

The unique feature of CGF is its relatively high fiber fraction. The large spread between ADF and NDF indicates the fiber is largely hemicellulose. Since hemicellulose is fairly digestible, little effective fiber is contributed to the ration by either WCGF or DCGF. CGF will elevate ration NDF values, but CGF fiber generally will only moderately enhance rumen pH or fat test.

CGF is often confused with corn gluten meal as high in bypass protein, but CGF actually has a highly degradable protein fraction. Diets containing high amounts of corn and corn by-products may be limiting in key amino acids, particularly lysine.

PROCESSING, HANDLING, AND STORAGE

DCGF is available as flakes or pellets. While nutritionally identical, the denser pellets offer reduced transportation cost. Pellet hardness will vary substantially, depending on the binding agent used in processing.

WCGF should be fed within 10 to 14 days if stored in uncovered piles. After 10 to 14 days, WCGF is prone to mold and undesirable fermentation patterns, and accumulation of acetic acid and related fermentation products may reduce dry matter intake.

Plastic storage bags can extend the feed life of WCGF to 30 to 40 days. Attempts to ensile WCGF have met with limited success. It can be ensiled with forage (1:2

- ratio), but handling and mixing are labor
- intensive. WCGF usually plugs blower pipes
- when ensiled alone, making the process
- infeasible in tower silos. Mixing and ensiling
- with forage may be feasible in horizontal silos.
- WCGF is best fed in total mixed
- rations, but can be fed as a single ingredient.

FEEDING RECOMMENDATIONS

■ Research

- University of Wisconsin
- researchers observed no differences in milk
- production, milk fat, or protein test when
- WCGF comprised 36% of the diet. WCGF
- also supported heifer growth at calculated
- levels. In a similar experiment, Colorado
- researchers found no differences in animal
- performance when WCGF replaced a hominy
- soybean mixture. In contrast, research at
- Illinois saw slight reductions in dry matter
- intake and milk production, especially when
- WCGF comprised 40% of diet dry matter.
- Ontario researchers compared
- WCGF and DCGF at 26% of diet dry matter
- as a replacement for corn and soybean meal
- (control diet). They found no significant
- differences in intake and milk production, but
- fat test was elevated by CGF incorporation
- (See Table 2).

Table 2.
— Comparison of WCGF and DCGF for lactating cattle —

ITEM	Control	26% WCGF	26% DCGF
Dry Matter Intake lbs/day	37.8	35.9	42.7
Milk lbs/day	57.2	53.5	59.0
4% FCM lbs/day	48.4	49.9	53.5
Milk Fat %	3.0	3.6	3.5
Milk Protein %	3.2	3.2	3.3

No research trials have challenged CGF to meet the nutrient demands of high producing cows in early lactation. However, many dairy farmers successfully feed high amounts of CGF to high-producing herds. Researchers speculate that WCGF or DCGF may not supply enough key amino acids for high producing cows, a problem that may be magnified on heavy corn silage diets.

■ Incorporation and Feeding

WCGF can be fed at up to 30% of dietary dry matter and can serve as the sole grain and supplemental protein source for dry cows, heifers older than 6 months, and late lactation cows. DCGF can replace 50% of the grain in the diet or 25 to 30% of the total dry matter and serve as the sole grain and protein source for these

livestock classes. Dairy managers have occasionally replaced 100% of the grain source with DCGF without negative effects.

When CGF replaces corn in diets marginal in effective fiber, fat test may improve slightly due to high fiber content and lower starch fraction.

Proper mineral supplementation is crucial when feeding CGF, which is low in calcium and high in phosphorus. Milking cow diets may require 4 to 5 ounces of calcium carbonate to meet calcium needs, while dry cow diets should not need additional calcium.

In addition, high phosphorus levels may increase the incidence of milk fever. Balance dry cow diets to provide fewer than 100 grams of calcium and 45 grams of phosphorus per day. CGF may not totally meet the protein needs of high producing, early lactation cows. Examine diets for crude protein and bypass protein when feeding large amounts of CGF.

ECONOMICS

Table 3 compares the relative value of wet or dry CGF to soybean oil meal and corn at various prices. Corn gluten feed is a good buy when priced lower than the values in the following table.

Table 3.
— Maximum value of WCGF and DCGF \$/ton(as fed) —

Corn \$/bu.	Soybean oil meal		\$/ton	
	WCGF	DCGF	WCGF	DCGF
1.75	56.0	112.0	64.0	129.0
2.25	62.0	124.0	70.0	141.0
2.75	68.0	136.0	76.0	153.0
3.25	74.0	148.0	82.0	165.0

CONCLUSION

Both dry and wet CGF are excellent sources of grain and protein for dairy cattle. Proper utilization requires balancing for minerals and evaluating fiber content and protein status. Evaluate CGF on price alone, as it will not improve production.

