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THE EFFECT OF DAY OF GESTATION ON INDUCTION OF LAMBING WITH FLUMETHASONE

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Summary

The effectiveness of once a week flumethasone treatment for the induction and/or timing of lambing was studied during the 1975, 1976 and 1977 lambing seasons. Average time to lambing post-treatment was 86.7 ± 8.0 hours for flumethasone-treated ewes and 155.1 ± 7.9 hours for control ewes. Sixty-four percent of the flumethasone-injected ewes lambd within 72 hours after treatment compared to 17% of the control ewes. The average interval to lambing for the flumethasone-treated ewes responding within 72 hours was 49.5 ± 2.1 hours. Based on the results of this experiment, one would expect 95% of the ewes that respond to lamb in a 8.4-hour period starting 45.3 hours after injection.

Day of gestation when injected (138-144) influenced the percent responding and the interval to lambing. Treatment on days 138 and 139 was less effective than treatment on days 140 to 144 as shown by a marked decrease in hours from injection to lambing, starting with ewes treated on day 140 compared to day 139.

Flumethasone treatment did not affect lambing difficulty, incidence of retained placenta or milk production. Gestation length was 3.2 days shorter and birth weights .7 lb. lighter for flumethasone-treated ewes.

Introduction

The profitability of the enterprise is closely related to the number of lambs marketed. Close supervision of the flock at lambing time is necessary in order to maximize livability of newborn lambs. Induction of parturition (birth) offers the potential of close supervision of lambing over short periods of time. Therefore, man hours could be better utilized through the ability to program the lambing period and other management demands. Earlier work at South Dakota State University (A.S. Series 75-18) has shown injection of flumethasone on day 141 of gestation resulted in 89% of treated ewes lambing within 72 hours of injection. In order to group ewes on a weekly basis, the treatment must be effective over a range of at least 7 days. Results reported in this paper deal with the effect of day of gestation (138 through 144) on flumethasone induction of lambing.

Prepared for Sheep Day, June 8, 1979.

Experimental Procedure

Breeding dates were identified for 369 purebred and crossbred ewes in 1974, 1975 and 1976 utilizing marker rams with grease painted briskets. All ewes were exposed to rams for 5 weeks. Breeding dates were recorded daily. Brisket paint color was changed every 14 days to distinguish between breeding dates. The last observed marking date was considered to be the date of conception. The breeding date was accepted to be correct if the ewe lambd within 138 to 158 days after the recorded breeding date.

Ewes were randomly allotted into two treatment groups, one receiving a 2 mg. flumethasone injection, the second receiving a physiological saline control injection. Every Wednesday morning between 8:00 and 9:30 a.m., all ewes on or between days 138 through 144 of gestation received their respective treatments. Treatments were given intramuscularly (IM) in 4 cc. volumes. Ewes that did not respond to treatment were not treated again. Lambing was monitored, with checks for parturition at a maximum time interval of 4 hours.

Data collected were weight of ewe at time of injection, date and time of birth, ewe lambing score (1 = no difficulty, 2 = slight difficulty, 3 = pulled, 4 = pulled, great difficulty), number and sex of lambs, weight of lambs at time of birth, ewe milking score (1 = normal, 2 = lacking milk, 3 = injured or partial bad bag, 4 = bad bag) and ewe cleaning score (1 = completely cleaned within 1 hour, no problems, 2 = cleaned within 3 hours, 3 = required 3 to 6 hours for cleaning, 4 = did not clean spontaneously, needed assistance).

Results and Discussion

Flumethasone treatment resulted in a shorter ($P>.01$) average interval from treatment to lambing (86.8 ± 8.0 hours) than saline (control) treatment (155.1 ± 7.9 hours) [table 1].

Figure 1 presents the accumulative percentage of ewes lambing by hours post-treatment. Flumethasone treatment of ewes resulted in a much higher accumulative percentage of ewes lambing from 36 to 72 hours post-injection than saline (control) treatment. Number of ewes lambing from the time of injection up to 24 hours after treatment are below 5% and similar for flumethasone- and saline-treated ewes. Therefore, few births are expected in the first 24 hours after flumethasone treatment. Sixty-four percent of the flumethasone-treated ewes lambd within 72 hours with an average interval from injection to lambing of 49.5 hours compared to 17% of saline-treated ewes. Based on the results obtained in this study 95% of the ewes that respond within 72 hours would lamb in an 8.4-hour period starting 45.3 hours post-injection.

The average interval from treatment to birth for ewes treated on days 138 to 144 is shown in table 2. Fewer ewes treated with flumethasone on days 138 and 139 lambd within 72 hours of treatment than ewes treated on days 140 to 144. This resulted in a longer average interval from injection to lambing for these ewes. The marked reduction in this interval for flumethasone-treated ewes on day 140 compared to day 139 indicated an increase in response to flumethasone beginning on day 140 of gestation.

Ewes giving birth to multiples delivered in approximately 13 hours less time after flumethasone treatment than ewes with singles. Lambing difficulty score, incidence of retained placenta and ewe milking score were not affected by treatment. Analysis of variance of lamb birth weight indicated a decrease of .7 lb. ($P < .01$) with flumethasone treatment. The average length of gestation was 3.2 days shorter for flumethasone-treated ewes.

Table 1. Average Interval From Treatment to Parturition for All Ewes

Treatment	Mean hours	Standard error
Flumethasone	86.8 ^a	8.0
Saline (control)	155.1 ^b	7.9

a,b Means with different superscripts differ significantly ($P < .01$).

Table 2. Average Interval From Treatment to Birth for Ewes Treated on Days 138 Through 144

Treatment	Day of injection	Number of ewes	Mean hours	Standard error
Flumethasone	138	19	123.7 ^{ab}	28.7
	139	29	126.6 ^a	18.9
	140	38	74.1 ^{bc}	19.0
	141	35	69.8 ^{bc}	18.2
	142	27	77.7 ^{abc}	19.1
	143	19	61.1 ^{bc}	21.1
	144	18	41.0 ^c	26.5
Saline (control)	138	21	203.0	21.2
	139	30	152.6	20.0
	140	29	140.8	22.2
	141	31	172.2	21.5
	142	22	182.9	23.2
	143	24	136.5	22.3
	144	27	135.9	17.9

a,b,c Means with different superscripts differ significantly ($P < .05$).

Figure 1. Accumulative percentage lambing by hours for all control and flumethasone-treated ewes lambing and after flumethasone treatment ewes lambing within 72 hours.