



Effect of bambermycins and level of distiller's grains with solubles on performance and carcass characteristics of feedlot cattle.

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INTRODUCTION

In recent years cattle feeders have begun to take advantage of the great abundance of distillers grains available with increased corn-based ethanol production. To date, however, the interaction of certain feed additives with distillers grain feeding is mostly unknown. Bambermycins are an antibiotic that is predominantly effective against gram-positive pathogenic bacteria. Bambermycins have been shown to have a positive response on cattle performance when supplemented to high-forage diets; however, the response in high-grain diets is unknown.

OBJECTIVE

Determine the effects of bambermycins (Gainpro®) and monensin and tylosin (Rumensin® + Tylan®) on feedlot performance and carcass characteristics when supplemented to diets containing 15 and 30% modified distillers grains (mDG).

MATERIALS & METHODS

- > Experiment conducted at South Dakota State University Southeast Research Farm (Beresford, SD)
- > 256 crossbred yearling steers (initial BW = 895 ± 61 lbs)
- > Steers blocked by initial BW into three weight blocks
- > 24 pens; 6 pens/treatment
 - > 16 open-lot, soil-surfaced pens; 12 steers/pen
 - > 8 partially-covered, concrete surfaced pens; 8 steers/pen
- > Randomized complete block design
- > 2 x 2 factorial arrangement of treatments
 - > Modified distillers grains level (15 and 30% of DM).
 - > Bambermycins (Gainpro®, Huvepharma, Inc.) or Monensin and Tylosin (Rumensin® and Tylan®, Elanco Animal Health).
- > Steers fed once daily at 0900 h
- > Steers implanted on d 28 with Revalor-S® (Intervet, Millsboro, DE)
- > Steers slaughtered at Tyson Fresh Meats, Dakota City, NE
 - > Slaughtered when 12th rib fat thickness was estimated to be 0.5 inches
 - > Heavy and intermediate blocks slaughtered after 104 days on feed
 - > Light block slaughtered after 126 days on feed
- > Performance data analyzed with GLM procedure of SAS
- > Categorical data analyzed with GENMOD procedure of SAS



DIETARY TREATMENTS

Composition of finishing diets (DM basis)

Ingredient, % of DM	Treatments ¹			
	15 mDG		30 mDG	
	Bamber	Mon & Tyl	Bamber	Mon & Tyl
Dry-rolled corn	31.4	31.4	24.9	24.9
High moisture corn	32.5	32.5	25.7	25.7
Modified distillers grains	14.8	14.8	29.7	29.7
Corn silage	10.2	10.2	10.3	10.3
Corn stover	3.1	3.1	3.1	3.1
Soybean meal	1.6	1.6	0.0	0.0
Liquid supplement ²	4.3	4.3	4.3	4.3
Pelleted supplement	2.0	2.0	2.0	2.0

Formulated nutrient composition, DM basis

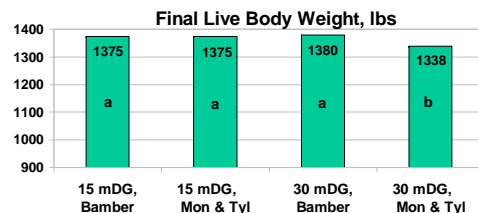
	15 mDG		30 mDG	
	Bamber	Mon & Tyl	Bamber	Mon & Tyl
NEg, Mcal/cwt	63	63	63	63
Crude protein, %	13.0	13.0	15.2	15.2
NDF, %	19.6	19.6	25.0	25.0
Ca, %	0.70	0.70	0.72	0.72
P, %	0.38	0.38	0.45	0.45
K, %	0.93	0.93	1.01	1.01
S, %	0.26	0.26	0.37	0.37
Bambermycins, g/ton ³	1.74	-----	1.74	-----
Monensin, g/ton ³	-----	33.0	-----	33.0
Tylosin, g/ton ³	-----	7.76	-----	7.76

¹ mDG = modified distillers grains, Bamber = Bambermycins, Mon & Tyl = Monensin and Tylosin

² Liquid supplement formulated to contain 10% Ca, 8.4% K, 7.2% salt, 475 mg/kg Zn, 121 mg/kg Cu, 428 mg/kg Fe, 1.9 mg/kg Co, 25,000 IU/lb vit A, 6,300 IU/lb vit D, 350 IU vit E

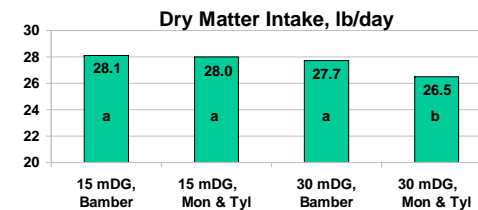
³ Formulated using an estimated 23 lb DMI

RESULTS



mDG * MFA interaction $P = 0.095$; SEM = 12

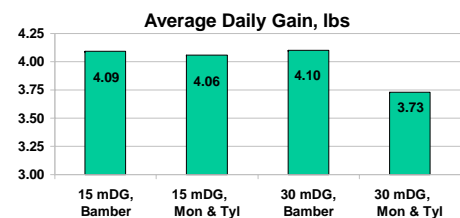
^{ab} Uncommon superscripts differ ($P < 0.05$)



mDG * MFA interaction $P = 0.05$; SEM = 0.3

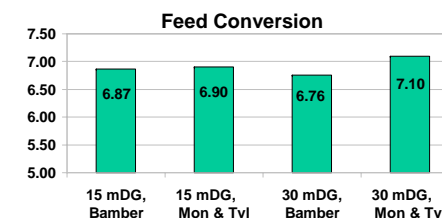
^{ab} Uncommon superscripts differ ($P < 0.05$)

RESULTS



mDG * MFA interaction $P = 0.13$; SEM = 0.10

mDG $P = 0.16$; MFA $P = 0.08$



mDG * MFA interaction $P = 0.34$; SEM = 0.14

mDG $P = 0.89$; MFA $P = 0.36$

Carcass Characteristics

Item	Treatments ¹				SEM	P - Value		
	15 mDG		30 mDG			mDG	MFA	mDG x MFA ²
	Bamber	Mon & Tyl	Bamber	Mon & Tyl				
HCW, lbs	800	797	807	786	7	0.77	0.12	0.21
12 th rib fat thickness, in	0.435	0.404	0.466	0.420	0.016	0.16	0.03	0.66
LM area, sq in	12.5	12.5	12.8	12.3	0.2	0.77	0.14	0.13
Marbling ³	555	535	550	506	9	0.08	<0.01	0.19
CAB, % ⁴	32.6	18.4	30.4	6.3	3.6	0.06	<0.01	0.18
Choice, %	76.4 ^{ab}	68.6 ^b	80.3 ^a	54.7 ^c	4.2	0.24	<0.01	0.04
Select, %	20.1 ^a	27.8 ^b	18.2 ^b	45.3 ^a	3.8	0.05	<0.01	0.02
USDA YG ⁵	2.60	2.45	2.63	2.44	0.10	0.89	0.09	0.81
YG 4, % ⁵	5.56	1.39	5.98	0.00	2.09	0.82	0.02	0.66
Liver Abscess, % Occur.	13.9	7.2	19.0	13.5	3.7	0.13	0.10	0.87

¹ mDG = modified distillers grains, Bamber = Bambermycins, Mon & Tyl = Monensin and Tylosin

² Modified distillers grains x medicated feed additive interaction

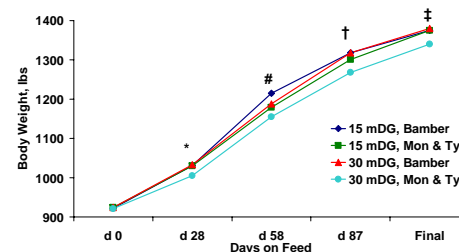
³ 500 = Small⁶

⁴ CAB = Carcasses that met specifications for Certified Angus Beef premium

⁵ Yield Grade determined by USDA grader

^{ab} Where significant mDG x MFA interactions ($P < 0.10$) are present, means within a row with uncommon superscripts differ ($P < 0.05$)

Body weight at initial, interim, and final body weight collections¹



¹ Heavy and intermediate blocks = 104 days on feed; light block = 126 days on feed.

² d 28, mDG x MFA interaction ($P < 0.01$); 30 mDG, Mon & Tyl lower than all other treatments.

³ d 58, mDG effect ($P < 0.01$); MFA effect ($P < 0.01$).

⁴ d 87, mDG x MFA interaction ($P = 0.08$); 30 mDG, Mon & Tyl lower than all other treatments.

⁵ Final BW, mDG x MFA interaction ($P = 0.10$); 30 mDG, Mon & Tyl lower than all other treatments.

CONCLUSIONS

- > Inclusion of bambermycins resulted in greater DMI and tended to increase ADG when compared with monensin and tylosin. Medicated feed additive did not affect feed conversion.
- > Level of modified distillers grains inclusion did not affect ADG or feed conversion. Dry matter intake was greater with 15% mDG diets than 30% mDG diets.
- > Marbling score was greater with bambermycins inclusion than with monensin and tylosin inclusion. This resulted in a higher percentage of CAB-eligible carcasses with bambermycins than with monensin and tylosin.
- > Feeding 30% mDG with monensin and tylosin resulted in a lower percentage of choice quality grade carcasses than any other treatment.
- > Bambermycins inclusion tended to increase USDA yield grade and increased yield grade 4 carcasses.