



Artificial Insemination -The Future in Canine Breeding

Artificial Insemination (AI) is an assisted reproductive technology whereby semen is collected from the stud dog, evaluated and processed and then deposited into the vagina of a receptive bitch through artificial means. AI requires organization and good planning. With proper training, procedures and equipment, the activities of collection, processing, transporting of semen and insemination can be easily put in place in a breeding program.

There are many benefits and/or circumstances for using AI.

- Eliminates the cost, risk and time of shipping and boarding bitches
- Stud dog is collected without interrupting present activities (e.g. shows, trials) and ejaculates can be split if necessary
- Semen from outstanding stud dogs is more easily available worldwide
- Semen quality and quantity can be known and evaluated before breeding, and can determine if the dog has any prostatic issues
- Minimizes transmission of reproductive diseases such as herpes and brucella
- Semen can be frozen to preserve genetics for future generations
- Eliminates issues with aggressive bitches that refuse a stud dog or aggressive studs that are difficult to handle in the presence of a bitch in heat
- Eliminates issues with inexperienced stud dogs or excitable males that have an erection before penetration
- Natural breeding in some breeds may be physically difficult

The stud dog owner must supply the proper dose or number of high quality sperm cells and the ejaculate must be handled and delivered correctly. To ensure this, the stud dog should be manually collected using disposable equipment or reusable equipment that can be sterilized and allows fractioning of the ejaculate. The second fraction, which is sperm rich, never naturally mixes with the first and third fractions. Care must be taken to collect only this sperm rich fraction for further extension. The semen should be evaluated for motility, morphology and concentration.

If the bitch is on site, the collected semen can be immediately placed in the anterior vagina using a specially designed AI catheter. Fresh semen may be extended in special AI extender to increase motility and give the proper volume for performing immediate insemination.

With chilled semen, the extender used has a larger influence on the outcome. The semen needs to be extended in a solution that protects the sperm during cooling, supplies nutrients and energy to the sperm cells, maintains pH, osmolarity and ionic strength, and has antibiotics to prevent bacterial growth. Most extenders preserve the semen for 3-5 days at 5°C so that it can be shipped overnight in a specially designed shipping container. Recent advancements in chilled semen extender allow semen to be kept anywhere from 5 to 10 days in a controlled temperature of 5°C. This creates a larger window of opportunity.

Semen can also be frozen but this process requires training and is usually done by a veterinarian or special center that specializes in frozen semen. The semen is stored in liquid nitrogen and can last indefinitely. Frozen semen also requires special insemination techniques performed by veterinarians.

In addition to proper handling of shipped semen by the stud dog owner, there has to be good breeding management, exact timing of the estrous cycle and breeding readiness of the recipient bitch. Therefore, the ovulation timing needs to be determined by a veterinarian using several different methods such as vaginal cytology, vaginoscopy, progesterone and luteinizing assays. The behavior of the bitch should also be noted and it is advisable to check the semen for motility before inseminations. Success rates are similar with fresh or chilled with good breeding management.

When preparing for AI either in house, cross country or internationally, it is important to be flexible and have a back up plan. Successful AI is all in the details. Placing the correct number of high quality sperm cells that have been handled correctly into a bitch at the correct time for insemination will ultimately produce litters of healthy pups that will rival those of natural mating but with all the advantages of assisted reproduction.

For further information on Canine AI equipment and supplies and the process, contact Minitube at 1-800-500-7978.