

**ENVIRONMENTAL FACTORS AND HERITABILITY  
ESTIMATES OF LAMBING INTERVAL AND AGE AT  
FIRST LAMING IN YANKASA SHEEP UNDER  
CONTROLLED MATING SYSTEM**

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**ABSTRACT**

A total of 1204 and 247 records of Yankasa sheep reared within 1983-1993 were used to analyse for fixed environmental effects of lambing interval (LI) and age at first lambing (AFL), respectively, and also to obtain heritability estimates for the traits. The flock was raised semi-intensively in an accelerated lambing programme at the National Animal Production Research Institute, Shika, Nigeria, within the sub-humid zone of Nigeria. The overall mean values for LI and AFL were  $249.8 \pm 2.7$  and  $575 \pm 9.6$  days, respectively. Significant effects of season ( $P < 0.01$ ) and year ( $P < 0.001$ ) accounted for 20.01% of total variability in LI while litter size ( $P < 0.05$ ), season of birth ( $P < 0.01$ ) and year of birth ( $P < 0.01$ ) significantly affected AFL, accounting for 20.22% of variation in the trait. Ewes lambing in the late rainy season had shorter LI than ewes lambing in the late dry season (239.3 vs 246.0 days). AFL was attained earlier in single than twin born ewes. The effects of parity, litter size and sex of lamb were not significant for LI while AFL was not significantly affected by parity and sex of lamb ( $P > 0.05$ ). Heritabilities for LI and AFL were estimated at  $0.73 \pm 0.26$  and  $0.99 \pm 0.38$ , respectively, by paternal half-sib analysis. These values were however considered inflated as mating was highly controlled for management reasons. Hence, values cannot be satisfactory used for prediction of breeding values of ewes for these traits.

**Keywords:** Lambing interval, Age at first lambing, Heritability, Yankasa sheep.