

## COMPARATIVE STUDY ON MORPHOMETRIC CHARACTERISTICS OF FRESH AND FROZEN BOVINE SEMEN FOLLOWING *in-vitro* PRODUCTION

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### **Executive Summary**

Cattle is one of most crucial genetic resources among the farm animal genetic resources (FAnGR). Genetic improvement of cattle can be done by planned AI (Artificial insemination), multiple ovulation and embryo transfer (MOET) and *in-vitro* production (IVP) of embryos in Bangladesh. Among reproductive technologies most popular in Bangladesh is AI. Due to AI, semen quality evaluation is important to selection. To efficient calf good quality semen has positive effect on successful fertility of cows and heifer as well as cattle breeding programme. We conducted this study to evaluate quality of both frozen and fresh production of bull in Bangladesh. For the purpose of this study, both fresh and frozen semen were collected from CCBDF (Central Cattle Breeding and Dairy Farm) Savar, Dhaka. Fresh semen collected by artificial vaginal method (AV) at early morning. Then sample transported through thermal box to laboratory. This study was conducted at Department of Animal Nutrition, Genetics and Breeding, Sher-e-Bangla Agricultural University, Dhaka-1207. After collection of semen by AV method from bull, frozen semen straw were prepared and stored at  $-196^{\circ}\text{C}$  in liquid nitrogen can for AI purpose at CCBDF. The frozen sample straw was collected and transported through  $\text{N}_2$  can to laboratory. To assessment of morphometric characteristics of semen qualities, these parameters were evaluated such as sperm concentration  $\times 10^6/\text{ml}$ , normal sperm, abnormal sperm, dead sperm, live sperm, total motility and progressive motility. The fresh and frozen semen were comparable and statistically significant ( $p < 0.05$ ). The abnormal sperm of fresh and frozen semen were 9.98% and 18.2% respectively. The live sperm of fresh and frozen semen were 88.43% and 68.04% respectively. The dead sperm of fresh and frozen semen were 11.8% and 46.3% respectively. The normal sperm of fresh and frozen semen were 87.3% and 65.09% respectively. The sperm concentration  $\times 10^6/\text{ml}$  of crossbred is  $1370.00 \times 10^6/\text{ml}$  and  $1223.00 \times 10^6/\text{ml}$  were fresh and frozen respectively. The progressive motility of fresh and frozen semen were 75.26% and 44.32% respectively. The motility of fresh and frozen semen were 85.93% and 62.16% respectively. To discard poor fertile bulls in AI programme, semen quality evaluation is a crucial element. The fresh semen quality better than frozen semen. But to avoid venereal diseases frozen disease straw better than fresh semen and effective to get desirable calf per year. So, frozen semen should be undertaken with special management to maintain maximum quality which can be used in the field level for genetic improvement.

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