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ELFAZEPAM AND SYNOVEX-S INFLUENCES ON GROWTH AND CARCASS CHARACTERISTICS OF STEERS FED TWO DIETARY ENERGY LEVELS

Ronald L. Prior,¹ John D. Crouse, and Virden L. Harrison

Summary

Synovex-S improves the average daily gain and carcass traits of steers and reduces losses under high feed price levels when compared to nonimplanted steers. High energy diets also influence average daily gain (ADG) favorably, but they increase the amount of fat and decrease the protein in carcass soft tissue in comparison to low energy diets.

Introduction

Under present market conditions, the use of growth-promoting implants or feed additives that improve gain or feed efficiency can be the difference between profit and loss in many feeding operations. Synovex-S (200 mg of progesterone and 20 mg of estradiol benzoate) improves ADG and feed efficiency in steers.

The use of stimulants in feed intake may have desirable effects on the performance of growing animals, particularly where voluntary intake is not adequate to provide sufficient net energy for gain. Alkyl-sulfonylalkyl-1- substituted benzodiazepines have been shown to elicit feeding in satiated animals. Voluntary intake is of particular concern in high-

roughage diets where intake is limited by fill. In addition to the feeding response elicited by Elfazepam, it has been reported that administering Elfazepam to sheep fed a constant amount of feed increased the digestibility of the diet.

Procedure

The objectives of this study were to determine the effect of Elfazepam on growth and carcass characteristics of steers fed rations of two energy densities with corn silage as the forage base and to study possible interactions with Synovex-S implants. Corn silage represented 81.7% of the dry matter in the low energy diets and 19.7% in the high energy diets, resulting in 5.7 and 6.8 Mcal metabolizable energy per pound for the two diets. Elfazepam was added to the diet to provide about 8 mg/head/day. Steers were fed to 1,122 lb pen mean weights. Adding Elfazepam to the diet decreased rate of gain of steers by 9% compared to controls not receiving Elfazepam.

Results

Steers implanted with Synovex-S had a 27% greater ADG, a heavier hot carcass weight, and less kidney and pel-

vic fat than nonimplanted steers (Table 1). The trend toward a decreased quality grade from Synovex-S implant in the present experiment approached statistical significance. We noted no significant two-way interactions between dietary energy level, Synovex-S implant, or Elfazepam in growth or carcass composition traits.

The effect of Synovex-S implants was highly significant both from a biological and an economic standpoint. These implants made the difference between profits and losses under the low feed price level and reduced the losses under the high feed price level. Although Synovex-S resulted in similar yield grades and lower quality grades, this lowering of steer value per 220 lb was offset by a 27% increase in ADG. Under the low feed price level, net returns per steer per day were \$0.113 higher for steers implanted with Synovex-S than for nonimplanted steers.

Ration energy level significantly influenced ADG. Steers fed the high energy diet had more kidney and pelvic fat and more estimated fat and less protein in carcass soft tissue than steers fed the low energy diet. The other carcass traits measured were not significantly influenced by dietary energy levels.

Table 1.—Main effects of Elfazepam, Synovex-S implant, and dietary energy level on steer performance and carcass traits¹

Item	Elfazepam		Synovex-S implant		Dietary energy level	
	-	+	-	+	Low	High
Number of steers	109	108	107	110	110	107
Initial weight	765.4 ± 4.4	762.3 ± 4.4	764.9 ± 4.6	762.7 ± 4.2	765.2 ± 4.4	762.5 ± 4.4
Slaughter weight	1119.1 ± 7.0	1120.0 ± 7.0	1079.1 ± 7.3	1160.1 ± 6.8	1135.2 ± 7.0	1102.0 ± 7.0
Days on feed	134.3 ± 24.1	144.8 ± 20.2	139.5 ± 14.7	139.5 ± 14.7	164.5 ± 20.4	115.5 ± 13.1
Overall average daily gain	2.79 ± 3.04	2.55 ± 2.04	2.35 ± 2.04	2.99 ± 3.04	2.31 ± 2.04	3.04 ± 3.04
Hot carcass weight	666.8 ± 4.8	673.0 ± 4.8	674.0 ± 5.1	692.8 ± 4.8	672.8 ± 4.8	667.3 ± 5.1
Adjusted fat thickness	.46 ± .02	.43 ± .02	.44 ± .02	.44 ± .02	.43 ± .02	.46 ± .02
Longissimus area	12.2 ± .2	11.9 ± .2	12.2 ± .2	11.9 ± .2	12.0 ± .2	12.2 ± .2
Kidney and pelvic fat	2.95 ± .08	2.78 ± .08	2.99 ± 3.09	2.74 ± 2.08	2.76 ± 2.08	2.97 ± 3.08
Marbling ⁴	10.57 ± .37	10.76 ± .36	11.18 ± .42	10.16 ± .35	11.10 ± .36	10.24 ± .37
Quality grade ⁵	9.45 ± .19	9.50 ± .19	9.70 ± .22	9.25 ± .18	9.61 ± .18	9.35 ± .19
Yield grade	2.94 ± .10	2.90 ± .10	2.90 ± .12	2.94 ± .10	2.93 ± .10	2.91 ± .10
Estimated soft tissue composition %						
Fat	35.00 ± 3.51	33.81 ± 2.51	33.90 ± .59	34.88 ± .49	33.23 ± 2.50	35.58 ± 3.52
Protein	14.30 ± 2.14	14.78 ± 3.14	14.73 ± 3.16	14.36 ± 2.13	15.06 ± 3.13	14.03 ± 2.14
Moisture	50.96 ± .38	51.47 ± .38	50.89 ± .44	51.53 ± .36	51.18 ± .37	51.24 ± .39

¹Data presented as least-squares means ± standard error of the mean. Carcass quality and composition traits were adjusted by analysis of covariance to a hot carcass weight of 685.3 lb.

^{2,3}Means within a treatment without a common superscript differ (P < .05).

⁴Marbling score: slight = 7, 8, 9; small = 10, 11, 12.

⁵Quality grade score: good = 7, 8, 9; choice = 10, 11, 12.