NEW ZEALAND
THOROUGHBRED BREEDERS'

COLOSTRUM: REFRACTOMETER & FREEZING

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After a normal delivery and a successful attempt to stand, the foal receives the most important milk its mother will ever produce: colostrum.

After receiving colostrum, a foal's immune system will be able to fight infection for the first sixty days of its life. Foals receive no transfer of immunity through the placenta before birth, so antibodies need to be ingested. After this period, the foal's own immune system will be developed enough to offer adequate protection for the future.

Colostrum is the first milk produced by a mare. Antibodies from her blood are collected in the mammary glands and then contained within the colostrum that is transferred to the foal during its first nursing. With the consistency of honey, colostrum is thick and yellow, very different to the thin, white milk the mare will subsequently produce.

When a foal successfully receives colostrum through nursing, it is called "Passive Transfer." A foal's digestive system can only break down and utilize the colostrum in the first 24 hours of life, with the most effective absorption between 6 and 8 hours from birth.

After a foal is born, a veterinarian performs an initial examination and blood is drawn so that an IgG test can be taken. An IgG test determines the amount of Immunoglobulin G, the most common antibody, that has been absorbed into the foal's blood stream.

Amounts greater than 800 mg are considered satisfactory. If a foal does not absorb enough colostrum from the mare and has levels of less than 800 mg, this is known as "Failure of Passive Transfer."

In this scenario supplementation is required. Recording the time of nursing is an important factor in knowing how much time there is to effectively supplement after the IgG test results are displayed.

There are three possible causes for failure of passive transfer: the mare may have produced low-quality colostrum; she may have dripped the milk prior to the foal being born, or the foal may not nurse.

The quality of colostrum is typically lower in maiden mares, but can be low at any stage of a broodmare career. Looking for the sticky, thick, yellow milk at the udder is an easy way to determine if colostrum is present; the presence of this prior to foaling is known as "waxing up" and is also an indication of imminent foaling.

Additionally, a tool called a colostrometer is used to measure the specific gravity (the ratio of the density of colostrum to the density of water) and give an estimate of the IgG content.

A refractometer may be used in place of a colostrometer to measure the amount of IgG in a colostrum sample.