

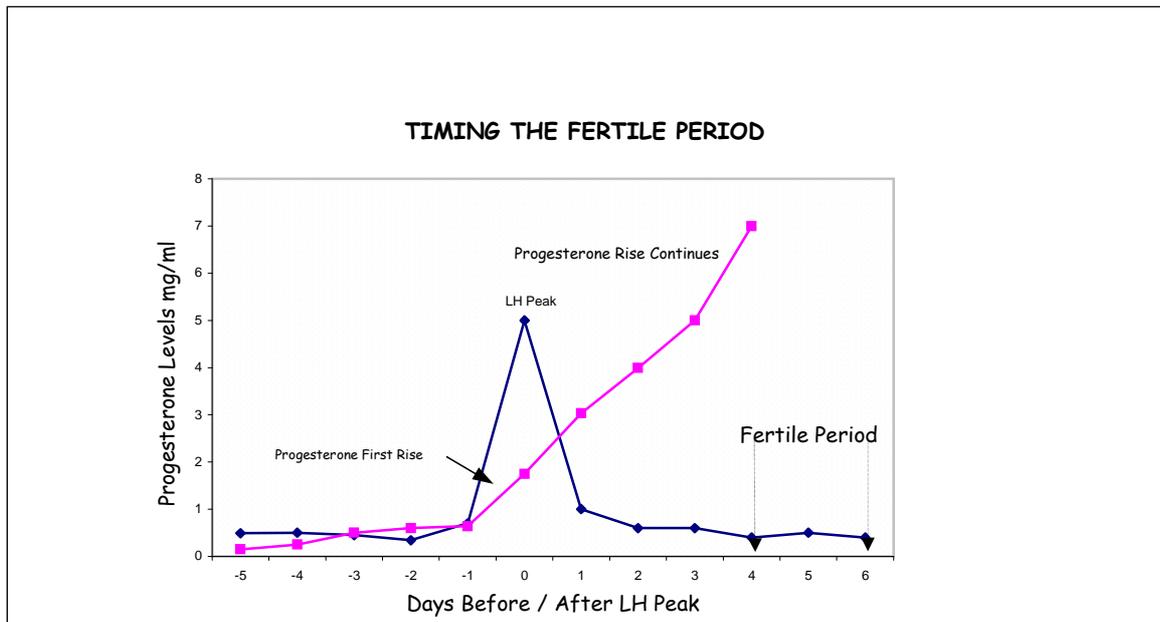
Client Fact Sheet #72

TIMING OF BREEDING

The **major cause** of **infertility** in the bitch is not infectious, physical, chemical, or stress-related, but the **failure to breed at the proper time**. Unsuccessful breedings result from improper timing more than any other cause. Proper timing using frozen semen is even more essential than during natural matings or artificial insemination (AI's) with fresh ejaculate.

Why is this?

Three main hormones, **Luteinizing hormones (LH)**, **Progesterone** and **Oestrogen** play key roles in the oestrous cycle of the bitch. Changes in **Oestrogen** levels cause many of the signs traditionally used to time breedings, such as standing behaviour and the changes seen in vaginal smears, but these may not necessarily correlate with ovulation or the true fertile period. The **LH peak**, usually occurring sometime between days 3 and 28 of the bitch's cycle is the central event triggering ovulation and determining the fertile period. Measurements of blood **LH** are very complicated and costly. Progesterone blood levels are used to identify this **LH peak** as the first rise in progesterone usually coincides with the **LH peak**. This **LH peak** causes the ovaries to release the developing eggs approximately 48 hours after it has occurred. The ovocytes cannot be fertilised upon their immediate release from the ovaries and a subsequent maturation step, requiring 2-3 days, must occur before sperm penetration and fertilisation can take place. Once the **eggs** are mature they remain **viable for approximately 2 to 3 more days** before they begin to degenerate. Thus the **actual fertile period of the bitch is only 2 to 3 days long**, and begins 4 or 5 days after the **LH peak** (2 to 3 days after ovulation).



Once the fertile period is over the bitch can no longer become pregnant. Observable changes in vaginal discharge, vulvar and vaginal swelling, and the standing behaviour, as well as the changes seen on vaginal smears can begin anywhere from 3 to 10 days before to several days after the LH peak. Therefore progesterone hormone tests are the best method to accurately predict the true fertile period.

Why this Additional Expense?

In most cases, the stud dog and the bitch will breed naturally, on the days nature signals to them, and the bitch will become pregnant. These dogs do not need any help. With purebred dogs, however, human beings have intervened to plan which dog will breed to which bitches, and when. In most situations, the bitch is being transported to the stud dog, sometimes over long distances. Often the number of breedings that will be performed is limited, making it even more important that they be performed on the correct days. Sometimes, the stud dog has several bitches to breed at the same time; since he can't breed every bitch every day, it is important to know which bitch to breed on which day. Other times, a bitch will never stand - when should she actually be bred? Semen quality can also determine the necessity for accurate ovulation timing. Remember that the **true fertile period of the bitch is short**, it lasts **2 to 3 days** before she goes out of season.

These are the only days that fertilisation can take place, yet most breedings can take place before that time, and the bitches conceive. Why? This is because a young healthy stud dog's sperm lives 5 - 7 days inside the bitch's reproductive tract, so sperm will still be alive during the fertile period, even when the breeding took place several days previously. With poor quality sperm numbers, such as in an older dog, a dog stressed by a heavy show schedule, or a frequently used stud dog, properly timed breedings can make the difference between conceiving and missing. When using frozen semen, the lifespan of the sperm can be reduced to as little as 12 hours so accurate ovulation timing is even more crucial to successful breedings. Breedings that occur significantly before the fertile period often result in a lack of conception or reduced litter size, since few sperm cells remain viable when the eggs are ready to be fertilised. Likewise, breedings that occur at the end of the fertile period also often result in small litters, since the number of fertilisable eggs are decreasing. **Accurate timing will optimise the chances of conception with normal litter size.**

Accurate timing requires the monitoring of vaginal cytology and the blood **progesterone** level. Blood progesterone levels can be performed at many veterinary laboratories. Auckland Veterinary Services uses Gribbles Laboratory in Auckland.

For further information, please email at auckvet@auckvet.co.nz or phone 818 5697