SYNCHRONIZATION OF EWES WITH NORGESTOMET IMPLANTS

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Story in Brief

Eighty-seven Dorset, Montadale, Hampshire and Suffolk ewes were implanted with norgestomet implants during the natural breeding season (September, 1995). Implants were removed from the ewes at either 12, 14 or 16 days and time to estrus was recorded at twelve hour intervals. The mean time to estrus was 43 hours with a range of 24 to 72 hours. However, time to estrus did vary among the ages of the ewes. There was a significant difference in hours to estrus between ewes one year of age and ewes 2-9 years of age. Seventy-seven (88.5%) of the ewes showed estrus post implant removal. Of the 77 that showed estrus, 58 (75.3%) of the ewes conceived at the synchronization. The conception rates were significantly different across age as they varied from 39% (1 year of age) to 90% (5 years of age). The overall lambing percentage of the ewes was 154%. There were significant differences in lambing percentage between the ewes with implants removed at 12 days (181%) when compared to 16 days (128%). Results give strong implications that time of implant removal and age of ewe give rise to inconsistencies when using norgestomet implants to synchronize ewes.

(Key Words: Ewes,Norgestomet, Synchronization.)

Introduction

Many studies have incorporated the use of norgestomet implants for out of season breeding with pregnant mare serum gonadotropin (PMSG) (Fitch et al., 1986; Yelich et al., 1992). The results have varied slightly to that of natural mating, but little is known about using norgestomet implants without PMSG to synchronize ewes during the natural breeding season. One trial indicated that this practice is not feasible as rebreeding rates ranged from 22-75% (Tritschler et al., 1991).

The present trial was designed to give the producer the ability to determine the timelines of lambs being born by managing the ewe's estrous cycle by using norgestomet implants. Using these implants to synchronize lamb crops would allow the producer to obtain uniformity in his lambs while also giving him the ability to regulate when lambing season begins and ends. Controlling when the ewes are to lamb and the number of ewes to lamb would allow for more intensive management practices at a given time.

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Feasibility of using this practice with artificial insemination in the ewe was also a point of interest.

Materials and Methods

Eighty-seven Dorset, Montadale, Hampshire and Suffolk ewes were utilized in this trial in September of 1995. Ewes were implanted subcutaneously in the ear with norgestomet implants and assigned to treatment groups according to days to implant removal. The implants were pulled at either 12, 14 or 16 days. Ewes were then exposed to Breeding Soundness Exam tested rams wearing marking harnesses. Hours to estrus were recorded in twelve hour intervals according to when they were marked. No more than five ewes were exposed every other day to each ram post implant removal so that rams would not be over worked during breeding.

Ewes were ultrasonified at 60 days after the first ewe was marked with an Aloka 210DX unit equipped with a linear array, 3 megahertz transducer and evidence of pregnancy was recorded. The date of lambing and type of birth was recorded with the corresponding identity of each ewe.

General Linear Models and least squares means for SAS (1985) were used to measure the effects of treatment (TRT), on time to estrus (TTB), pregnancy to synchronization (PR), conception to synchronization (CR), breed of ewe (BRD), age of ewe (AGE) and lambing percentage (LP-no. of lambs born per ewe).

Results and Discussion

The age of the ewes ranged from one to nine years in age and were randomly assigned to the three treatment groups. Least squares means for TTB, PR, CR and LP by TRT, BRD and AGE are in Table 1.

There were no breed effects ($P>.1$) on TTB, PR or CR, and pregnancy rates did not differ ($P>.1$) due to TRT, BRD or AGE. Montadale, Dorset and Hampshire breeds did not differ in LP, but the LP of the Suffolk (115%) breed was different when compared to Montadale (162%) and Dorset (168%) breeds ($P<.1$). Treatment affected LP ($P<.1$) as 12 day implanted ewes had a 180% lamb crop and 16 day implanted ewes had a 128% lamb crop. Age of dam significantly influenced TTB and CR ($P<.1$). In ewes one year of age TTB was 51.4 hours as the others ranged from 37.9-44.6 hours. While CR for yearling ewes were 39.1%, compared to 65.1%-89.9% for 2-5 year olds.

Previous work has shown poor results in conception rates to synchronization (<40%) when using norgestomet implants (Tritshler et al., 1991). However, in this study conception rates (ewes conceiving to synchronization) were 66.7% (58 out of 87) with a pregnancy rate (ewes lambing to first synchronized estrus) of 74.4% (58 out of 78). These numbers

are very similar to natural matings without progestogens. Number of days implants were left in the ewe shows a strong relationship to the type of birth and therefore should be considered for optimal lambing percentage.

Literature Cited

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Table 1. Least squares means of TTB, PR, CR and LP by TRT, BRD and AGE.

Groups	n	TTB(hr)	PR(%)	CR(%)	LP(%)
Treatment					
12d	33	43	68.8	69.3	180[a]
14d	33	46	72.4	66.0	144[b]
16d	21	39	71.3	70.0	128[b]
Breed					
Dorset	13	43	64.1	60.2	168[a]
Hampshire	14	45	72.4	71.7	160[ab]
Montadale	41	38	80.3	72.1	162[a]
Suffolk	19	44	66.5	70.0	115[b]
Age					
1	25	51[a]	59.6	39.1[a]	155
2	15	43[b]	64.8	65.1[b]	142
3	17	45[b]	87.3	88.1[b]	163
4	8	38[b]	68.6	72.0[b]	146
5	13	41[b]	85.0	90.0[b]	146
6-9	9	38[b]	59.5	56.4[ab]	153

[a,b] Those in the same column with different superscripts differ significantly (P<.1).