

Effects of corn distiller's dried grains with solubles as a rumen undegradable protein replacement for soybean meal on Boer-type grower rations

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Introduction

- A global increase in goat meat demand reveals a gap in knowledge for US farmers looking to increase profit margins through replacing rumen undegradable protein sources. Although studied in Beef cattle, there is little research on the effect of corn bi-products on growing meat goats.

Objective

- To investigate whether corn distiller's dried grains with solubles (DDGS) or corn gluten feed (CGF) can be utilized as a lower cost replacement for soybean meal (SBM) in Boer-type grower rations

Experimental Procedures

- Seventy-five boer-type kids (26.9+/- 0.2 kg, approx. 70 days) housed at KSU Sheep and Meat Goat Center for 35 days were fed 1 of 5 isocaloric and isonitrogenous treatments.
- Completely randomized design - 3 goats per pen with 5 pens per treatment



- Treatments:
 - 100% SBM
 - 33% DDGS/66%CGF
 - 66% DDGS/33% CGF
 - 100% DDGS
 - 100% CGF

- BW, ADG, ADFI, G:F were collected weekly
- Data was analyzed using the GLIMMIX procedure of SAS (SAS Inst., Cary, NC) with pen as the experimental unit with a 0.05 designated alpha.

Experimental Diets

	SBM Control	100% DDGS / 0% CGF	66% DDGS/ 33% CGF	33% DDGS/ 66% CGF	0% DDGS/ 100% CGF
Analyzed Nutrients, % as-fed					
Crude protein	16.7	17.1	17.2	16.7	17.0
Crude fat	3.10	3.27	2.74	2.36	1.94
ADF	12.0	15.6	27.4	23.8	17.8
Digestible energy, Mcal/kg	3.13	3.16	3.14	3.14	3.15
Ca	1.08	1.07	1.05	1.06	1.06
P	0.55	0.57	0.58	0.55	0.53
S	0.19	0.18	0.24	0.24	0.25



Results

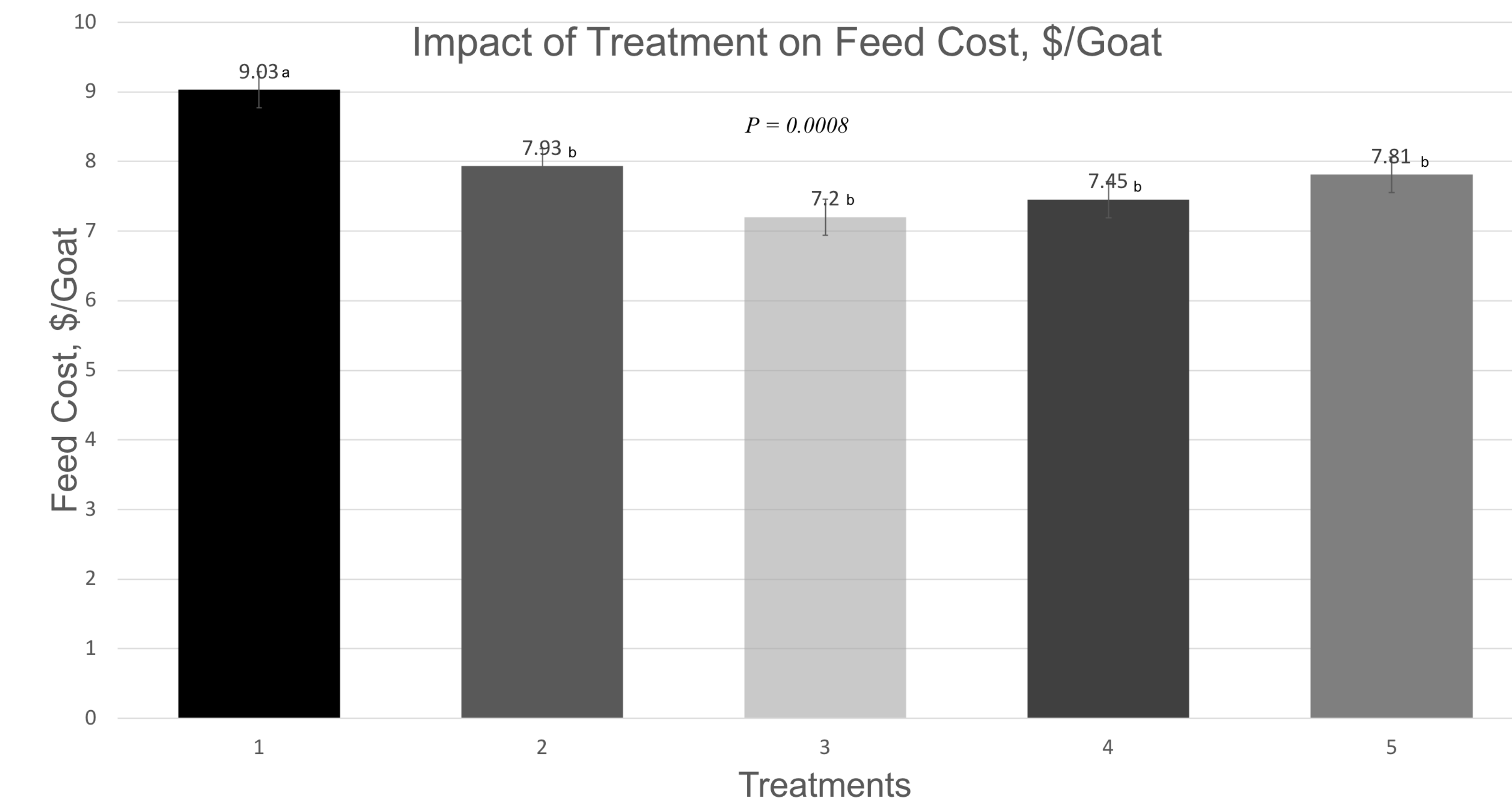


Figure 1: Impact of Treatment on Feed Cost, \$/Goat (abMeans within a row that do not share a common superscript differ $P < 0.05$.)

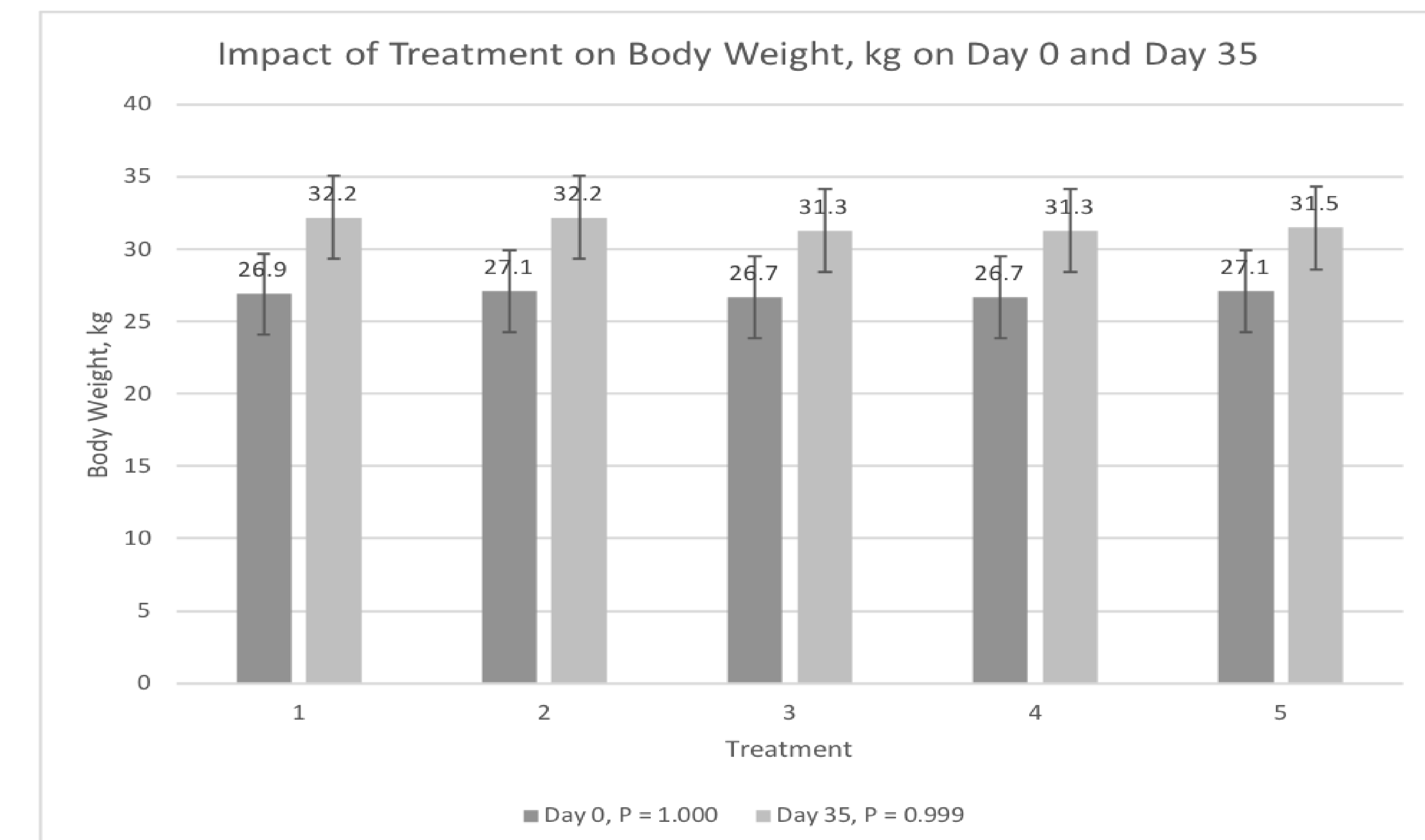


Figure 2: Impact of Treatment on Body Weight (BW), kg

Acknowledgments

- This study is supported by Dr. Mark and Kim Young Undergraduate Research Fund and the Kansas Corn Commission
- Photographs by Taylor Belle

Conclusions

- No significant difference ($P < 0.05$) between treatment measurements, except for Feed Cost, \$/Goat ($P = 0.0008$). Goats fed treatments with DDGS shared similar Feed cost, \$/goat but differed from the SBM feed control.
- Therefore, DDGS can be effectively utilized ($P < 0.05$) as a lower cost rumen undegradable protein replacement for soybean meal by maintaining similar BW, ADG, ADFI, and G:F metrics to soybean meal but lowering the total feed cost, \$/goat.
- Further research could be done on the relationship of soybean meal on the microbiome of Boer-type grower goats to examine nutritional impact.