1981

Relative Merits of Accelerated Lambing

J. M. Thompson
South Dakota State University

RELATIVE MERITS OF ACCELERATED LAMBING

J. M. Thompson
Extension Sheep Specialist

Department of Animal Science
Extension Service

South Dakota State University

Faced with rising costs of production, it is imperative that sheepmen continually increase their efficiency of production. In order to do this, the number or total pounds of lamb marketed annually per ewe must be increased. One approach to increasing ewe productivity is accelerated lambing.

Hulet (1978) defined accelerated lambing as any increase in the number of lambings in relation to the age of the ewe and includes starting lamb production at a younger age and breeding and lambing at intervals more frequent than 12 months. For the purpose of this discussion, only the merits of breeding and lambing at intervals more frequent than 12 months will be discussed.

Two approaches to accelerated lambing have been studied by researchers at various universities throughout the United States. These include 8- or 6-month lambing intervals with or without hormone therapy. Currently no approved commercial sources of hormone therapy are available for use by sheep producers, so any system of accelerated lambing will have to occur without hormones.

Requirements For Accelerated Lambing

According to Hulet (1978) the success of an accelerated lambing program is dependent upon (1) selection of adapted breeds and strains of sheep, (2) good nutrition and management, and (3) selection for response within a breed or strain for accelerated lambing.

Selection of breeds of sheep that breed in the spring for the production of fall lambs is necessary for an accelerated lambing program to succeed. Some of the breeds suitable for this include the Rambouillet, Dorset and crosses of these breeds. Two new breeds that have recently been developed offer potential for an accelerated lambing program. They are the Polypay and Morlam. The Polypay was developed at the USDA Sheep Experiment Station, Dubois, Idaho, and the Morlam at the USDA Research Center, Beltsville, Maryland.

The use of an accelerated lambing program requires top management of the ewe flock on the part of the producer. In addition, careful attention must be given to nutrition because of the greater demands placed on the ewe for reproduction and lactation. It also requires that lambs be weaned at an earlier age than what normally would occur in a conventional once-a-year lambing program. Table 1 outlines a typical breeding and lambing schedule that would be following on an 8-month lambing interval for a 2-year period. This cycle would then be repeated after 2 years.

Prepared for Sheep Day, June 5, 1981.

TABLE 1. TYPICAL BREEDING AND LAMBING SCHEDULE FOR 8-MONTH INTERVAL ACCELERATED LAMBING

Bred	Lambed
August-September	January-February
April-May	September-October
November-December	April-May

Ewe Productivity With 8-Month Lambing Interval

What type of increase in production can one expect with accelerated lambing at 8-month intervals? If one looks at the data which have been reported from the various Experiment Stations to answer this question, we see a wide degree of variation in the increase in productivity obtained. Table 2 presents a summary of some of the results obtained when ewes are bred at 8-month intervals. In all the trials, the percentage of ewes lambing of those exposed was appreciably less during the fall period. Thus, the number of ewes lambing in the fall is the determining factor for the success or failure when lambing at 8-month intervals. Therefore, it is extremely important that breeds of ewes be selected which cycle in the spring for the production of fall lambs. In addition, selection for response to accelerated lambing within a breed needs to be practiced if an 8-month lambing interval is to be feasible.

Will crossbred ewes utilizing Finn breeding work for accelerated lambing? Work conducted at Oklahoma by Whiteman (1981) has compared various types of crossbred ewes for lambing at 8-month intervals. The breeds utilized in these crosses were Dorset, Rambouillet and Finn at various percentages. The results of this study are presented in table 3. Based on these results, it appears that the Dorset x Rambouillet crossbred ewes are the most feasible choice for an 8-month lambing interval. The 1/4 Finn crosses do not appear to lamb well enough in the fall to make this breed suitable for an 8-month lambing interval system. Similar conclusions were reached by Thompson (1980) with 1/4 Finn ewes on an accelerated lambing program.

Feed and Labor Requirements For Accelerated Lambing

It is logical to assume that feed and labor requirements will be greater for an accelerated lambing system. However, little has been reported regarding the increased inputs that are required for accelerated lambing. Table 4 presents some data by Thompson (1980) comparing the feed and labor required per ewe and per lamb weaned for a once-a-year lambing system versus an 8-month lambing interval. Although more total feed and labor were required for the accelerated system, the amount was not proportionate to the additional lamb crops being produced. This can partially be explained by the fact that the lamb crops produced on this system all have different requirements for stored feeds and labor. Therefore, the lambs born in the summer or late spring and fall are very efficient with regard to feed and labor.

TABLE 2. GAIN IN EWE PRODUCTIVITY FOR EWES LAMBING AT 8-MONTH INTERVALS VERSUS ONCE A YEAR LAMBING FROM VARIOUS EXPERIMENT STATIONS

Experiment station	Breed of ewes	Increase[a]	Hormone therapy
Virgina (Carter, 1968)	Rambouillet crossbreds	.20	No
Texas (Shelton, 1968)	Rambouillet	.435	No
Indiana (Outhouse, 1974)	Rambouillet	.53	No
Indiana (Outhouse, 1974)	Columbia and Columbia crossbreds	.35	No
Missouri (Thompson, 1977)	Dorset x Rambouillet	.17	No
Missouri (Thompson, 1977)	Rambouillet	.40	No
Illinois (Doane, 1968)	Rambouillet	.78	Yes
Missouri (Thompson, 1980)	Finn-Dorset-Rambouillet	.39	No

[a] Represents the increase in lambs weaned per ewe exposed over once-a-year lambing.

TABLE 3. REPRODUCTIVE PERFORMANCE OF THREE KINDS OF CROSSBRED EWES LAMBING AT 8-MONTH INTERVALS IN FALL, SUMMER AND WINTER

Lambing season	Breed		
	1/2 Dorset 1/2 Ramb.	1/4 Dorset 3/4 Ramb.	1/4 Finn 3/4 D-R[a]
	Fertility, %		
October-November	65	43	44
June-July	89	91	94
February-March	93	94	89
	Lambs Born Per Ewe Lambing		
October-Novmeber	1.33	1.45	1.36
June-July	1.64	1.48	1.74
February-March	1.77	1.63	1.86
	Lambs Born Per Ewe Exposed		
October-Novemer	.86	.63	.60
June-July	1.46	1.35	1.64
February-March	1.64	1.53	1.65

[a] 3/4 D-R designates ewes that were 3/4 Rambouillet, 1/4 Dorset-1/2 Rambouillet or 1/2 Dorset-1/4 Rambouillet that responded similarly (Whiteman, 1981).

TABLE 4. FEED AND LABOR EXPENDED ANNUALLY PER EWE AND PER LAMB WEANED FOR ONCE-A-YEAR VERSUS 8-MONTH LAMBING INTERVAL SYSTEMS

Lambing interval	12 months	8 months
Feed/ewe (lb.)[a]		
Corn silage	760.8	624.4
Hay	174.0	228.6
Concentrates	150.9	167.6
Total/ewe on dry matter basis (lb.)	520.7	543.8
Pasture/ewe (AUM)[b]	1.6	1.5
Total feed/lamb weaned on dry matter basis (lb.)	469.0	362.6
Labor expended (hr.)		
Per ewe	3.0	3.7
Per lamb weaned	2.7	2.5

[a] Feed expressed on an "as fed" basis.
[b] AUM = animal unit month.
(Thompson, 1980).

Looking at efficiency between the two systems based on feed and labor required per lamb weaned, the accelerated system has a decided advantage for feed and a slight advantage in labor. This comparison would be more in favor of the accelerated system if production per ewe could be further increased, especially in the fall.

Summary and Conclusions

Accelerated lambing does offer potential for increasing ewe productivity provided the correct breeds of ewes are utilized and selected for response to a more frequent lambing interval. Accelerated lambing requires a high level of management on the part of the producer and close attention must be paid to nutrition. There will be greater demands per ewe for feed and labor on the accelerated system, but efficiency when measured by feed and labor per lamb weaned will favor the 8-month lambing interval program.

References Cited

Carter, R. C. 1968. Intensive lamb production. The early weaning and multiple lambing confinement rearing systems. The Shepherd 13:14.

Doane, B. B. 1967. Progress on accelerated lambing. Illinois Agr. Exp. Sta. Sheep Day Proc.

Hulet, C. V. 1978. Advances in accelerated lambing. Idaho Agr. Exp. Sta. Res. Bul. 106.

Outhouse, J. B. 1974. Ewe productivity on accelerated lambing programs. Indiana Agr. Exp. Sta. Bul. 49.

Shelton, M. 1968. Lambing out of season and accelerated lambing. Proc. Symp. Physiol. and Reprod. in Sheep, Oklahoma Agr. Exp. Sta.

Thompson, J. M. 1977. Comparisons of systems of lamb production. M.S. Thesis. University of Missouri, Columbia.

Thompson, J. M. 1980. A comparison of four systems of lamb production. Ph.D. Thesis. University of Missouri, Columbia.

Whiteman, J. V. 1981. Productivity of ewes bred at 6- or 8-month intervals. Oklahoma Agr. Ext. Ser. Ext. Facts No. 3857.