Canine Reproduction
INTERVIEW WITH KATHERINE SETTLE, DVM

How quickly does the average male replenish his sperm supply? How often can a male dog be optimally used or collected for breeding?
Each male can be different, but most males can be used 2-3 times a week for about 2 weeks, then a week off. Or perhaps once weekly for 6 weeks, with 2 weeks off.

Is there anything a breeder can do to help extend the siring life of a male?
As with anything, maintain good overall health, nutrition, and exercise. You cannot expect to “perform” if your body is worried about other things.

Maintaining the male’s dominance and interest is important. Haven’t you noticed that your male is more “aggressive” if he has been allowed to be the only one with the pack while the “other” male was on the circuit for a couple of months? I think it is a good idea for the male to be ejaculated or bred at least about once a month. There are also some thoughts that things like antioxidants, omega fatty acids, etc. help boost the semen. However, most believe that these things help boost health in general. Beware that some drugs affect semen, such as cimetidine and ketoconazole. This is usually temporary though. Heavy stress affects sperm production.

Does thyroid problem have an effect on sperm production?
Several years ago, a study was done that removed the thyroid gland from males and later evaluated the semen. No change was noted. However, thyroid can influence the body, so I always check thyroid in my evaluation of an infertile male.

If progesterone testing is done to pinpoint breeding time on a bitch, what is the correct time to breed her?
Once she rises to the level where she releases the lutetizing hormone (LH) is there a window for breeding?
First of all, there are several types progesterone tests, and some are interpreted differently from others. It also depends on the type of breeding, such as natural, AI, chilled, or frozen as to when you breed.

For the most part, the first significant rise in progesterone is assumed to be the LH peak (maybe progesterone around 2ng/ml). The AVERAGE bitch ovulates about two days later. The eggs are not ready to be fertilized when they are ovulated. It is one to five days after ovulation, after another division, that the eggs are ready to be fertilized. The majority of bitches have eggs that are ready on day 3 after ovulation. However, some are day 2, some day 4. It is a bell curve. Since with a natural breeding and with good sperm that can live 6 days, you can easily cover all 5 days.

Also, remember, there is an LH test also. I like the progesterone better, but will sometimes run the LH at the time I believe the LH peak to be, just to “check”. My preference on progesterones are RIA (RadioImmune Assay) progesterones.

If a breeder elects to do artificial insemination, is the rate of conception considerably less than that of natural breeding?
Technically, no. However, why are we doing an AI? Sometimes it is because the male and female will not breed. Maybe we are not timing them correctly and therefore conception will be down. Also, the semen needs to be deposited at the cervix. Sometimes this is hard to do with an AI. I realize this now after using the rigid endoscope where you can use the camera and screen to see where you are going. There are times when you “navigate” down to the cervix.

What is the difference between transcervical and vaginal insemination? Most AI tubes are about 6 inches long – is using this still considered vaginal method?
Vaginal insemination is depositing the semen in the cranial vagina, by either AI tube or endoscope. Transcervical (TCI) is actually threading the cervix and depositing the semen in the uterus. I believe that TCI should be attempted only with a rigid endoscope with optics where you can “see” versus doing it blindly. My AI tubes are rigid and about 12 inches long. You would not believe how a soft orange feeding tube can turn and bend in the vagina.
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Statistically, are the chances of achieving pregnancy in the bitch significantly different between these methods?
There are so many variables. Proven bitches and studs have higher stats. I would say AI with timing should be about 85%; chilled with timing and good semen about 80%; frozen with timing and decent semen about 75%.

When would it be most prudent to use surgical implantation?
When you have what I call a “must breeding.” These are breedings where this is the last chance, ie bitch old or male old and there have been some problems previously. In addition, if a good workup and proper timing have been tried previously on a bitch with no success, I do surgical.

Low sperm count or compromised sperm is another time to do surgical. This is the case with frozen semen.

Are all males equal candidates for chilled semen?
No.

If an older stud dog still has a good sperm count what would be the reason that he “misses” bitches when bred (assuming the bitches are fertile). Could this be a problem with longevity or motility of the sperm?
There is more to the evaluation of sperm than number of sperm. Morphology, or the physical “look” of the sperm and motility. All of these can become abnormal as a male ages. Also, just because everything is within normal in the evaluation, does not mean that the sperm can still function.

What is “proximal droplets”? Is this a condition among certain breeds, or can any male be affected with this?

Droplets are on the sperm as they leave the testes and begin in the epididymis. These droplets usually “slide off” by the time the sperm are stored in the caudal epididymis. Droplets can be proximal or distal. Distal droplets are occasionally seen in dogs that are over used. Proximal droplets are a little more serious and can affect fertility. They can be associated with aging, stress, or a problem with sperm maturation. Lately, some veterinarians have reported that they see droplets more in some breeds, even more in some lines, but I do not know if there is a statistical significance.

There are some breeders who contend that if we continue to breed dogs by artificial insemination the dogs will no longer know how to breed naturally. There is also the thought that by using artificial insemination we produce puppies that otherwise would not be born because the dogs naturally could not have mated for health or physical reasons. Could you comment on this?

I agree that if we never let a dog breed naturally that we could end up with a stud dog that does not know how or does not have the desire to mount and breed.

With respect to health problems, yes, there is truth in that statement. Perhaps we should not be breeding the bitches with vaginal strictures or males who have arthritis at ten years old.

I would like to take it one step further. One day, we will be forced to put as much emphasis on the male’s semen as we do on his topline, temperament, movement, etc. It is just that the judge cannot “see” the semen quality. I was very impressed with a new breed that was brought over from Turkey. It was survival of the fittest. These dogs have problems elsewhere, but I am impressed with their sperm quality and ability to produce. There may be a day that I have to go out into a hunter’s backyard and pull out a splay footed, light eyed, black and tan coonhound, just to restore the semen.

How often should sperm be checked on an active stud dog?
I would like a written semen evaluation every year on an active stud dog. Other than that, if there are several misses, or if the stud is older and someone is inquiring.
How often should brucellosis tests be run on an active stud dog?
Most everyone agrees every six months. Remember, the in house test is very sensitive and will occasionally pick up a false positive. If this happens, it is necessary to send the blood to another lab (I like Cornell) for further tests that are more specific for Brucella canis. So the moral is: DON’T WAIT UNTIL THE DAY OF BREEDING TO TEST. IF YOU GET A POSITIVE, YOU MUST WAIT FOR THE SECOND SET OF TESTS.

Thank you Katherine for the wonderful interview.

Susan

Dr. Settle has worked with animals since she was five years old, helping her father, who practiced veterinary medicine in North Carolina. She received a B.S. from the University of North Carolina and graduated from the College of Veterinary Medicine at The Ohio State University in 1978. She currently co-owns with her husband, two veterinary hospitals in Sanford.

Dr. Settle has been active in greyhound rescue and adoption, and has owned track and show greyhounds and Black and Tan Coonhounds. She has participated in conformation, obedience, and performance events. She has trained Utility, CDX, and CD dogs, boasting the number one greyhound in obedience for five years. Under the kennel name, Designer Hounds, her breeding program has produced two Black and Tan #1 Breed point dogs, National and Regional Specialty winners, a Best in Show, and the sire of the top coonhound in the history of the breed. That sire, CH Designer Southern Enterprise was recently inducted into the American B&T Coonhound Hall of Fame.

Her interest in canine reproduction began about 25 years ago. She is a member of the Society of Theriogenology and attends their annual meetings and workshops. Her success using frozen semen for insemination saved the National Greyhound Association frozen semen program from being discarded. For her contributions, she received the National Greyhound Woman of the Year in 1991.

With conception rates of 80% for chilled breedings and 75% for frozen insemination breedings, Dr. Settle finds most of her time devoted to canine reproduction.

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