

# Stallion Fertility Helped by Science

By Tullis Matson ARAGS, MD at Stallion AI Services Ltd and Cryogenetics Ltd

Providing a balanced diet is imperative to breeding stallions, not only for fertility but also for the overall wellbeing of the horses. Breeding stallions differ in their nutritional needs, particularly when you are feeding for fertility. Nutrients such as organic Selenium, L-Carnitine, Nucleotides, Yucca and Antioxidants have been widely researched in isolation for their beneficial properties on stallion fertility. It is with this in mind that a trial supplement was then developed to include all of these active ingredients to meet the specific needs of breeding stallions. Organic Selenium and fruit-derived Vitamin E work in synergy to aid sperm motility and structure and protect the cells from free radical damage.

Fruit-derived Vitamin E is particularly beneficial as it is 4-6 times more bio-available than synthetic forms found in most feed and supplements. Organic Selenium was used in the trial product to improve absorbability and L-Carnitine an amino acid has shown to help improve mitochondrial fat metabolism in sperm was included to improve sperm motility. Nucleotides were added to the formulation as they are essential for DNA and RNA replication which is important for sperm cell reproduction as well as cell protection, and facilitating the immune system. To help improve blood flow to the testis of breeding stallions Yucca, a natural anti-inflammatory was also added to the formulation.

## Research

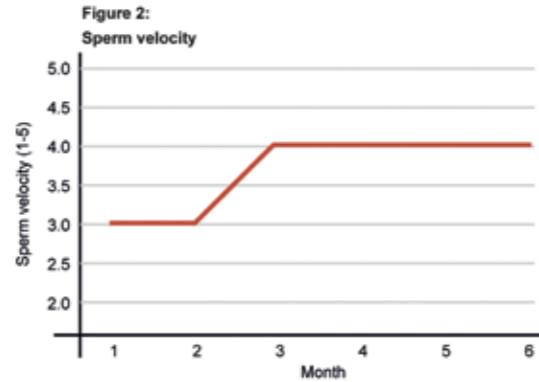
The two-year research study used a sample group of both fertile and sub-fertile stallions which were fed the specifically designed stallion supplement over a six month period, in conjunction with their

existing diet. Throughout the six month trial period semen samples were collected and processed for fresh, chilled and frozen artificial insemination (AI).

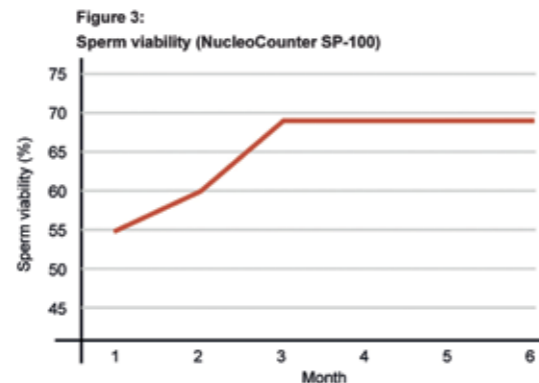
The samples were assessed for motility (%PLM), velocity and longevity. In addition, measurements of concentration and overall viability were carried out using a NucleoCounter SP-100. Fluorescent microscopy was also used to calculate the % live and the overall morphology of the sample.

## Results

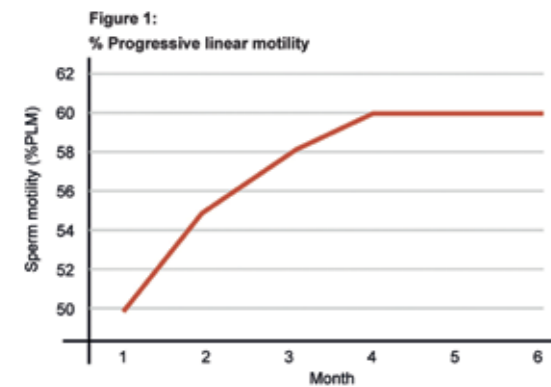
During the study the active ingredients found in the trial supplement demonstrated improvement on sperm motility by up to 20%, improvement on sperm velocity by up to 33% and improvement on overall sperm viability by up to 24%. Throughout product testing, improvements have been seen on both fertile and sub-fertile stallions and proven effective on semen for fresh, chilled and frozen AI.



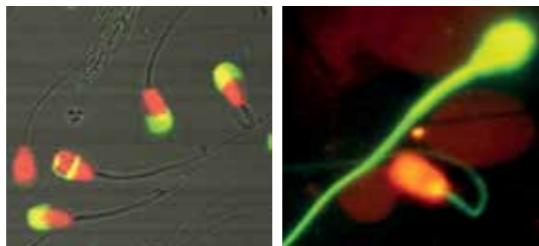
**Figure 2** Illustrates an average result of the sample group's velocity over time. The velocity or speed at which sperm travel is measured subjectively and scored on a scale of 1 to 5, with 1 being poor and 5 being excellent, the recognised minimum industry standard is a velocity score of 3.



**Figure 3** Illustrates an average result of the sample group's viability over time. The sperm viability or, more accurately, sperm cell membrane integrity was calculated using the NucleoCounter SP-100 which has been validated for measuring stallion sperm concentration and viability. The assay determines penetration of fluorescent dye into spermatozoa through porous membranes or its exclusion from spermatozoa with intact membranes.



**Figure 1** Illustrates an average result of the sample group's raw percentage progressive linear motility over time. The most commonly used measure of semen quality is sperm motility, specifically "progressive motility", Determining progressive motility subjectively involves visually scanning several fields of motile sperm under a microscope and estimating the percentage of the population that are moving in a progressive fashion.



## Conclusion

Throughout the study the trial supplement demonstrated a number of beneficial results which aided in improving stallion fertility. The trial supplement helped to increase sperm motility and improved cell membrane integrity thus aiding the sperm in tolerating conditions within the mares uterus, particularly following natural covering, as well as withstanding the processing techniques associated with preparing semen for fresh, chilled and frozen artificial insemination. Stallions that produce semen with both good motility and viability, compared with stallions with lower quality semen have the best chance of successfully getting the mare in foal.



**STALLION AI SERVICES**

Blue Chip and Stallion AI Services Ltd have been working closely for the last two years to develop a feed supplement which provides a combination of active ingredients to aid the improvement of stallion fertility.

**NEW**

# Help your stallion release his breeding potential with Blue Chip's NEW release



**Stallion SPM-20** is the product of a two-year research collaboration between Blue Chip Feed, the internationally renowned equine feed specialists, and Stallion AI Services Ltd, the UK's leading stallion semen collection centre.

- Proven to improve sperm motility by up to 20%
- Proven to improve sperm velocity by up to 33%
- Proven to improve overall sperm viability by up to 24%
- Contains: Organic Selenium, L-Carnitine, Nucleotides, Yucca and Antioxidants.