Protocol Development for Shipping Fresh, Cooled Boar Semen

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The Agricultural Research Service/USDA has established the National Animal Germplasm Program for conservation and facilitation of utilization of animal genetic resources. A vital component of the program is obtaining and managing genetic parameters of the stored gametes, which are used to measure animal performance within and among breeds, as well as providing information for germplasm use. Another role of the program is fresh gamete transport and subsequent cryopreservation. Fresh porcine spermatozoa are widely used for artificial insemination programs. However, there is an ongoing need for improved shipping procedures that maintain a temperature range not harmful to sperm viability. Previous studies have shown that the most effective temperature for maintaining extended boar semen motility is between 15 and 17°C. The purpose of this project was to develop an economical protocol that maintained extended boar semen at 15°C under standard commercial shipping conditions for 24 hours. The most cost effective, sterile, repeatable approach developed, after multiple trials using temperature sensors at various simulated ambient temperatures, was to implement the use of styrofoam coolers and a combination of gel and foam packs at various temperatures, briefly, a Plastiliteâ 15.2 x 20.3 cm, 3.8 cm thick cooler containing 8 (15.2 x 15.2 cm, 340g) gel packs kept at 15oC placed inside another Plastiliteâ cooler #SL22 packed with Ice Blanketsâ gel packs (38 x 49.5 cm) kept at room temp and surrounded by two layers of cooled (1-3oC) foam packs (17.8 x 25.4 cm, 1.9 cm thick, 511g). The proposed shipment protocol is currently being implemented by the ARS/USDA, though post-shipment and post-thaw motility data using this protocol have yet to be determined.