

GROWTH AND REPRODUCTION OF 1/4 EAST FRIESIAN LAMBS

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The East Friesian breed of sheep is considered one of the highest producing dairy sheep breeds in the world. The main goal of this project is to determine if East Friesian genes will improve commercial milk production of U.S. ewes. Since many U.S. sheep dairies are milking purebred or crossbred Dorset ewes, the East Friesian will be compared to the Dorset at the Spooner Station. Lamb production will continue to be an important source of income to sheep dairies for the foreseeable future. Therefore, this report presents the first comparative results of the growth and reproduction of crossbred sheep with East Friesian or Dorset breeding.

In August 1993, the University of Wisconsin-Madison purchased two 1/2 East Friesian ram lambs from a Canadian producer in British Columbia. The rams were born in March 1993 and were the progeny of Arcott Rideau ewes artificially inseminated with pure East Friesian semen imported from Switzerland. In October-November 1993, (Dorset x (Romanov x Targhee)) and (Dorset x (Finn x Targhee)) crossbred ewes were exposed to either two pure Dorset rams or to the two 1/2 East Friesian rams in single sire pens. The ewes lambed in March-April 1994.

Postweaning, twenty-eight 1/4 East Friesian and twenty 3/4 Dorset ram lambs were placed in two adjacent pens and growth and feed efficiency were measured. The lambs were chosen on the basis of weight and age in order to have two groups of approximately the same average weight and the same average age at the start of the trial.

In addition to the lambs discussed above, in February 1994 some lambs were born from the mating of the 1/2 East Friesian and Dorset rams to Romanov x Targhee and Finn x Targhee ewes. These February-born ewe lambs were mated from September 19 to October 24, and the March-born ewe lambs out of 1/2 Dorset ewes were mated from October 26 to December 1. Ewe lambs were mated to either 1/2 East Friesian or 3/4 East Friesian rams.

Table 1 presents the lambing performance of the 1/2 Dorset ewes mated to Dorset or 1/2 East Friesian rams, the survival rate of the lambs as well as their birth weights and their adjusted weights at 60 days. Ewes mated to 1/2 East Friesian rams gave birth to more lambs than ewes mated to Dorset rams (2.38 and 2.10, respectively). The survival rate of 1/4 East Friesian lambs was very high (98.4%) and greater than the survival rate of 3/4 Dorset lambs (93.3%) even though more lambs were born per ewe from ewes mated to 1/2 East Friesian rams.

Among ewes raising 1/4 East Friesian lambs, only three lambs from three different sets of triplets were raised on milk replacer. Therefore, two ewes raised single lambs, 14 ewes raised twin lambs and 12 ewes raised triplet lambs. Among ewes raising 3/4 Dorset lambs, only 1 lamb from a set of triplets was raised on milk replacer. Therefore, 13 ewes raised single lambs, 20 ewes raised twin lambs, 16 ewes raised triplet lambs and 1 ewe raised her set of quadruplets.

The mean birth weights adjusted for sex and type of birth were not significantly different between the two types of lambs, although birth weights of 1/4 East Friesian lambs were consistently higher. Only birth weights of twin lambs were significantly different between the two breed groups.

The mean weight of lambs at 60 days adjusted for age of ewe, type of birth, type of rearing, and sex of lamb, was 10 pounds higher for the 1/4 East Friesian lambs than for the 3/4 Dorset lambs. By combining the fertility, litter size, survival rate, and adjusted weight at 60 days, ewes mated to 1/2 East Friesian rams weaned more pounds of lambs than ewes mated to Dorset rams (147.2 lbs. and 100.1 lbs., respectively).

East Friesian lambs had greater postweaning gains than Dorset lambs (.95 lbs and .76 lbs./day respectively) with an similar feed efficiency of approximately 4.6 lbs of feed per pound of gain (Table 2). The fastest growing East Friesian had a total ADG of 1.19 lb/d.

Performance of ewe lambs lambing at approximately 12 months of age is presented in Table 3. Dorset-sired ewe lambs were lighter at mating, had lower fertility, and had lower litter size than 1/4 East Friesian ewe lambs. Adjusted 60 day lamb weights were greater for lambs produced by the 1/4 East Friesian ewes than for lambs from the 3/4 Dorset ewes, but weights were similar for lambs from the 1/4 East Friesian and 1/2 Dorset ewes. Relative to crossbred Dorset ewe lambs, crossbred East Friesian ewe lambs appear to have a higher reproductive rate and produce lambs of similar or greater growth rate.

In conclusion, 1/4 East Friesian lambs had a very high rate of survival to weaning with no evidence of any particular health problems thereafter, grew faster from birth to 60 days of age than Dorset-sired lambs, grew faster from weaning to 120 lbs. than Dorset-sired lambs, had the same feed efficiency as Dorset-sired lambs, and had greater lamb production at 12 months of age than Dorset-sired ewe lambs.

Table 1. Performance of Ewes Mated to Dorset or 1/2 East Friesian Rams and Prewaning Growth of Lambs

Trait	Breed of Service Sire	
	Dorset	1/2 East Friesian
No. ewes exposed	52	26
Fertility, %	96	100
Litter size, no.	2.10	2.38
Lamb survival to weaning, %	93.3	98.4
Lamb birth weight, lb (overall)	9.4	10.0
Singles	10.8 ^b (13) ^a	11.0 ^b (2)
Twins	9.4 ^c (40)	10.6 ^b (24)
Triplets	7.9 ^b (48)	8.5 ^b (36)
Quads	6.1 (4)	
Adjusted 60 day wt., lb	53.1 ^c	62.8 ^b
Wt. of lamb weaned/ewe present at breeding, lb	100.1	147.2

^a(Numbers of lambs born of each birth type).

^b^cp < .01

Table 2. Postweaning Growth of 3/4 Dorset and 1/4 East Friesian Ram Lambs (48 Day Trial)

Trait	Breed of Sire	
	Dorset	1/2 East Friesian
No. ram lambs	20	28
Starting age, d	80.4±1.18 ^a	78.8±1.03 ^a
Starting weight, lb	74.2±3.11 ^a	78.3±2.7 ^a
Ending weight, lb	110.9±4.02 ^b	123.8±3.49 ^a
ADG, lb/d	.76±.04 ^b	.95±.04 ^a
Feed efficiency, feed/gain	4.57	4.55

^a^bp < .01

Table 3. Reproduction of Ewe Lambs sired by Dorset or 1/2 East Friesian (EF) Rams

Trait	Breed of sire:		Breed of dam ^c :	
	Dorset 1/2R,1/2T	1/2 EF 1/2R,1/2T	Dorset 1/2D,1/4R,1/4T	1/2 EF 1/2D,1/4R,1/4T
No. ewes exposed	16	16	31	32
Age start of breeding, d	208±1.3 ^a	212±1.3 ^a	212±1.0 ^a	211±1.0 ^a
Wt. start of breeding, lb	115.4±4.0 ^b	126.3±4.0 ^a	119.7±2.1 ^b	129.3±2.1 ^a
Age at lambing, d	371±4 ^a	380±4 ^a	366±3 ^b	363±3 ^b
Fertility, %	81.3	87.5	87.0	96.9
Litter size, no.	1.71 ^{ab}	2.29 ^a	1.42 ^b	1.81 ^{ab}
Lamb survival, %	100	97.0	92.3	92.7
Adj. 60-d lamb wt., lb	67.4±2.7 ^{ab}	63.9±2.7 ^{ab}	58.6±2.1 ^b	67.7±1.7 ^a

^a^bp < .01

^cBreed of dam: R=Romanov, F=Finn, T=Targhee, D=Dorset.