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**CURRENT STATUS AND FACTORS AFFECTING THE SUCCESS RATE OF
ARTIFICIAL INSEMINATION IN MID-COUNTRY SMALLHOLDER FARMS
AND UP-COUNTRY LARGE FARMS IN SRI LANKA**

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by

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ABSTRACT**Small holder farms**

A questionnaire survey was conducted to determine the present status of artificial insemination (AI) in 250 small-holder dairy farms in five veterinary ranges (Gampola, Kundasale, Teldeniya, Udunuwara and Yatinuwara) in the Mid Country Wet Zone of Sri Lanka. The average land holding was 0.05 ± 0.03 ha and the herd size was 2.75 ± 1.66 animals, with 1.65 breedable cows, 0.7 heifers and 0.3 young bulls. Artificial insemination was used by 98% of the farmers and the quality of the AI service was graded as good by 70%, as average by 20% and as poor by 10% of the farmers. The major problems associated with the AI service were identified as non-availability of the service at the correct time (26%), need for many repeat services (23%) and more male calves born (6%).

A subsequent longitudinal study was conducted in the above veterinary ranges. Detailed observations were recorded on cows receiving first AI and progesterone was measured by Radioimmunoassay in milk samples collected on the day of AI (day 0) and 10–12 days and 21–23 days after AI. The mean calving to first service period was 174 ± 87.9 days ($n=272$) and the mean calving to conception period was 193 ± 97.1 days ($n=147$). The first service conception rate (CR) was 53.8% and overall CR was 62.3% (ranging from 31.3% in Yatinuwara to 67.0% in Teldeniya), with an average of 1.6 services per conception. The study showed differences in CRs

due to location, type of feeding, body condition score of the animals, days post-partum, month, timing of AI, breed of bull, semen type and origin and AI technician.

Large multiplier farms

A study was conducted to determine the reproductive performance, success rate and factors affecting conception rates following artificial insemination (AI) at Ambewela, Bopaththalawa, Dayagama and New Zealand farms. Information on farm characteristics, management, feeding and breeding was recorded. A total of 200 cows receiving AI were followed from a recorded service up to pregnancy. Detailed information on breed, age, parity, milk yield, body condition, body weight, intensity of oestrous signs, degree of cervical dilatation and uterine tone, site of semen deposition, interval from onset of oestrus to time of insemination, source of semen, and experience and skills of the technician were recorded at the time of insemination. Milk samples on the day of service (day 0), on day 10 and 21 post-service were obtained for assessment of milk progesterone levels. Rectal examination was performed on 45–60 days post-insemination for pregnancy diagnosis on cows not returning to oestrus. The mean interval from calving to first service and conception were 111.2 ± 74.2 days ($n=133$) and 156 ± 92.7 days ($n=170$), respectively. The average first-service and all-service conception rates were 50.4% and 53.6%, respectively, while the average services per conception was 1.9. The results of this study indicate that the fertility status and overall success rate of AI at Ambewela, Bopaththalawa and Dayagama farms

were in the lower range of the acceptable level while at New Zealand farm they were much lower than the desired levels. The study highlights the possible reasons for poor fertility as the factors related to management, heat detection, timing of AI, bull/semen and technician.

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