

AN ASSESSMENT OF THE ARTIFICIAL INSEMINATION SERVICE FOR CATTLE IN SRI LANKA

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Artificial insemination (AI) is an important tool in cattle breeding in Sri Lanka. Three studies were conducted to determine i) the coverage and outcome of AI services at national, provincial and district levels (Study 1), ii) factors affecting the conception rate with AI in the wet zone, a) mid-country smallholder farms (Study 2) and b) up-country large multiplier farms (Study 3).

Study 1 revealed that the percentage of breedable cows covered by AI increased from 8.6% in 1983 to 18.8% in 1996 and the percentage of AI calvings of estimated annual calvings rose from less than 1% in 1983 to 6.3% in 1996. The AI coverage in 1996 in terms of estimated breedable cattle in the wet zone (WZ), intermediate (IZ) and dry zone (DZ) were 68.6%, 16.9% and 4.3%, respectively. The calving rates in 1996 following AI were 20.1%, 12.8% and 11.1%, in WZ, IZ and DZ, respectively while the national was 16.7%. Study 2 revealed that the mean interval from calving to first service (CFS) in cattle in WZ, mid-country small holdings was 183 ± 87.1 days ($n=211$) and the interval from calving to conception (CC) was 194 ± 93.9 days ($n=143$). The first service conception rate (CR) was 54%. The overall CR was 50.2% and the average number of services per conception was 1.9. Milk progesterone data revealed that only 72.8% of cows presented for AI had low progesterone concentrations ($<1\text{nmol/l}$) at the time of AI and only 54.5% have had an ovulatory oestrus. When stratified according to semen donor and technician, the CRs varied from 18.2 to 70.4% and 27.8 to 58.5%, respectively. Besides these two factors, variations in CRs were observed with regard to parity of cows and days postpartum. Study 3 showed that the mean CFS and CC intervals in WZ, up-country multiplier farms were 111.2 ± 74.2 days ($n=135$) and 156 ± 92.7 days ($n=120$), respectively. The average first service and all service CRs were 50.4% and 53.6%, respectively and the average services per conception was 1.9. Milk progesterone data revealed that 79.3% of the cows presented for AI had low progesterone concentration ($<1\text{nmol/l}$) at the time of AI and 67.3% had an ovulatory oestrus. When stratified according to the semen donor and technician, the CRs ranged from 34.2 to 68.9% and 40.6 to 72.3%, respectively. Besides these, the CRs varied with the method of heat detection, time of the year, type of oestrous signs and breed of the cow. In conclusion, the findings of the study indicate that although AI service has made a significant expansion in its coverage over the last 2 decades and performances has improved, it still reaches less than one fifth of the estimated breedable cattle population and accounts for the less than one tenth of estimated annual calvings in the country. The conception rates following AI, both in small holdings and large farms are in the lower limit of the acceptable range and the factors associated with heat detection, semen and technician appear to have contributed to the low conception rates.

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