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The effect of non-genetic factors on reproduction traits of Indonesian Etawah Grade goats

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Abstract

Reproductive traits are important determinants of efficiency, productivity, and the economic viability of livestock production systems. Several reproductive traits in goats, commonly used as indicators of productivity and with a significant impact on profitability, are age at first kidding, kidding interval, prolificacy, and pre-weaning mortality. The Etawah Grade (EG) goat is a local Indonesian breed, classified as a dual-purpose breed (milk and meat production). This study aimed to analyse the influence of non-genetic factors on reproduction traits and the correlation between reproduction traits in Etawah Grade (EG) goats. A total of 11,344 reproduction performance records from 2699 animals were used in this study. The effects of non-genetic factors (parity, season, year, and type of birth) on litter size (LS), age at first kidding (AFK), kidding interval (KI), and pre-weaning mortality (PM) were analysed using a General Linear Model (GLM). The overall mean and standard error of PM, LS, KI, and AFK in this study were 13.776±0.004 %, 1.797±0.660 kids, 279.988±1.155 days, and 598.671±3.229 days, respectively. PM was significantly affected ($p < 0.05$) by year of kidding, parity of dam, type of birth, and season of kidding. Parity, season, and year of kidding had a significant effect ($p < 0.05$) on LS. AFK was significantly affected ($p < 0.05$) by year and season of kidding. KI was only affected by the year of kidding ($p < 0.05$). The present findings suggest that non-genetic factors predominantly affect reproduction performance in EG goats. The information obtained from this study provides an important basis for implementing breeding programmes of EG goats, as well as support the improvement of production strategies, enhance selection accuracy, and optimise breeding programmes for EG goats.

Keywords: Correlation, Etawah Grade goat, non-genetic, phenotypic, reproduction

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