

BREEDING/INSEMINATION PROTOCOLS

Discussion of variations in the timing of the breeding based upon the method of insemination.

(A) Natural service or artificial insemination (AI) using fresh semen. Breeding generally timed to perform between day 3 and 6 after the LH surge, or between day 1 and 4 after ovulation. Progesterone levels usually range somewhere between 8.0 and 18.0 ng/ml on these days. Generally speaking I like to do vaginal AIs between day 3 and day 5 after the LH surge, or between days 1 thru 3 after ovulation. Natural service 6 days after the LH surge or 4 days post ovulation is within acceptable parameters.

(B) Artificial insemination using fresh chilled semen. Timing of breeding is dependent on a number of variables including method of insemination (vaginal AI, transcervical AI, or surgical AI), the quality of the fresh chilled semen, and number of inseminations planned (typically either one or two AIs are planned when using fresh chilled semen). There are no absolute guidelines concerning the protocol or method of insemination and may be a mutually agreed upon approach between the veterinarian and the breeder based upon each individual case, semen quality, and semen availability.

When doing vaginal AIs, doing two AIs between day 3 and 5 post LH surge or between days 1 and 3 post ovulation is within reasonable parameters. Although bitches are generally considered highly fertile on day 6 post LH surge or day 4 post ovulation we have concerns on those days with vaginal AIs as the higher progesterone levels can potentially lead to a tighter cervix. With a TCI or natural service that is not a concern.

When transcervical insemination (TCI), either 1 or 2 TCIs may be performed. If two TCIs are planned, between days 3 and 5 post LH surge or between days 1 and 3 post ovulation is within reasonable parameters.. When only one TCI is planned, day 5 post LH surge is the preferred day.

When a surgical AI is planned using fresh chilled semen, day 5 post LH surge is the preferred day.

Ovulation timing is somewhat more critical using fresh chilled semen due to lower semen viability over time, particularly with older dogs.

Fresh chilled semen extenders:

- Synbiotics
- International Canine Semen Bank (ICSB)
- Clone, Inc.
- Canine Cryobank
- Andro Pro by Mini-Tube of America
- Camelot Farms

Fresh chilled semen kits:

- Zoetis (formerly Synbiotics)

International Canine Semen Bank (ICSB)
MOFA Mini-Tube of America
Camelot Farms

- (C) Artificial insemination using frozen semen. Timing of insemination is absolutely crucial due to the brief viability of frozen semen after thawing. Viability of frozen semen is generally considered to be 3-12 hours after thawing leaving little room for error in terms of timing the fertile period in the bitch. All eggs must be mature and ready for fertilization or the semen may not remain viable for a sufficient period of time resulting in a failure to conceive or small litter size. We only perform surgical AIs when using frozen semen. Some practices involved in canine reproduction do perform TCI using frozen semen, but we do not. We are not aware of anyone performing TCI with frozen semen obtaining equivocal results in terms of conception rates and litter size when compared to surgical AIs as has been documented by a study of our conception rates using frozen semen. Equivocal conception rates using TCI may in fact be out there but I have not seen any published studies regarding those statistics.
- (D) Points to consider:
TCI is non-invasive and generally can be performed with sedation at the most. Surgical AI is invasive and requires general anesthesia. We have not had an anesthetic problem performing a surgical AI in nearly 30 years of doing them and anesthetic protocols and anesthetic monitoring technology continues to improve, therefore reducing anesthetic risk. Our conclusion is that a minimally invasive procedure with minimum anesthetic risk is well worth the results.
- (E) We typically perform surgical AI with frozen semen somewhere between day 5.5 and day 6 post LH surge. We generally target surgical AI to be performed when progesterone levels are in the range of 20.0 to 25.0ng/ml although a significant percentage of our patient's progesterone levels never exceed the mid to high teens at the time of insemination using frozen semen. We have had success with frozen semen inseminations in bitches with progesterone levels as low as 10.5ng/ml and as high as greater than 40 ng/ml so there is a great deal of variability and very wide parameters regarding progesterone levels as they sometimes relate to the fertile time frame in some bitches. There is no "cookie cutter" approach, especially when we take into consideration the many different breeds of the canine species.
- (F) Semen freezing methods include straws and pellets. In our opinion, neither method is superior to the other in terms of success rates if all other factors are equal. We have had excellent results using both straws and pelletized frozen semen. If the semen has been properly frozen and is properly thawed, and the bitch is properly timed the results are equivocal. I prefer freezing using straws because the entire process is more efficient and less tedious than freezing via the pelletized method.