RUMEN VFA PRODUCTION AND PERFORMANCES OF CATTLE AND SHEEP FED ON DIETS CONTAINING MONENSIN SODIUM OR LASALOCID SODIUM

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Introduction

Monensin sodium and Lasalocid sodium, produced *Streptomices cinnamonensis* and *Streptomices lasaliensis* respectively, improve productive performances of animals by acting on rumen microbiological population (Chen and Wolin, 1979; Wallace et al., 1981; Dennis et al., 1981; Wethstone et al., 1981; Durand, 1982). In particular, these action improve feed utilization in ruminants.

Materials and Methods

Cattle

Twenty-four Italian Friesian calves weighing 251 kg about, fed on barley-silage *ad libitum* and 2.5 kg/head/day of a commercial protein-vitamin supplement were used. The animals were divided in three experimental groups of eight subjects; the first didn't receive any growth promoting substance (control); the second was given 35 g Monensin sodium per ton protein-vitamin supplement; the third was given 35 g Lasalocid sodium per ton protein vitamin supplement. The trial lasted 240 days. Live weight was controlled every thirty days and feed intake every day; at the end of the trial ruminal fluid was analyzed for volatile fatty acids determination by gas-liquid chromatography. The day after, the animals were weighed, fasted for 24 hr and slaughtered; carcass traits were controlled (weigh, dressing, anterior and posterior quarters by cut between X and XI dorsal vertebrae, L. dorsi Warner Blazer Shear).

Sheep

Twenty-seven Apulian Merino lambs weighing about 14.4 kg were considered for this experiment. They were fed on maize silage *ad libitum* and 200 g/head/day of a commercial protein-vitamin supplement. The animals were divided in three experimental groups of nine subjects. The trial lasted 60 day. The experimental procedure and the controls carried out were the same described for cattle.

Results and Discussion

Cattle

Additives, confirming the researches of numerous authors, improved significantly ($P < 0.01$) propionic acid production and C_2/C_3 ratio (table 1); consequently dry-matter daily intake decreased and feed efficiency improved. Live weight and daily gain improved slightly but differences were not significant. Carcass traits were not affected by antibiotics administration. Longissimus dorsi resulted less tender.

Calves fed on Lasalocid sodium generally had a significant higher ($P < 0.01$) proportion of propionic acid and a slightly ($P < 0.05$) better feed efficiency in respect to the ones fed with Monensin; other parameters were not significantly influenced.

Sheep

Lambs fed on additives had a significant ($P < 0.01$) higher production of propionic acid and C_2/C_3 ratio (table 1); other acids were slightly ($P < 0.05$) depressed. Additives determined better, but not significantly, final weight, daily gain and carcass traits; only feed efficiency and dressing were slightly ($P < 0.05$) influenced. Contrary to calves, lambs given Monensin sodium generally had a significant ($P < 0.01$) higher proportion of propionic acid and better productive performance.

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TABLE 1. RUMEN VOLATILE FATTY-ACIDS AND PERFORMANCES OF CATTLE AND SHEEP

	Cattle			Sheep		
	Control	Monensin	Lasalocid	Control	Monensin	Lasalocid
Rumen volatile fatty-acid						
Acetic (% molar)	66.45[a]	62.31	60.15[b]	61.23	56.15	59.13
Propionic (% molar)	18.81[A]	21.26[B]	24.13[C]	20.10[A]	28.56[B]	24.82[C]
Butyric (% molar)	8.45[a]	7.54	6.82[b]	11.43[a]	8.33[b]	9.27[c]
Valeric (% molar)	1.87	1.61	1.54	1.78[a]	1.31[b]	1.51[c]
Acetic/Propionic ratio (C_2/C_3)	3.53[A]	2.93[B]	2.49[C]	3.05[A]	1.97[B]	2.38[C]
Live weight						
Initial (kg)	251.87	251.12	251.37	14.41	14.42	14.41
Final (kg)	499.12	499.87	503.25	20.49	21.85	21.07
Daily gain (kg)	1.03	1.04	1.05	0.10	0.12	0.12
Daily DM intake (kg)	7.45	7.24	7.19	0.76	0.80	0.78
DM intake/gain (kg)	7.23[a]	6.96	6.85[b]	7.60[a]	6.67[b]	7.09[c]
Carcass traits						
Carcass (kg)	283.35	284.78	285.87	10.58	11.73	10.62
Dressing (% live net weight)	65.20	65.15	65.33	65.31	66.80[a]	61.55[b]
Anterior quarter (% carcass)	50.76	50.46	51.02	54.80	53.90	53.87
Posterior quarter (% carcass)	49.24	49.54	48.98	45.20	46.10	46.13
L. Dorsi Warner Blazer Shear (kg)	3.22	3.92	3.95	2.39	2.41	2.30

*Different capital or small letters on the same line denote respectively differences for $p < 0.01$ and $p < 0.05$.

(Key Words: Ionophore Antibiotics, Rumen VFA, Performances)

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