

**PRELIMINARY RESULTS:  
SURVIVAL OF HIGH-PERCENTAGE EAST FRIESIAN LAMBS**

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**Introduction**

East Friesian germplasm was imported into North America specifically for use by the dairy sheep industry in the early 1990's. Positive experiences of dairy sheep farmers with crosses between East Friesian and domestic breeds resulted in many sheep dairies entering into a breeding program of grading-up to high-percentage East Friesian or purchasing purebred East Friesian sheep.

The perceived superior value of East Friesian crosses by producers was supported by research. A study at the Spooner Agricultural Research Station of the University of Wisconsin-Madison found that East Friesian crossbred sheep (up to 50% East Friesian breeding) had 13% heavier lamb weights at 140 days of age, 16% greater number of lambs born per ewe lambing, 9% greater number of lambs weaned per ewe bred, and 92% more milk, 67% more milk fat, and 69% more milk protein produced per lactation than sheep of domestic breeding (50 to 75% Dorset breeding) (Thomas et al., 1998, 1999). The only traits in which East Friesian crosses were inferior to the Dorset crosses were in milk composition. East Friesian-cross ewes had percentage milk fat and percentage milk protein approximately .5 percentage units lower than Dorset-cross ewes.

Our study also showed good viability of lambs of East Friesian-cross breeding compared to lambs of Dorset-cross breeding. However, our East Friesian-cross lambs were all of 50% or less East Friesian breeding. Producers should not extrapolate these results to sheep of greater than 50% East Friesian breeding because there are reports in the literature of poor viability of pure East Friesian and East Friesian-cross sheep of over 50% East Friesian breeding (Katsaounis and Zygoyiannis, 1986; Ricordeau and Flamant, 1969). Therefore, there is a need to evaluate sheep of high-percentage East Friesian breeding for viability under U.S. production systems before such sheep are to be recommended without reservation.

**European studies on survival**

Katsaounis and Zygoyiannis (1986) reported especially poor viability of East Friesian sheep in Greece. They imported a total of 52 ewes, 10 rams and 18 lambs of East Friesian breeding in the three years of 1956, 1960, and 1965. They were run on their experimental farm along with sheep of two local dairy breeds. Of these imported animals, all the lambs died within two months, and all the adults had died by 1970. Of the purebred East Friesian lambs born in the flock in Greece, 38.3% were stillborn or not viable at birth, 29.6% died before the age of two months, and of those weaned, 69.2% died before one year of age. Ewes of 1/2 East Friesian breeding lived for a respectable 5.1 years (similar to the local breeds). However, ewes of higher

percentages of East Friesian breeding had very short lifespans: 3/4 East Friesian = 2.6 years, 7/8 East Friesian = 2.7 years, 15/16 East Friesian = 2.5 years, 31/32 East Friesian = 2.5 years, and pure East Friesian = 2.0 years. The most common cause of death was pneumonia with a high incidence of Maedi (OPP-like disease) in adult ewes.

Ricordeau and Flamant (1969) reported an increased death loss to respiratory disease of East Friesian-cross lambs in France. In different years and with percentages of East Friesian breeding varying from 50% to 87.5%, they reported a 2.2% to 22.2% increased death loss in East Friesian-cross lambs from pasteurellosis and pneumonia compared to Préalpes du Sud lambs.

## Results and discussion

We have some early indications from the flock at the Spooner Agricultural Research Station that lambs of over 50% East Friesian breeding may have reduced survival rates. Table 1 presents the survival rates to July 1, 1999 of all lambs born alive in our flock in the winter/spring of 1999, grouped by breed of sire and expected proportion of East Friesian breeding in the dam. The survival rates varied from 100% to 70% among the groups with the lowest survival rates for lambs with East Friesian sires and East Friesian-cross dams.

**Table 1.** Arithmetic means for survival of lambs born alive by breed of sire and dam's percentage of East Friesian breeding (1999 lamb crop).

Breed of sire	Dam's % EF breeding	Dam age, yr	Lambing dates	No. lambs born alive	Survival rate, %		
					Birth to weaning	Weaning to 7/1/99	Birth to 7/1/99
East Friesian	0	1 - 9	3/4 - 5/28	60	95.0	93.0	88.4
East Friesian	>0 to <50	2 - 4	3/13 - 4/13	19	84.2	93.7	78.9
East Friesian	≥50	1 - 2	3/4 - 5/18	132	82.1	85.5	70.2
Lacaune	0	3 - 5	4/7 - 5/1	45	95.5	100.0	95.5
Suffolk	0	2	2/26 - 3/20	10	100.0	100.0	100.0
Suffolk	>0 to <50	2 - 4	2/2 - 3/27	135	97.0	99.2	96.2
Suffolk	≥50	2 - 4	2/2 - 3/26	70	97.1	99.0	96.1
Texel	0	2	1/10	1	100.0	100.0	100.0
Texel	>0 to <50	2 - 4	3/25 - 4/5	11	90.9	100.0	90.9
Overall lamb survival rate of the flock				483	91.7	94.6	86.7
Percentage of dead lambs that died from pneumonia					45.9	91.3	63.3

As Table 1 indicates, the various groups also differ for age of dams and lambing dates which may also have had an effect on lamb survival. However, given these limitations of the data, the data have been regrouped by expected proportion of East Friesian breeding in the lamb and presented in Table 2. In all lamb growth intervals, lambs with over 50% East Friesian breeding had lower ( $P < .05$ ) survival rates than lambs of lower percentage East Friesian breeding, and there was a tendency during the postweaning period for lambs of 50% East Friesian breeding to have lower ( $P < .10$ ) survival rates than lambs of less than 50% East Friesian breeding.

**Table 2.** Least squares means for lamb survival by percentage of East Friesian breeding of the lamb (1999 lamb crop).

Lamb's % EF breeding	No. lambs born alive	Survival rate, %		
		Birth to weaning	Weaning to 7/1/99	Birth to 7/1/99
0	56	96.4±3.5 <sup>a</sup>	100.0±2.9 <sup>a</sup>	96.4±4.2 <sup>a</sup>
>0 to <25	146	96.6±2.2 <sup>a</sup>	99.3±1.8 <sup>a</sup>	95.9±2.6 <sup>a</sup>
≥25 to <50	70	97.1±3.1 <sup>a</sup>	98.5±2.6 <sup>a</sup>	95.7±3.8 <sup>a</sup>
50	60	95.0±3.4 <sup>a</sup>	93.0±2.8 <sup>a,b</sup>	88.3±4.1 <sup>a</sup>
>50	151	83.4±2.1 <sup>b</sup>	86.5±1.9 <sup>b</sup>	72.2±2.6 <sup>b</sup>

<sup>a,b</sup>Within a column, means with a different superscript are different ( $P < .05$ ).

### Conclusions

The survival rates of lambs of high-percentage East Friesian breeding need to be determined by better designed studies than the one presented here before definitive conclusions can be reached. However, this preliminary look under a U.S. production system combined with the results from other countries suggest that sheep producers that move to over 50% East Friesian breeding in their flocks should be prepared to deal with possible increased health problems in their lambs.

### References

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