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J.E. Held

South Dakota State University

R.D. Zelinsky

South Dakota State University

K. Bruns

South Dakota State University

A. Kolthoff

South Dakota State University

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SHEEP 2014-8

Effect of EAZI-BREED CIDR on reproductive efficiency in seasonally anestrous mated ewes (Year 1)

J.E. Held, R.D. Zelinsky, K. Bruns, A. Kolthoff

BACKGROUND

Improving flock reproductive efficiency and management through eliciting estrus in seasonally anestrous ewes is a high priority in intensively managed commercial sheep operations and the industry's 2Plus initiative. The commercial progesterone intravaginal device, EAZI-BREED CIDR (controlled internal drug release device), provides a new technology to the sheep industry for induction of estrus in ewes during seasonal anestrous.

Studies have demonstrated that during the ewe's anestrous period various hormone treatment protocols can induce a synchronized estrus response. Previous work with progesterone treatment for periods of 6 to 14 days resulted in synchronized estrus activity, for most studies treatment duration was 12 -14 days. The EAZI-BREED CIDR was approved with a recommended insertion period of 5 days.

The sheep CIDR was developed in New Zealand during the late 1980's, it is simple to apply and has proven efficacy. Utilizing the sheep CIDR in reproductive management decisions for ewes during the seasonal anestrous period in Upper Midwest commercial sheep flocks has potential to improve overall flock reproductive efficiency.

OBJECTIVES

To demonstrate the use of the EAZI-BREED CIDR in ewe reproductive management, and evaluate the effect of EAZI-BREED CIDR insertion period of 6 or 12 d on reproductive efficiency in seasonally anestrous ewes in the Upper Midwest.

MATERIALS AND METHODS

A study was conducted at the South Dakota State University Sheep Unit with one-hundred sixty-two Polypay sired ewes they were randomly allocated to CIDR treatment, 6 d or 12 d, by season of birth, age, body weight and body condition score. All ewes received an intravaginal EAZI-BREED CIDR (0.3 mg progesterone) on April 28, 2010. Animals were comingled until CIDR removal for 6 d treatment ewes, they were penned separate from the 12 d treatment ewes until the conclusion of the experiment. Treatment groups were exposed to fertile yearling and mature rams at the time of CIDR removal for 4 days then removed, 15 days later rams were introduced for 6 days. No teaser or intact rams were exposed to ewes until CIDR removal, during the ram exposure periods the ewe to ram ratio was 8:1. Each ram was fitted with a breeding harness to facilitate the recording of

mating (estrus) activity with treatment ewes individually identified with duplicate permanent ear tags. Ewe fertility (lambing success or failure) and prolificacy were recorded at lambing in the fall of 2010.

Difference in CIDR retention and reproductive performance including estrus activity and ewe fertility data resulting from treatment were separated by chi-square analysis. Differences in least square means for age, ewe body weight and body condition score, and lambs born per ewe exposed were separated using the PDIF option of SAS.

RESULTS AND DISCUSSION

CIDR retention and reproductive performance data are reported in Table 1. CIDR insertion period resulted in similar level of retention, estrus activity, ewe fertility and lambs born per ewe exposed. Overall the percentage of CIDR retention was 91%, there were no treatment differences for this parameter in the study but the retention rate was below previously reported levels at 95% or higher. Estrous activity (1st service) and ewe fertility treatment affects were similar whether or not accounting for CIDR retention. Our reported data for these variables exclude ewes that lost the CIDR. Estrus activity (ram breeding marks) in the 1st service for 6 d and 12 d CIDR insertion was similar ($P = 0.70$), average 76.5%. These results are similar to data reported by other investigators comparing short duration (5 d) insertion with or without additional exogenous hormone treatment. In our study the percentage of ewes exhibiting estrus activity in the 2nd service was 28.9%, yet further data analysis is necessary to evaluate treatment affects during this service period and for both ram exposure periods. Ewe fertility was similar ($P = 0.72$) for the 6 d and 12 d CIDR insertion treatments with 71%, or 106 of 149 ewes lambing in the fall of 2010. Other studies using various progesterone protocols to induce estrus in seasonally anestrous ewes report lower or a similar level of ewe fertility. The number of lambs born per ewe exposed was also similar ($P = 0.22$), 1.01 ± 0.80 for 6 d and 0.86 ± 0.75 for 12 d, the prolificacy was 140 % compared to 133 % for the 6 d and 12 d treatments, respectively. Age ($P = 0.59$, 2.3 ± 1.3 6 d vs 2.2 ± 1.1 12 d), ewe body weight (lb) ($P = 0.52$, 144.8 ± 27.9 6 d vs 145.6 ± 27.8 12 d) and body condition score ($P = 0.87$, 2.7 ± 0.6 6 d vs 2.8 ± 0.7 12 d) were similar across treatments.

Table 1. CIDR retention and reproductive performance of seasonally anestrous ewes treated with the EAZI-BREED sheep CIDR for either 6 or 12d

Item	6-d	(%)	12-d	(%)	Overall	(%)	P <
Number of ewes	81		81		162		
Retention	76	(93.8)	73	(90.1)	149	(91.9)	0.33
Estrus Activity							
1 st Service	55	(72.3)	59	(80.8)	114	(76.5)	0.70
2 nd Service	19	(25.0)	24	(32.9)			
Ewe Fertility	55	(72.3)	51	(69.9)	106	(71.2)	0.72