transportation, should be used for the greatest accuracy.

First, determine the weight of dry matter in the feed. Most feeds contain some water, even if it is minimal. Second, multiply the amount of dry matter by the percentage of protein in decimal form. Next, divide the delivered cost per ton by the weight of protein per ton. This will give the price per pound of protein for the feed.

Example: Wet vs. Dried Distillers Grains

A ton (2000#) of DDGs with 94 percent DM, will only contain 1880# DM.

If that 1880# DM is 23 percent protein, then one ton would contain 432 pounds of protein. Assuming the delivered cost is \$400/ton, the price per pound of protein would be \$0.93/pound.

A ton of wet distiller's grains (WDGs) might contain only 65 percent, or 1,300# DM. If the protein content is the same as above, a ton of wet distiller's grains will only contain 299# of protein. If it could be delivered for \$250/ton, the price per pound of protein is \$0.84/pound.

Take Action

Dried distiller's grains (DDGs) are a high-protein, high-energy feed option for lambs but must be balanced carefully due to high phosphorus and sulfur levels. Calculating the cost per pound of protein on a dry matter basis—using delivered prices—helps determine feed value. Though wet distiller's grains (WDGs) may be cheaper, they spoil faster. In Wyoming, transport costs can limit use, but DDGs remain a valuable nutrient source when managed correctly.

KEY TAKEAWAYS:

- Dried distiller's grains are a good source of protein and energy. Elevated phosphorus and sulfur in DDGs require careful balancing with other nutrients in the diet.
- Determine the cost per pound of nutrient on a dry matter (DM) basis.
- When comparing the cost of feeds, use the delivered price, accounting for the cost of feed, hauling, and different feeding methods.



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Sources:

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