COMPUDOSE, RUMENSIN AND SUPPLEMENT FOR GRAZING YEARLINGS

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Introduction:

A new growth stimulant Compudose (Estradiol 2β), implanted in the ears of yearling steers, was evaluated with a supplement, and supplement plus Rumensin under pasture trials at the Central Grasslands Station.

The Lilly Research Laboratories of Greenfield, Indiana, bought the steers, paid for feed and operational expenses for the experiment.

Experimental Procedure:

Seven hundred twenty acres of native grassland were divided into six pastures of comparable carrying capacity, all radiating out from a deep well. Temporary corrals were erected around the well to hold cattle for weighing, etc.

One hundred thirty-one yearling steers were purchased at an auction market and trucked to the station. There they were vaccinated with a four-way vaccine, wormed, and ear-tagged. All steers were held in a 2.5 acre enclosure for ten days to acclimate them to an electric fence and accustom them to eating a 15% protein barley pellet. The steers were then individually weighed on two consecutive days. The first weighing provided for the removal of 11 steers. The remaining 120 steers were allotted at random within weight and breed groups to six lots of 20 steers each. Three of the lots were ″heavy″ and three were ″lights″ (Table 1). A second ear tag was added to color code the treatment groups at the second weighing. Steers within each lot were ″paired″ and one steer within each pair was implanted with Compudose (45 mg) in the ear. An average of the two-day consecutive weights was used as initial weights.

The steers were individually weighed every 28 days. They were weighed on two consecutive days for final weights at the end of a 112-day grazing period. The steers were not kept off feed prior to any weighing. The treatment groups were rotated from one pasture to another within replicate groups (i.e. ″light″ and ″heavy″ replicates), every 14 days to minimize any effect of differences in pastures. A complete salt-mineral mix was provided in protected mineral feeders at all times. The 15% protein barley pellet was commercially prepared to specifications. Two types of pellets were made, plain and with 100 mg Rumensin per pound.

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Appreciation is expressed to Mrs. Doug (Pat) Schonert for daily feeding and observation of cattle.

For the initial seven days of the experiment, one pound of the Rumensin supplement and one pound of supplement were fed to acclimate the steers to Rumensin for the two groups receiving the supplement plus Rumensin. Thereafter, two pounds of the Rumensin supplement were fed to provide 200 mg of Rumensin per steer daily. The other two supplemented groups received two pounds of the plain barley pellets daily. The pelleted supplement was hand-fed daily in feed bunks. All implants were checked and those steers that had lost the Compudose were re-implanted at the first 28-day weigh period. The Compudose implants were removed from the ears at the end of the pasture phase.

Results and Discussion:

Timely and adequate rains provided for good to excellent pasture. The grazing period was 112 days, from June 17 to October 7, 1980.

The results for the first 28-day weigh period were very erratic. Excessive outbreaks of pink eye and foot rot occurred during this period across all lots. Treatment for pink eye was either a neomycin-gentian violet spray or a Tylan and Neomycin powder. Very serious cases were also covered with an eye patch. Foot rot cases were treated with either an antibiotic (Pen-Strep, Terramycin or Tylan) injection or long-acting sulfa-quinoxalin boluses. The problem with pink eye was minimal after the first 28 days. Near the end of the experimental pasture period, two steers were losing weight. Both had had serious pink eye as well as foot rot problems and on further checking were found to have BVD. These were removed and are not included in the final results.

The lots receiving supplement gained 46% faster than those without after 56 days on trial. The Compudose implanted steers were gaining 18% faster than their non-implanted mates.

The supplemented steers were gaining 6.5% faster than the non-supplemented after the third weigh period (84 days). The Compudose steers were gaining 12.5% faster than the non-implanted and the Rumensin supplemented steers were gaining 10.5% faster than the steers receiving the supplement without Rumensin.

The steers receiving the supplement gained 16.7% faster than the non-supplemented controls for the entire 112-day grazing experiment. Part of this difference might be due to the maturity of the forage late in the grazing period, when the forage drops in protein. The steers implanted with Compudose gained about 15% faster than their non-implanted mates. The steers receiving the Rumensin in the supplement gained 6.7% faster than the supplemented lots without Rumensin.

The final results are summarized in Table 1. The steers receiving supplement did not average 2 lb. intake per day. There were several days when the steers did not come up to the feed bunks. However, the feeder, Mrs. Pat Schonert, was very successful in calling the cattle to the feed bunks for the daily feeding of the supplement.

When the steer gains are regrouped by an alternate method, i.e., ½ of no supplement lots (Lots 3 and 6) – those that received neither Compudose, supplement nor Rumensin and use these as a ″negative″ control, a different summary evaluates each treatment alone and in combination. This summary in presented in Table 2.

Table 1. Results of Central Grasslands Grazing Experiment (112 Days)

	Supp. + Rumensin	Supp.	No Supp.	Supp. + Rumensin	Supp.	No supp.
Lots:	**1**	**2**	**3**	**4**	**5**	**6**
	″Heavy″ Replicate			**″Light″ Replicate**		
No. steers	20	20	20	20	19	19
Initial wt. (lb)[1]	578.5	577.0	577.0	484.0	487.8	481.4
Final wt. (lb)[1]	799.6	782.1	738.8	713.6	704.6	682.2
Daily gain (lb)[2]	1.97	1.83	1.44	2.05	1.94	1.79
Daily gain-implants (lb)[3]	2.19	1.97	1.59	2.19	2.09	1.83
Daily gain-non-implanted (lb)[4]	1.85	1.70	1.30	1.91	1.80	1.75
Supp. per day (lb)	1.84	1.86	-	1.95	1.93	-

[1]Averages of two weights on consecutive days.

[2]Averages for 20 steers (19 in Lots 5 and 6) both implanted and non-implanted.

[3]Averages for the 10 implanted steers.

[4]Averages for the 10 non-implanted steers.

Table 2. Effect of Rumensin, Compudose and Supplement on Average Daily Gains Of Yearling Steers on Pasture

Compudose	Rumensin	Supplement	Number of Animals	Average Daily Gain lbs	Control =100
-	-	-	19	1.53	100
-	-	+	20	1.70	111
-	+	+	20	1.88	123
+	-	-	20	1.76	115
+	-	+	19	2.03	133
+	+	+	20	2.14	140

As can be seen from Table 2, those steers which received only pasture gained 1.53 pounds per day for 112 days. If they received about 2 pounds of a 15% barley supplement, they gained 1.70 or 11% faster than the negative control with pasture only. By the same token, two pounds of supplement with Rumensin increased gains by 23% over the negative control or 10.6% more than those receiving supplement only. The Compudose implants increased gains by 15% over negative controls (1.76 vs. 1.53). The Compudose and supplement gained 33% faster than the negative control; whereas, the 20 steers receiving Compudose, Rumensin, and supplement gained 2.14 pounds per day or 40% faster than the 19 steers which had only grass.

From a statistical point of view, all these differences were highly significant (P=0.01). As of this writing, Compudose has not received FDA approval and is not available for use in the United States.

Summaries for the feed lot phase and a measure of possible ″carry-over″ of the pasture treatments on feed lot performance is presented in the following report.