ASSET Series A (2001) 1 (1): 109-114

ASSET
An International Journal

LITTER SIZE IN YANKASA SHEEP: ENVIRONMENTAL FACTORS, ADDITIVE CORRECTION FACTORS AND HERITABILITY ESTIMATE

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ABSTRACT

A total of 2240 records of Yankasa lambs born within 1983-1993 were used to analyse fixed environmental effects on litter size, develop additive correction factors and determine heritability estimate for the trait. The flock was raised semi-intensively in an accelerated lambing programme at the National Animal Production Research Institute, Shika within the sub-humid zone of Nigeria. The overall mean litter size was 1.22±0.01. Least-squares analyses of variance showed that parity, season and year of birth had highly significant (P≤ 0.001) effects, accounting for 31.71% of the variation in litter size. Multiparous ewes were superior in litter size to primiparous ewes (1.33 vs 1.13, for sixth and first parity ewes). The best performance in litter size was also recorded for ewes lambing in the late dry season (1.27) as compared to ewes lambing in the late wet season (1.15). Additive environmental adjustment factors for effects of parity of dam and season of lambing were derived using, as a base class, a female lamb born in the late wet season at fourth parity. Heritability estimate of 0.07 obtained by daughter-dam regression suggests low response to selection for litter size. It is recommended that correction for fixed environmental effects be made prior to selection,. Improvement in litter size could be better achieved through cross breeding with high fecundity breeds, rather than through direct selection, due to low heritability of the trait.

Keywords: Litter size, environmental factors, additive correction factors, heritability estimate.