Viability of Bovine Semen, Phase III

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The purpose of this experiment was to demonstrate the effects of holding bovine semen above the frost line of a liquid nitrogen tank on viability. It was hypothesized that bovine semen would maintain the viability standard at a maximum of 30 seconds of above the frost line because the cells experience damage immediately after experiencing extreme temperature change. The viability of bovine semen is important to the artificial insemination process, especially to the cost efficiency and high quality of genetics obtained. Procedure included holding five samples of semen above frost line for 10 seconds, 30 seconds and one minute. Control was tested immediately and negative control comparison was incubated at 30° C for two minutes. Once refroze, samples were thawed in water using artificial insemination procedure and placed in a vile with Hoechst 3342 dye to stain DNA; vile was incubated for 20 minutes before analyzed using IVOS II Casa sperm analyzer machine. Averages from 10 and 30 seconds tests proved to maintain the control's and veterinarian's motility standard of 30 percent. One minute produced an average of 18 percent, while the negative control produced one percent motility. Progressive and concentration remained high for the viable samples, while static percentages proved high for nonviable samples. The analysis supports that bovine semen will not maintain viability after exposed above the frost line for more than 30 seconds. By using good artificial insemination procedures, the risk of using nonviable semen is eliminated, thus developing phenomenal cattle genetics and more profitable cattle.

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