



## Effect of Virginiamycin and Monensin on Efficiency and Feed Intake of Growing Heifers

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### Story in Brief

The effectiveness of virginiamycin and monensin supplementation was compared when a sorghum silage based ration was fed during a 112-d growing period. Mixed breed heifer calves (n=162) were fed either a control, virginiamycin (17.78 g/ton, DM basis), or monensin (22.2 g/ton, DM basis) supplemented ration on an ad libitum basis. Live weights were measured at 28-d intervals. Average daily gains and feed to gain ratios were improved by monensin over control, while virginiamycin was intermediate. Dry matter intakes were not impacted by addition of virginiamycin or monensin to the supplement.

Key Words: Monensin, Virginiamycin, Sorghum silage

### Introduction

Virginiamycin, a composite antibiotic, is an antimicrobial feed additive that is produced as a fermentation product of *Streptomyces virginiae*. The poultry and swine industries have used virginiamycin for many years as a performance enhancer. Rogers et al. (1995) reported that virginiamycin improved average daily gain and (or) feed conversion of feedlot cattle. Dry matter intake was not altered. Incidence of liver abscess and severity was also reduced when virginiamycin was fed at levels of 19.3 or 27.6 mg/kg. The present study was conducted to compare the effects of virginiamycin and monensin on feed efficiency and average daily gain of growing heifers consuming a sorghum silage and corn diet.

### Materials and Methods

Mixed breed heifer calves (n=162) utilized in the study were previously subjected to a 42-d receiving trial. Routine vaccinations were administered in the receiving trial and heifers were treated for internal and external parasites. All heifers were implanted on d 0 of the current study with Synovex C. Heifers were stratified by weight and randomly allotted to six head pens. Treatment was randomly assigned within weight block to the resultant 27 pens. The rations fed for the 112-d growing period were comprised of sorghum silage, whole shell corn and supplement. The diet was formulated to target an average daily gain of 2 lb. Treatments were supplied through supplements which contained either no medication (C) control, virginiamycin (V), or monensin (M). The V ration was formulated to supply 17.78 g virginiamycin per ton of finished feed (DMB); the M

ration was formulated to supply 22.2 g per ton of finished feed (DMB).

Heifers were subjected to a 16-h shrink, where no feed or water was available, prior to weight measurement for allotment. Cattle were not shrunk for weights taken on d 28, 56 and 84. However, a 4% pencil shrink was applied for data analysis. Off-trial (d 112) weights were taken after a 16-h shrink was again imposed. On weigh dates, feed was weighed back and removed; feed totals were adjusted accordingly. Rations were adjusted to include 10% more corn, on a dry matter basis, on d 33 and again on d 57 (Tables 1, 2, and 3) after desired average daily gains were not achieved. Performance goals were not being met due to a higher than optimum moisture content of the sorghum silage.

Data were analyzed as a completely randomized design using the GLM Procedures of SAS (1998) using pen means.

### **Results and Discussion**

Results in Table 4 indicate live weights were not different on any of the days measured. Intermediate ADG did not differ among treatments. However, overall ADG was significantly higher for M as compared to C heifers. Virginiamycin supplemented heifers were not significantly different from C or M in their ADG.

Dry matter intake was not different between treatments during any period. Feed to gain ratios were significantly improved by M when compared to C. However, feed to gain ratios of V were not significantly different from M or C.

### **Implications**

When growing heifers consume a sorghum silage and whole shell corn growing ration, M appears to improve feed efficiency and ADG without impacting dry matter intake.

### **Literature Cited**

Rogers, J. A. et al. 1995. J. Anim. Sci. 73:9.

SAS. 1998. SAS/STAT<sup>®</sup> Users guide (Release 6.03). SAS Inst. Inc., Cary, NC.

### **Acknowledgements**

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### **Table 1. Ration composition and dry matter. Day 0-32.**

Ingredient	% Dry matter	% of diet (DM)
Corn	87.00	27.3136
Sorghum silage	27.31	66.0000
Supplement	90.00	6.6864

**Table 2. Ration composition and dry matter. Day 33-56.**

Ingredient	% Dry matter	% of diet (DM)
Corn	87.00	37.3136
Sorghum silage	23.43	56.0000
Supplement	90.00	6.6864

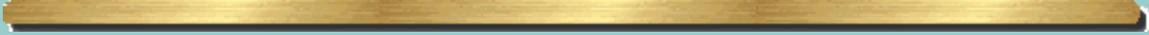
**Table 3. Ration composition and dry matter. Day 57-112.**

Ingredient	% Dry matter	% of diet (DM)
Corn	87.00	47.3136
Sorghum silage	27.78	46.0000
Supplement	90.00	6.6864

**Table 4. Effect of ionophore on heifer performance.**

Trait	Treatment		
	Control	Monensin	Virginiamycin
No. of heifers	54	54	54
Weights, lb			
Initial	481	481	480
28 d	534	537	533
56 d	586	592	590
84 d	653	668	658
112 d	681	700	687
Average daily gain			
0-28 days	1.13	1.24	1.13
28-56 days	1.80	1.89	1.96
56-84 days	2.29	2.59	2.34
84-112 days	1.94	2.09	1.96
0-112 days	1.79	1.96	1.85
Dry matter intake			
0-28 days	11.55	11.10	10.77
28-56 days	12.96	13.06	12.60
56-84 days	15.26	15.47	15.05
84-112 days	16.98	16.82	16.72
0-112 days	14.19	14.11	13.79
Feed/Gain			
0-28 days	10.52	9.11	10.37
28-56 days	7.45	7.06	6.51
56-84 days	6.70	6.01	6.64
84-112 days	9.00	8.18	8.86
0-112 days	7.97	7.24	7.49

<sup>a,b,c</sup>Means with different subscripts differ (P<.05).



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