

EXPERIENCES WITH SHEEP CIDRS TO INDUCE FALL LAMBING

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Historically strong market prices during the winter and early spring, along with increasing demand for lambs as youth project animals for spring shows are among the reasons interest among sheep producers to have fall-born lambs is on the rise. Favorable weather and forage production associated with fall lambing compliment these marketing opportunities. However, with sheep being very seasonal in their reproduction, fall-lambing is limited by the ability to get ewes pregnant in the spring. Among the options producers have to enhance spring breeding success is hormonal control of the estrous cycle to induce ovulation in ewes. Until recently, however, protocols and products approved specifically for sheep have been a limiting factor for wide-spread application. The sheep EAZI-BREED CIDR is now approved for use in the U.S. and provides sheep producers an additional tool for spring breeding. The CIDR is a vaginal insert which releases progesterone, and is labeled to induce estrus in ewes during seasonal anestrus. The CIDR is a simple, easy-to-use device that is inserted into the ewe for five days, with ram introduction to immediately follow. This paper summarizes the results of two on-farm applications utilizing CIDRs for spring 2011 breeding season.

Virginia Tech Dorset Flock

Two groups of registered Dorset ewes were synchronized with CIDRs. Group 1 consisted of 43 ewes which lambed fall 2010, or mid-January through early February 2011 (weaned on March 29). Ewes were administered CIDRs on April 29 and introduced to one of 3 Dorset rams in single-sire breeding pastures. CIDRs were removed at either 5 or 7 days following insertion. A control group of 32 ewes were introduced to rams the same day as the synchronized ewes. These control ewes lambed fall 2010 (n = 11) or lambed along with the previously described set of ewes in Jan/Feb (n = 21). Control ewes received no CIDR. All rams had passed a breeding soundness exam and also determined to be active breeders through a libido test

(placed with ewes in estrus to determine mating behavior). Ewes had been isolated from rams since lambing.

A second group of 16 ewes which lambed mid-February through early March, 2011 and weaned on April 19 were also synchronized. CIDRs were inserted May 26, removed after 5 or 7 days, and ewes were placed in 2 of the same single-sire breeding groups mentioned previously.

All ewes were in single sire breeding groups until June 13, at which time they were placed with Suffolk rams in multiple-sire breeding groups. Subsequent lambing records were analyzed and results are presented below.

Table 1. Pregnancy and lambing rate for synchronized and control ewes as impacted by service sire.

	All Service Sires		Service Sire A		Service Sire B		Service Sire C	
	CIDR ^a	Control	CIDR ^a	Control	CIDR ^a	Control	CIDR ^a	Control
Number ewes	59	32	23	13	15	8	21	11
Number ewes lambing (%)	35 (59%)	14 (44%)	16 (70%)	9 (69%)	2 (13%)	0 (0%)	17 (81%)	5 (45%)
Lambs born/Ewe lambing	1.44	1.23	1.38	1.44	2.00	0.00	1.53	1.60
Lambs born/ewe exposed	0.88	0.67	0.96	1.00	0.27	0.00	1.24	0.73

^a Includes ewes receiving CIDR for 5 or 7 days.

As shown in Table 1, overall pregnancy rate for ewes synchronized with CIDRs was 59% compared to 44% for control ewes. Lambs born per ewe lambing was similar for synchronized vs. control ewes, however lambs born per ewe exposed favored synchronized ewes due to higher pregnancy rates. Evaluation of the affect of service sire revealed one sire group (Sire B)

had much lower pregnancy rates as a result of poor ram performance. Excluding ewes exposed to Sire B, overall pregnancy rate was 75% (33 of 44 ewes) for ewes receiving CIDR and 58% (14 of 24) for control ewes.

Table 2. Pregnancy and lambing rate for ewes synchronized with CIDR for 5 vs. 7 days.

	5 day CIDR	7 day CIDR
Number ewes	30	29
Number ewes lambing (%)	20 (67%)	15 (52%)
Lambs born/Ewe lambing	1.50	1.47
Lambs born/ewe exposed	1.00	0.76

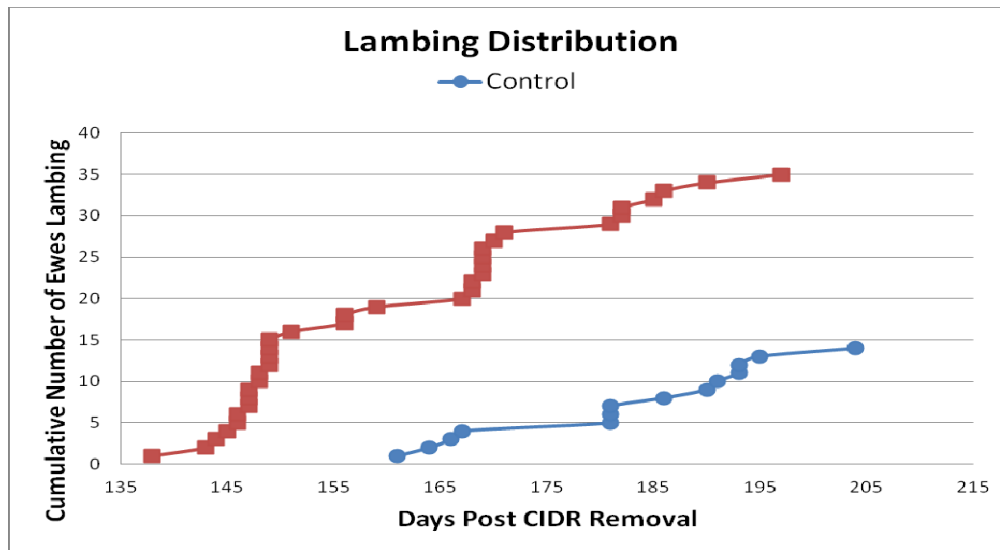
Table 2 compares impact of CIDR removal after 5 vs. 7 days. Pregnancy rates were slightly higher for ewes receiving the 5-day CIDR, with lambing rate similar between the two treatments. CIDR removal was staggered to reduce the number of ewes expected to be in estrus at any one time in the single sire breeding groups (avoid too many ewes in heat at one time).

Table 3. Pregnancy and lambing rate for ewes synchronized in April vs. May.

	CIDR late April	CIDR late May
Number ewes	28	16
Number ewes lambing (%)	23 (82%)	10 (63%)
Lambs born/Ewe lambing	1.39	1.60
Lambs born/ewe exposed	1.14	1.00

Table 3 compares data from ewes synchronized in late April vs. those synchronized in late May. Both sets of ewes were exposed to common service sires A and C (ewes synchronized in April and bred to sire B, the poor libido ram, are not included in this summary as May-synchronized ewes were not exposed to sire B). The higher pregnancy rate for ewes synchronized in late April may partially be attributed to ewe age, as this set of ewes was primarily mature ewes compared to the group synchronized in late May which had a higher proportion of yearling ewes. The post-weaning interval was similar for both sets of ewes (~35 days). Further analysis of the data revealed that only 42% of yearling ewes lambed (both CIDR and controls) compared to 58% for 2-year olds and 56% for ewes 3 years and older across all service sire groups. There were no ewe lambs included in the project.

Both fall and spring lambing ewes were utilized in this study. Response to CIDR was similar for ewes which had lambed the previous fall to those which lambed in the winter and were synchronized 30-40 days after weaning. There was also no difference in pregnancy rate among control ewes based on season of previous lambing. However, there were a limited number of ewes which has had not successfully lambed for over a year prior to this study. Of this group, only 29% lambed, which is much lower than the 58% overall pregnancy rate achieved by all other ewes included in the study.



The above chart presents the lambing distribution for synchronized vs. control ewes. Approximately one half of the ewes receiving CIDR lambing to the first synchronized estrus (marked by ram 24-48 hrs. after CIDR removal, and lambing 145-150 days later). An additional portion of the ewes became pregnant on during their next estrus cycle, and the remainder during cycles which followed. The control ewes responded to the ram effect, with a few ewes breeding 17-24 days after placing with rams, lambing 160-167 after CIDRs removed from synchronized ewes and roughly coinciding with the repeat cycle for synchronized ewes.

The cost of synchronization is associated with the cost of the CIDR as well as additional labor and management required. Assuming a CIDR cost of \$5 each, cost per pregnancy for synchronized ewes was \$8.43 (CIDR cost only considered).

Farm B, Giles County, Virginia

A total of 25 Hampshire x Suffolk crossbred ewes were synchronized. These ewes lambing late January through February, 2011. Ewes were weaned in late April. This flock had never exposed ewes for fall lambs. Ewes were synchronized using a CIDR removed at 6 days (n = 8), 8 days (n = 8) or 10 days (n = 9). Ewes were placed in single-sire breeding pasture with Hampshire x Suffolk crossbred ram at the time CIDR removal (late May). The ram was subjected to a breeding soundness exam prior to placing with ewes. Ewes remained with the

ram for ~20 days. Ewes were shorn on July 4th and pregnancy was determined by ultrasound on August 14. Ewes lambbed 10/23-10/30. Results are presented below.

				Lambs born per	
	Ewes Marked	Ewes Pregnant	Ewes Open	Ewe lambing	Ewe exposed
CIDR (6, 8 or 10 d)	19 (76%)	10 (40%)	15 (60%)	1.4	.56

Assuming a CIDR cost of \$5 each, cost per pregnant ewe was \$12.50 and cost per lamb born was \$8.93 in this flock (CIDR cost only considered).

Collectively, these on-farm experiences underline several key points when synchronizing ewes for spring breeding:

- Whiteface/Dorset ewes will probably respond more favorably to spring synchronization than blackface ewes
- Ram fertility and libido is critical, conduct BSE on rams and observe closely; use of a marking harness will increase accuracy of monitoring
- Ewe:ram ratio should not exceed 18:1 and may need to be lower depending on the age and capacity of the ram. Single ram flocks should stagger CIDR removal (every 2-3d) to avoid overworking the ram
- Ewes should be in good body condition, weaned and recovered from the weaning process
- Ewes should not be exposed to rams prior to synchronization
- Minimize stress on ewes during and immediately following breeding season (heat, transportation)

For additional information and details on CIDRs, see the 2011 Shepherd's Symposium Proceedings paper by Dr. Keith Inskeep from West Virginia University. This document is available on the VT Sheep Extension site at

<http://www.apsc.vt.edu/extension/sheep/programs/shepherds-symposium/proceedings.html> .