Inter-oestrus

Duration: approx. 15 days

Days 3-18 of cycle

Behaviour:

During inter-oestrus/dioestrus, the animals' behaviour is unremarkable. However, they may become agitated for a few hours two or three times during this 15-day period. Some animals even show real symptoms of heat, with attempts to mount other cows and a visible vaginal discharge. If the farm records oestrus dates properly, there is clearly no point in inseminating now, at the "wrong time". However, time and again, animals are still wrongly inseminated at this stage of the cycle. A successful previous insemination can be undone by inseminating into the uterus (destroying the amniotic sac).

Ovary:

The yellow body (corpus luteum) produces the pregnancy hormone (progesterone). This hormone is transported via the bloodstream, causing changes in behaviour and in the reproductive tract. The immature yellow body is also called the corpus haemorrhagicum. It is soft, and red in colour. A mature yellow body during mid-cycle is sometimes described as "blooming like a flower". It is often shaped like a champagne cork. It should take up at least 50% of the ovary.

One or two follicles may develop on the ovary during the yellow body phase. These are referred to as follicle waves or intermediate follicles. The follicles die without ovulation taking place. The yellow body does not regress until the hormone prostaglandin is produced by the non-pregnant uterus.

Uterus and vagina:

The muscles of the uterus are relaxed, so the uterus feels soft and flaccid. The vaginal mucosae are less moist and the cervix is tightly closed. The vulva appears wrinkled. In exceptional cases, oestrus symptoms may occur when an intermediate follicle forms (see there).

Hormones:

From around day 6 of the cycle, the yellow body (corpus luteum) has developed enough for the pregnancy hormone (progesterone) it produces to cause effects in the animal via the bloodstream. The secretion of gonadotropin-releasing hormone (GnRH) is inhibited in the hypothalamus. This is termed a 'negative feedback mechanism'.

Follicles not maturing fully during the yellow body phase produce the oestrus hormone (oestrogen), which can cause oestrus behaviour during mid-cycle. However, ovulation does not take place because luteinising hormone is not secreted by the pituitary gland (an effect of the negative feedback mechanism).

If a successful insemination (and hence fertilisation) has taken place during oestrus, the embryo produces the hormone interferon-tau from around day 16. This embryonic hormone sends the signal "pregnant" to the uterus, preventing it from producing prostaglandin F2 alpha. The yellow body persists and produces the pregnancy hormone progesterone, which is vital for foetal survival, through most of the gestation period. Without fertilisation and hence without a signal from the embryo's interferon-tau, the uterus produces the hormone prostaglandin F2 alpha from around day 17 of the cycle, triggering resorption of the yellow body. As a result, the level of progesterone in the blood falls rapidly and GnRH is secreted by the hypothalamus (end of negative feedback). A new cycle gets underway.