

Potato Co-product in Diets for Growing and Finishing Steer Diets

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Potato co-products contain substantial amounts of energy in the form of starch, but are generally low in fiber and protein. Ruminant livestock have the capacity to consume relatively large amounts of potato co-product in a variety of forms and moisture levels. Potato co-product from AVIKO LLC in Jamestown ND was fed to 120 head of steer calves during a winter growing trial and through finishing. Diets were formulated with increasing amounts of potato 82% moisture co-product, 0, 10, 20, and 30% dry matter basis of the diet, replacing corn. Growing diets were approximately 65% concentrate and finishing diets were 85% concentrate.

During the growing period, a quadratic response in dry matter intake was observed due to treatment with improved intake at 10% and lowest intake at 30%. Overall, dry matter intake was lowest ($P < .05$) in the 30% treatment. During finishing, gains exhibited a quadratic response with highest gains observed for the 0% and lowest for the 20% co-product diet. No other differences were detected for performance or carcass traits. Cost of gain decreased with increasing potato co-product given the prices of commodities in this study. Potato co-product makes an excellent feed for growing and finishing steers when priced competitively but some differences in intake and performance suggest caution in level of use for this feedstuff.

Table 1. Performance of steers fed potato by-product at 0%, 10%, 20%, or 30% of diet dry matter.

| Item | Treatment | | | | SE | P Value |
|---------------------------------|--------------------|--------------------|---------------------|--------------------|-------|---------|
| | 0% Potato | 10% Potato | 20% Potato | 30% Potato | | |
| Number head | 30 | 30 | 30 | 30 | | |
| Growing | | | | | | |
| Initial Weight, lbs. | 783 | 788 | 786 | 790 | 9.96 | 0.97 |
| DMI, lbs. | 20.48 ^a | 21.08 ^b | 20.74 ^{ab} | 20.14 ^c | 0.01 | 0.01** |
| ADG, lbs. | 3.37 | 3.64 | 3.74 | 3.53 | 0.13 | 0.25 |
| F/G, lbs. | 6.09 | 5.80 | 5.50 | 5.72 | 0.12 | 0.07 |
| Cost/lb. gain ^a , \$ | 0.214 | 0.197 | 0.174 | 0.167 | | |
| Finishing | | | | | | |
| Final Weight, lbs. | 1273 | 1266 | 1256 | 1263 | 14.87 | 0.88 |
| DMI, lbs. | 26.26 | 25.84 | 26.03 | 25.61 | 0.17 | 0.10 |
| ADG, lbs. | 3.62 ^a | 3.30 ^b | 3.14 ^b | 3.32 ^b | 0.09 | 0.01** |
| F/G, lbs. | 7.31 | 7.84 | 8.30 | 7.71 | 0.25 | 0.11 |
| Cost/lb. gain ^a , \$ | 0.260 | 0.267 | 0.264 | 0.229 | | |
| Overall | | | | | | |
| DMI, lbs. | 23.95 ^a | 23.94 ^a | 23.91 ^a | 23.42 ^b | 0.10 | 0.01 |
| ADG, lbs. | 3.52 | 3.44 | 3.38 | 3.40 | 0.08 | 0.56 |
| F/G, lbs. | 6.83 | 6.98 | 7.08 | 6.88 | 0.17 | 0.74 |
| Cost/lb. gain ^a , \$ | 0.242 | 0.235 | 0.225 | 0.200 | | |

* Ingredient costs - Rumensin: \$300/ton, Mineral: \$320/ton, Limestone: \$100/ton, Wheat Midds: \$60/ton, Corn: \$1.70/bu, Canola Meal: \$100/ton, Straw: \$25/ton, Alfalfa: \$50/ton, Potato co-product: \$7.50/ton

^{a,b,c} Values with different superscripts are significantly different ($P < 0.05$)

** Quadratic effects ($P < 0.10$)

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