



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Lindsey M. Affonso	Project Number S1101
Project Title Viability Variables	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project is to find out exactly what it is that I should refrain from when I Artificially Inseminate (AI) my dairy goats. There is a myriad of beliefs involving sperm and their sensitivity. It is my mission to enhance my knowledge of the potential for unviable sperm resulting from irresponsible handling. I am testing several beliefs and also using substances commonly used in the AI/semens handling process, therefore expanding my knowledge.</p> <p>Methods/Materials I tested several substances and environmental variables common to the AI/semens handling process. I exposed sperm to rubbing alcohol, sub-normal thawing temperatures, above-normal thawing temperatures, non-spermicidal lubricant, and fluorescent light.</p> <p>Results My results varied, and were quite surprising. As for the rubbing alcohol, the sperm that were exposed to the alcohol experienced necrozoospermia (a complete lack of living sperm). But that was the problem. Virtually none of the sperm were able to be exposed. I was using AI frozen semen, which is treated with several chemicals and antibiotics. These substances reacted violently with the alcohol, creating a barrier of sorts between the main of the semen sample and the alcohol. Therefore, only the sperm on the immediate outside of the sample were affected. The lubricant, on the other hand, had a crippling effect on the sperm. Because of its consistency, it would not allow the semen to move, consequently causing the sperm to be unviable. If the sperm cannot move, it cannot fertilize an egg. Both the above-normal and sub-normal thawing temperatures rendered the sperm unviable. They were not "killed" per say, but the exposure severely limited locomotion: they were extremely lethargic. The fluorescent light had results identically matching the thawing temperatures.</p> <p>Conclusions/Discussion My conclusion are that most beliefs about sperm sensitivity are true. A sperm's viability is affected by any variable in its environment. The alcohol, the non-spermicidal lubricant, the fluorescent light, and the differing thaw temperatures were all variables, and all affected the sperm's viability in different ways. My hypothesis was that any and all variables in a sperm's environment will compromise its viability. My hypothesis was proven true.</p>	
Summary Statement Subjecting goat semen to a number of viability affecting factors.	
Help Received Biology teacher supervised the observations in the microscope, mother helped set up the board.	