Corn Gluten Feed for Beef Cattle

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The domestic processing of corn to produce high-fructose corn syrup has made available an increasing amount of corn gluten feed. In many locations in Virginia, corn gluten feed is one of the few and most economical by-product or co-product feeds available. Used correctly, corn gluten feed is an excellent supplement for forage based programs. Corn gluten feed is produced from the wet milling of corn. The corn is soaked in sulfurous acid. The resulting steep liquor contains protein, minerals, vitamins and energy sources. The oil and starch are extracted from the swollen kernel. The remaining fiber (bran) is then mixed with the steep liquor to create wet corn gluten feed. The amount of steep liquor inclusion affects both the color and nutrient content of the final product. The wet corn gluten feed can then be dried from 40% dry matter to 90% to create the dry product which is most commonly available across the state.

Dry corn gluten feed contains about 90% of the energy and twice the amount of protein found in corn grain. As such, it is a good source of both in beef cattle diets. The low starch, high fiber content of the feed makes it an outstanding compliment to forage.

	Dairy One[b]		
Item	**Average [a]**	**Range**	**NRC 2000[c]**
Dry matter, %	90.0	86.2 – 92.1	90
Crude protein, %	24.0	16.3 – 31.7	23.8
Crude fat, %	4.0	2.3 – 5.6	3.9
Crude fiber, %	8.7	5.6 – 11.8	7.5
TDN[d], %	73.1	70.2 – 76.0	80
Phosphorus, %	1.07	0.83 – 1.32	0.95
Potassium, %	1.50	1.09 – 1.91	1.4
Calcium, %	0.11	0.00 – 0.31	0.07
Magnesium, %	0.42	0.32 – 0.53	0.4
Sodium, %	0.29	0.02 – 0.55	0.25
Sulfur, %	0.50	0.33 – 0.72	0.47
Copper, ppm	6.2	0.0 – 20.5	7.0

[a]Dry matter basis.
[b]Dairy One Forage Laboratory accumulated data 5/1/2000 – 4/30/2009 (Note that TDN value given tends to be about 10% lower than other labs).
[c]National Research Council.
[d]Total digestible nutrients.

There are a few cautions that need to be considered in feeding corn gluten feed. Its sulfur content is high due to the added sulfur of the wet milling process and exceeds beef cattle's requirement. Feeding corn gluten in high levels or free choice can potentially negatively affect

the nervous system and increase the risk of copper deficiency. Phosphorous concentration also far exceeds cattle's requirement. The low concentration of calcium further compounds the issue. When feeding gluten feed over 1% of body weight or for an extended period of time, free-choice mineral mixes should be high in calcium and low in phosphorous.

Corn gluten feed is a widely used, economical feed available to cattlemen. In many forage based programs its energy value is equal to corn. However, be aware of the cautions when feeding it at high levels.