



# ROCKY REPRO

Queenslands Bovine Reproduction Centre

## **Why is morphology so important?**

Bovine Morphology is the study of the shape and form of bovine sperm.

The quality of a bull's sperm depends on many factors including stress, temperature, nutrition, illness/injury, age and testicular form and function.

Standard crush-side assessment of semen uses a field microscope that magnifies sperm 400x. Crush-side assessment only looks at semen motility and gives a single percentage of sperm moving forward.

Motility does not always represent the true fertilizing ability of the semen. Many abnormalities directly affect the quality of sperm and cannot be seen at this resolution.

To get a more comprehensive overview a high-powered oil immersion microscope is required. At Rocky Repro, we use DIC (differential interference contrast) microscopes in our laboratory to magnify the image by 1000x.

Morphology provides a deeper understanding of your bull's true reproductive ability and provides insight to their overall health and condition.

It also shows the overall health of the seminal fluid, detecting the presence of other unfavorable conditions such as bacteria, yeast, parasites, urine crystals, and white and red blood cells.

Beyond just motility, morphology looks at individual sperm cells, examining head shape and smoothness, tail shape and integrity and additional abnormalities.

Sperm abnormalities fall broadly into two categories. Compensable and Non-compensable.

Compensable abnormalities are abnormal sperm which are unlikely to reach or fertilize an egg, hence can be present in a slightly higher levels than non-compensable sperm. Non-compensable sperm has the potential to reach and fertilize an egg but will likely result in early embryonic death and loss of pregnancy.

Overall, any semen sample with less than 70% normal morphology, regardless of the category of abnormality, will not meet the industry standard for a "Tick" or "Pass" grade.

A morphology assessment provides a valuable real-time look at the bull's current reproductive and overall health and can also offer some insight into the bull's breeding future.