1973

Planned Parturition: Progress Report

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Management is probably the one most important factor in a successful sheep operation. The ability to exercise control over the lambing period through induced or planned parturition would give the producer another management tool with which to work.

Possible benefits of induced parturition include (1) a concentration of labor resources, (2) maximum usage of lambing facilities, (3) shortening of gestation for multiple lambing systems, (4) reducing birth weights of lambs and (5) clean up of late lambing ewes.

Current research at South Dakota State University is designed to study the effect of certain hormones in relation to induced parturition. The effect of administration of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$)[1] and flumethasone[2] was studied during the 1973 lambing season. Breeding dates were determined for 162 ewes using rams with painted briskets. Expected lambing dates were calculated using a 152-day gestation period. The ewes were then randomly assigned to the various treatment groups based on their expected lambing date. The treatments consisted of low, medium and high levels of physiological saline (control), flumethasone or $PGF_{2\alpha}$ given either intramuscular (IM) or intravenous (IV) [table 1].

Seven days prior to expected parturition, ewes were treated with their assigned hormone. A record was made of type of birth, weight of lambs, lambing difficulty, whether or not the placenta was discharged, and length of time from treatment to parturition. Lambing difficulty was rated on a scale of one to four. A score of one was given if no assistance was required, two if a lamb had to be repositioned, three if the lamb had to be pulled, and four if it was an extremely difficult birth. The time of parturition was recorded and the hours from treatment to parturition calculated to the nearest hour.

Both medium and high levels of $PGF_{2\alpha}$ and flumethasone appeared to shorten the interval from treatment to delivery, with medium levels of flumethasone administered IV showing the best results. Generally, low levels of $PGF_{2\alpha}$ and flumethasone appeared to have little effect on the occurrence of parturition (table 2). Preliminary analyses indicate that induced parturition had very little effect on birth weight of lambs, lambing difficulty or incidence of retained placentas.

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[1]Prostaglandin $F_{2\alpha}$ Tham Salt courtesy of The Upjohn Company, Kalamazoo, Michigan.

[2]Flucort, Syntex Laboratory, Palo Alto, California.

Table 1. Hormones, Levels and Route of Administration Used in 1973 Induced Parturition Study

	Drug					
	Physiological saline route		Flumethasone[a] route		$PGF_{2\alpha}$[b] route	
Level	IM	IV	IM	IV	IM	IV
Low	1 cc	1 cc	2 cc	2 cc	1 cc	1 cc
Medium	2 cc	2 cc	3 cc	3 cc	2 cc	2 cc
High	3 cc	3 cc	4 cc	4 cc	3 cc	3 cc

[a] 0.5 mg./cc.
[b] 5.0 mg./cc.

Table 2. Effect of Saline, Flumethasone and $PGF_{2\alpha}$ on the Interval From Injection to Parturition in the Ewe

Route and level	Hormone		
	Saline	Flumethasone	Prostaglandin $F_{2\alpha}$
Low			
IM	141.22[a] ± 24.70[b]	120.46 ± 29.79	127.78 ± 39.37
IV	180.00 ± 27.71	100.98 ± 32.29	152.78 ± 15.85
Medium			
IM	101.83 ± 21.98	105.50 ± 23.95	67.06 ± 28.92
IV	194.67 ± 34.64	54.67 ± 10.27	142.22 ± 30.88
High			
IM	174.89 ± 38.79	74.89 ± 23.42	85.44 ± 24.83
IV	204.33 ± 32.12	91.00 ± 15.86	75.72 ± 25.85
Average	166.16 ± 29.99	91.25 ± 22.60	108.50 ± 27.65

[a] Mean values, in hours, from treatment to parturition.
[b] Standard errors of treatment means.

During next year's lambing season these hormones, in addition to other possible hormones, will be studied in order to elucidate the optimum hormone, level and route of administration best suited for precise initiation of parturition.