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# Wet Corn Gluten Feed Levels for Steam-flaked Corn Based Finishing Diets

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Replacing steam-flaked corn with wet corn gluten feed in finishing diets had no effect on animal performance up to a level of 35%.

## Summary

*A finishing trial was conducted to evaluate level of wet corn gluten feed in steam-flaked corn based finishing diets. Feed efficiency and daily gain were similar among all levels (10, 20, 25, 30, and 35%, DM basis) of inclusion of Sweet Bran® wet corn gluten feed evaluated in this trial. These data indicate wet corn gluten feed is similar in energy content to steam-flaked corn based on animal performance.*

## Introduction

Feeding wet corn gluten feed (WCGF) in dry-rolled corn based diets to finishing cattle improves daily gain and feed intake while maintaining or improving feed efficiency. Based on previous work in commercial feedlots, the response when WCGF is used in steam-flaked corn diets has been different than when WCGF is fed in dry-rolled corn diets. Based on previous work at University of Nebraska (*2002 Nebraska Beef Report,* pp.68-71), the optimum level of WCGF is 20 to 30% (DM basis) for feed conversion in steam-flaked corn based finishing diets. The response to WCGF in commercial feedlot studies, suggested the optimum level may be lower, but few levels have been tested.

Defining the level of inclusion of WCGF in steam-flaked corn diets is important to optimizing animal performance. The objective of this research was to determine the optimum level of WCGF in steam-flaked corn finishing diets.

**Table 1. Finishing diet ingredient composition.**

| Ingredient[a], % DM | 0% | 10% | 20% | 25% | 30% | 35% |
|---|---|---|---|---|---|---|
| Steam-flaked corn | 81.5 | 71.5 | 61.5 | 56.5 | 51.5 | 46.5 |
| Wet corn gluten feed | — | 10.0 | 20.0 | 25.0 | 30.0 | 35.0 |
| Corn silage | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Tallow | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| Dry meal supplement | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |

## Procedure

One hundred ninety-two crossbred steer calves (658 lb) were stratified by weight and assigned randomly to 1 of 24 pens (8 steers/pen). Pens were assigned randomly to 1 of 6 treatments. Treatments were assigned based on six levels of Sweet Bran® wet corn gluten feed. Levels were 0, 10, 20, 25, 30, and 35% (DM basis) of wet corn gluten feed. All diets were formulated to contain a minimum of 14.0% crude protein, 0.70% calcium, 0.28% phosphorus, 0.60% potassium, 31 g/ton Rumensin, and 10 g/ton Tylan (DM basis; Table 1). Supplements were fed in two phases to supply UIP early in the finishing stage when calves may be deficient in MP. Phase 1, UIP was supplemented to calves using feather and blood meal (50:50) at 1% of the dietary DM. Phase 2, UIP was

**Table 2. Effect of WCGF level in steam-flaked corn based diets on animal performance and carcass characteristics.**

| | Treatments | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Item | 0% | 10% | 20% | 25% | 30% | 35% | SEM | P-Value |
| Days on feed | 151 | 151 | 151 | 151 | 151 | 151 | | |
| Initial wt., lb | 657 | 659 | 659 | 656 | 661 | 658 | 1 | 0.22 |
| Final wt., lb[a] | 1312 | 1321 | 1352 | 1329 | 1317 | 1326 | 14 | 0.47 |
| DMI, lb/day | 20.0[b] | 20.8[bc] | 21.3[c] | 20.8[c] | 20.7[bc] | 21.4[c] | 0.3 | 0.07 |
| ADG, lb | 4.33 | 4.39 | 4.59 | 4.46 | 4.35 | 4.43 | 0.10 | 0.47 |
| Feed:gain | 4.62 | 4.73 | 4.65 | 4.68 | 4.76 | 4.83 | | 0.25 |
| Carcass weight, lb | 826 | 832 | 852 | 837 | 830 | 836 | 9 | 0.47 |
| Marbling score[d] | 524 | 526 | 514 | 517 | 528 | 534 | 14 | 0.92 |
| Choice or above, % | 79.9 | 67.4 | 61.1 | 53.1 | 73.2 | 81.2 | 9.1 | 0.25 |
| Fat thickness, in | 0.54 | 0.54 | 0.58 | 0.56 | 0.56 | 0.58 | 0.03 | 0.87 |
| Yield grade | 2.8 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 0.1 | 0.81 |

[a]Final weight calculated as hot carcass weight divided by 0.63.
[b,c]Means within a row with unlike superscripts differ (P < 0.10).
[d]Marbling score: 400 = Slight 0, 450 = Slight 50, 500 = Small 0, etc.

replaced with urea when the cattle were estimated to weigh 875 lb. Corn silage was included in all diets, including step-up diets, at 10% (DM basis). Step-up diets contained 35, 25, 15 and 5% alfalfa hay (DM basis) replacing the corn in each treatment diet and fed for 7, 8, 7 and 7 days, respectively.

Initial weights were determined as the average of two consecutive early morning weights before feeding at the initiation of the trial. Steers were fed once daily and allowed ad libitum access to feed and water. Steers were implanted with Synovex-C on day 1 and reimplanted with Revalor-S on day 53. Cattle were fed for 151 days and harvested at a commercial packing plant where carcass data were collected. Hot carcass weight was collected the day of harvest with fat, marbling score, and yield grade data collected following a 24-hour chill.

## Results

Overall cattle performance was exceptional for this experiment, presumably due to a mild winter/spring with no mud. Final weights, ADG and feed conversion were similar among treatments (Table 2). Dry matter intake was lower ($P < 0.10$) for 0% WCGF compared to levels of 20, 25, and 35% WCGF. Dry matter intake was not statistically different for treatments containing WCGF. Hot carcass weight, marbling, fat thickness and YG were similar among treatments. These data would suggest levels up to 35% WCGF can be fed with steam-flaked corn based diets though there would be a tendency for a decrease in efficiency at 35% WCGF level. These data suggest Sweet Bran® WCGF has the feeding value similar to steam-flaked corn.

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