

## Comparative Pricing of Wet Byproducts

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**Question:** I can purchase dry corn gluten feed for \$115/ton. What is wet corn gluten feed worth relative to the price I can pay for the dried product?

**Note:** All equations shown use the cancellation of units to arrive at the answer with the correct units.

**Step A:** The price value of wet corn gluten feed (CGF) needs to be reduced to account for the amount of water contained in the feed compared to dry corn gluten feed.

**Assumptions** Wet CGF contains 40% dry matter (DM) or 60% moisture.  
**for Step A:** Dry CGF contains 90% dry matter (DM) or 10% moisture.

**Part 1:** Convert price per ton of dry CGF as fed to price per ton of dry CGF dry matter (DM).

$$\left( \frac{\$115}{2000 \text{ lbs dry CGF as fed}} \right) \left( \frac{100 \text{ lbs dry CGF as fed}}{90 \text{ lbs dry CGF DM}} \right) \left( \frac{2000 \text{ lbs DM of dry CGF}}{1 \text{ ton DM dry CGF}} \right) = \$128/\text{Ton DM of dry CGF}$$

**Part 2:** Convert price per ton of dry CGF dry matter to price per ton of wet CGF as fed. **Result: Cost per ton of wet CGF delivered.**

$$\left( \frac{\$128}{2000 \text{ lbs DM}} \right) \left( \frac{40 \text{ lbs dry CGF DM}}{100 \text{ lbs wet CGF as fed}} \right) \left( \frac{2000 \text{ lbs wet CGF as fed}}{1 \text{ ton wet CGF as fed}} \right) = \$51/\text{Ton wet CGF}$$

**Step B:** The percentage of shrink refers to the percentage of the by-product which is lost between when the feed is delivered to the farm and when it is fed to the cows. Losses due to shrink must be accounted for when calculating a value. These losses come from losses due to drying (evaporation of water in the by-product), spoilage, spilled feed, rodents and birds and other losses on farm. With wet by-products these losses can be substantial.

**Assumptions for Step B:** Losses in a feed bin for dry CGF are approximately 5% as compared to 15 to 40% losses of wet feeds stored covered or uncovered. In this example, I have assumed a shrink of 30% for wet CGF.

**Part 1.** Calculate value of a pound of wet CGF delivered to the farm.

$$\left( \frac{\$51}{2000 \text{ lbs wet CGF as fed}} \right) = \$0.0255 / \text{lb wet CGF delivered to the farm}$$

**Part 2.** Calculate the value of the 30% shrink losses with wet CGF compared to 5% shrink loss with dry CGF - An additional 500 lbs of wet CGF per ton is lost compared to dry CGF.

Dry CGF - 100 lbs/DM lost on farm due to shrink.  
Wet CGF - 600 lbs/DM lost on farm due to shrink.

Therefore: an additional 500lbs/ton delivered is lost with wet CGF is fed compared to dry CGF is fed

$$(\$0.0255/\text{lb wet CGF delivered to the farm}) \times (500 \text{ lbs/ton delivered}) = \$12.75 \text{ lost/ton delivered}$$

**Part 3.** Subtract the value of the shrink losses from the price value of wet CGF calculated in Step 1, Part 2.

**RESULT: Value of Wet CGF**

$$\left( \frac{\$51}{\text{Ton delivered}} \right) - \left( \frac{\$13}{\text{Ton delivered}} \right) = \$38 / \text{Ton wet CGF delivered}$$

Thus, if wet corn gluten feed could be purchased for less than \$38/ton delivered to the farm, it would be more economical than dry corn gluten feed priced at \$115/ton.

(When by-products are properly dried, the amount of undegradable or bypass protein generally increases. These calculations do not take this into account.)