

## Reproduction in Cat

Puberty occurs at between 4-18 months of age in the queen and its onset is influenced by the season of the year. It often occurs when the hours of daylight are increasing.

Physical condition is also an important factor, for puberty does not usually occur before body weight reaches about 2.5 kg. Puberty may occur earlier in short-haired breeds than in longhaired breeds.

(Seasonally polyestrous): Queens can go through several periods of estrus per season (long day breed).

Cats kept in a common household can become non seasonal breeders as a result of night-time illumination.

Queens are induced ovulators (Copulation, vaginal stimulation, and administration of gonadotropin or GnRH analogues induce ovulation within 24–48 h).

### Estrous cycle and anestrus

The stages of the estrous cycle of the queen include

- 1- **Pro-estrus**,
- 2- **estrus**,
- 3- **post-estrus**,
- 4- **met-estrus** (diestrus).

**Pro-estrus** is characterized by rubbing the head and neck against objects but not permitting breeding by the male. It is observed in only a minority of the estrous cycles and lasts for about one to two days.

**Estrus**, the phase in which mating is allowed, lasts seven to nine days. **Estrus behavior** includes crouching with the forequarters pressed to the ground and the pelvis elevated, rhythmic stamping of the hind legs, frequent vocalizing, and restlessness.

If breeding is permitted, LH release begins within minutes after copulation and ovulation usually occurs 24–48 h after copulation.

The estrus in which the queen has not been induced to ovulate is followed by a **post-estrus** period with an average duration of eight to ten days, after which the next estrus begins. Plasma progesterone concentration is at its basal level during the post-estrus period.

**Met-estrus (di-estrus):** Ovulation is followed by pregnancy or a luteal phase without pregnancy (called pseudopregnancy).

**Pseudopregnancy:** In the queen does not give rise to signs and symptoms and is thus not comparable to that in the bitch.

In both pregnancy and pseudopregnancy, plasma progesterone concentration begins to rise 24–48 h after ovulation, accompanied by the development of luteal tissue.

The progesterone-dominated phase lasts about 38 days in the pseudopregnant queen and approximately 60 days in the pregnant queen. Plasma progesterone concentrations in pseudo pregnancy and pregnancy are similar until day 21. Thereafter plasma progesterone concentration is lower in pseudo pregnancy than in pregnancy.

The duration of pregnancy is 67 days on average (range 62-71 days). The average number of kittens born alive per litter is 4, with a range of 1-8 live kittens/litter.

## Reproduction in Bitch

In the healthy bitch the onset of puberty occurs at six to 18 months of age. Each estrous cycle, is followed by an anestrus of variable duration. The mean interval between estrous cycles is about seven months, with a range of four to twelve months. The interestrus interval may be regular or variable in individual bitches.

The stages of the canine estrous cycle are:

- 1- **Pro-estrus**,
- 2- **Estrus**,
- 3- **Met-estrus** (di-estrus)
- 4- **An-estrus**

**pro-estrus**: The average duration of **pro-estrus** is nine days, with a range of three to 17 days. **Pro-estrus** is defined as the period from onset of sanguineous vaginal discharge (bloody discharge) and vulvar swelling until the first willingness to accept mating. The external signs of pro-estrus, such as hyperemia and edema of the vulva and bloody vaginal discharge are related to the high estradiol-17 $\beta$  concentration.

**Estrus** has an average duration of nine days, with a range of three to 21 days. During estrus the bitch accepts mating and the vulva begins to shrink and soften. The discharge usually persists and may remain sanguineous or turn straw-colored. (Ovulation occurs at 2-3 days after start estrus).

**Met-estrus** (di-estrus) Average 70 days and begins when the bitch no longer accepts mating and end when plasma progesterone concentration declines for the first time to 3 nmol/l.

Di-estrus is the stage during which successfully bred bitches are pregnant.

Bitches do not recognize pregnancy has a prolonged di-estrus (pseudo-pregnancy) whether they were bred or not and whether they are pregnant or not. Hormone concentrations equivalent to those seen in pregnancy are present in the blood. Because all the hormonal changes of pregnancy take place, even non-pregnant bitches may show mammary development and lactation late in di-estrus.

In dogs of various breeds the mean gestational period was 62.0 days.

**Anestrus** (5 months): Sexual inactivity.