

# Estimating Prevalence of Endometritis in Smallholder Zero-Grazed Dairy Cows in Rwanda

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Endometritis is a postpartum uterine disease of cows that interrupts reproductive cycles resulting in suboptimal fertility, reduced performance, and profitability of the dairy herd. The objective of the study was to estimate the perceived and observed prevalence of endometritis among zero-grazed dairy cows in smallholder farms in Rwanda. A snowball sampling method was applied in cross-sectional survey to obtain data from 370 farms on 466 cows within their 21-60 days postpartum (dpp). The survey, conducted from September 2018 to March 2019, simultaneously examined cows using the Metrichheck Device (MED) to determine the presence and type of vaginal mucus character (VMC) based on a score scale of 0 to 3. Cows scoring VMC  $\geq 1$  were recorded clinical endometritis (CLE) positive. Cytotape (CYT) was used to determine the percentages of polymorphonuclear cells (PMN) in endometrial cytology sample. Cows with  $\geq 5\%$  of PMN were recorded subclinical endometritis (SACLE) positive. At cow-level, endometritis prevalence was 70.2% with 67.2% CLE and 31.8% SACLE while at the herd-level, prevalence was 71.1% with 68.1% CLE and 34.4% SACLE. The differences between the diagnostic performance of the MED and CYT were significantly ( $p < 0.001$ ). Perceived prevalence by farmers was much lower (3.2%) and without agreement with the observed prevalence (Kappa = -0.02,  $p > 0.05$ ). The high-observed prevalence and farmer underestimation of endometritis prevalence indicate knowledge gaps about endometritis. The extension service therefore needs to increase awareness and education among smallholder farmers about detection and management of endometritis.

**Keywords:** Crossbreds; Cytotape; Dairy cows; Exotic breeds; Metrichheck.