

Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 1103

1984

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D. Simms

L. Corah

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Recommended Citation

Simms, D. and Corah, L. (1984) "Relationship of cow weight, cow condition and dosage of prostaglandin on synchronized heat," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. <https://doi.org/10.4148/2378-5977.2506>

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Relationship of Cow Weight, Cow Condition and Dosage of Prostaglandin on Synchronized Heat¹

Danny Simms² and Larry Corah

Summary

Simmental cows on two Kansas ranches received either 2 or 3 ml injections of the prostaglandin cloprostenol (Estrumate)³. Dose level had little effect on response rate in either small or large cows. However, for each unit increase in body condition score, 12% more cows expressed heat.

Introduction

Since the introduction of prostaglandin synchronization products, many cattlemen have expressed concern that the recommended dosage of these products is inadequate for large cows. This experiment was conducted to find if increasing the dose to 1.5 times the recommended level would increase the percentage of cows synchronized.

Experimental Procedure

High percentage Simmental cows, approximately 60 days postpartum, on two Kansas ranches were weighed at the start of the breeding season and assigned to either 2 ml (500 mcg) or 3 ml (750 mcg) of the prostaglandin cloprostenol (Estrumate). At the start of each trial, the cows were also condition scored using a 9 point scale, where 1=extremely thin, 5=average, and 9=extremely fat.

In Trial 1, a 2-injection synchronization system was employed, with only those cows failing to exhibit heat after the first injection receiving the 2nd injection. In Trial 2, all cows were palpated rectally for ovarian activity. Only cows with a corpus luteum were injected. However, 12 days later, the remaining non-responding cows were started on the same 2-injection program used in Trial 1. Exhibition of heat within 5 days of treatment was considered a positive response.

¹Appreciation is expressed to Cliff and Leon Houghton, Tipton, KS and Allen Worcester, Hill City, KS for providing cattle and collecting data; to Kenneth Fromm, Mitchell County Extension Agricultural Agent for his assistance; to Dr. Ken Odde, Colorado State University for assistance with palpation and to Bayvet Division of Cutter Laboratories for providing Estrumate for this trial.

²Extension Livestock Specialist, Northwest Kansas.

³Estrumate is a brand name for cloprostenol sodium at 250 mcg/ml.

Results and Discussion

Table 29.1 shows the number of cows in each weight group, and the percent exhibiting heat following treatment. The 3 ml dose was only slightly more effective than 2 ml. The heavy cows had slightly higher percentage showing heat. Thus, the recommended dosage appears adequate even for large cows.

Table 29.2 shows the number exhibiting heat within each weight and body condition group. On the average, for each unit increase in condition score, 12% more cows showed heat. This agrees with other research and confirms that cows should be condition score 5 or better for satisfactory reproduction.

Table 29.1. Percent of Cow Showing Heat by Weight and Estrumate Dosage Level

Cow Weight, lb	2 ml Dose		3 ml Dose	
	No. Cows	% Heat	No. Cows	% Heat
1285 to 1560	18	80.3	21	82.1
1175 to 1280	40	66.9	35	69.4
1060 to 1165	38	54.4	38	61.3
940 to 1055	20	67.4	21	73.8
Average	116	65.5	115	69.6

Table 29.2. Percent of Cows Showing Heat by Weight and Condition Score

Cow weight, lb	Condition Score			
	4	5	6	7
1285 to 1560	(0) -	(25) 84.0	(14) 85.6	(0) -
1175 to 1280	(7) 71.0	(49) 65.2	(17) 77.1	(1) 100.0
1060 to 1165	(11) 28.4	(55) 59.6	(10) 70.0	(0) -
940 to 1055	(7) 43.4	(31) 74.2	(3) 65.6	(0) -
Average	(25) 44.5	(160) 67.9	(44) 77.4	

Numbers in parentheses indicate the number of animals in each group.