

PRACTICAL BREEDING MANAGEMENT OF THE BITCH AND STUD

Dana Bleifer, DVM

Warner Center Pet Clinic & C.L.O.N.E West
20930 Victory Blvd. Woodland Hills, CA 91367
(818) 710-8528 (818) 710-9312

I have had and developed my special interest in reproduction over the last eight years or so. There are very few veterinarians in Southern California with a strong interest in reproduction so my practice pulls from a very large geographic area. Although some of my clients may not live many miles from my practice, the Los Angeles traffic can make for a long drive. It is vital that I have a program and protocol that is practical for all.

Over the last few years at the Society for Theriogenology conferences, there have been plenty of discussions on ovulation timing, artificial insemination etc... I am going to try to avoid rehashing those topics but rather discuss how we implement these on a day-to-day basis. There is the perfect world, and then reality. There is an unrealistic world that would allow us to draw blood from a bitch at the same time daily for LH testing, and then our world where our clients need to go to work, drive fifty miles to get to my practice, or they simply cannot afford to pay for testing that frequently.

What I am going to talk about is the practical side of breeding management. I'm going to tell you about what I do at my practice. I have had a lot of success with these practices and you can modify them to fit your individual needs.

Pre-Breeding Exam

Physical Exam & Consultation

We always recommend a Pre-breeding exam and consultation. This includes a basic physical exam and a discussion of the upcoming breeding as well as any past reproductive history or problems. We recommend this exam annually or before each breeding, whichever comes first. History can be the most important part of this visit if we are dealing with possible fertility issues.

For the Bitch, we examine the following:

For bitches, we recommend a complete exam including a digital vaginal exam, vaginal culture +/- mycoplasma, vaginal cytology, and a Brucella screen. We recommend the full (MSU type) thyroid if it was not done as part of the genetic screening.

1. **Mammary Glands**- inspection and palpation looking for masses, inverted nipples, or any other abnormalities.
2. **Vulva**- inspection and palpation looking for size and strictures at the vulvo-vestibulo junction (strictures in this area may be amenable to surgery), shape and any discharge.
3. **Vagina**- palpation, vaginal cytology, possible vaginoscopy looking at size and shape of the vagina and for bands of tissue or strictures at the vestibulo-vaginal junction or elsewhere. I also check for discharge, and the appearance and color of the vaginal folds. Extreme care must be taken in performing vaginoscopy in an anestrous bitch.
4. **Uterus**-external palpation and ultrasound are practical at this stage to look at size and shape and to rule out obvious pathology. Further examination of the uterus may be indicated at a later date. Abnormalities may influence the choice to do a surgical insemination at the time of breeding so that the uterus can be visualized.
5. **Ovaries & Oviducts**- these are very difficult to assess without surgery unless they are grossly abnormal. Ultrasound may be helpful.
6. **Laboratory testing**- ideally within 30 days of breeding.
 - a. Brucella Screen
 - b. Vaginal Culture
 1. Many stud dog owners require vaginal cultures before they will allow a natural breeding. Breeders hear that a dog went sterile because he was bred to an infected bitch. Or bitch owners hear that a bitch contracted a vaginal infection that caused sterility, re-absorption, or a pyometra from an infected male. As doctors, we know that these incidents are infrequent, but the breeders are very concerned because they hear many stories that may not be complete or true. Vaginal cultures are often a sensitive issue. So why do we do so many vaginal cultures? To appease breeders? Sometimes. To be thorough? Yes, but very few bitches require treatment. During pre-breeding exams, we do vaginal cytology even if they are not currently in heat. We know that anything can be considered normal flora in a bitch's vagina, but I want to be able to correlate my findings with the culture results. I consider the results of the culture combined with a history of a problem or some abnormal symptom to determine which bitches need treatment. I consider the quantity and type of bacteria and try to determine if we are dealing with a potential pathogen. When treatment for a vaginal infection is required, I often prefer an antibiotic douche (only if the bitch is in heat) i.e. Gentocin Douche 500 mg/500ml sterile saline. I usually prescribe 3cc to

12cc BID depending of size of the bitch. Do not use within 12 hours of breeding. I send this home with a syringe and a # 8 or 10 french feeding tube. One of our technicians will demonstrate the first treatment with the owner so that they can do this at home.

- c. Thyroid testing
 - 1. I do feel I see a bit of thyroid responsive sub-fertility in bitches. We can sell the thyroid panel to breeders as a “fertility enhancement” test. I have found that many of the breeders have heard that thyroid increases fertility, but in reality, I am more interested in overall health, especially in dogs, and identifying those with autoimmune thyroiditis. The standard MSU panel includes a TGAA, and we can offer it for a reasonable price
- d. Hormone testing- Progesterone, estrogen or other based on history/ physical and where the bitch is in her cycle.
- e. Chromosome analysis

For the Stud, we examine the following:

For dogs, we recommend a semen evaluation, Brucella screen, prostate palpation and a thyroid panel, Michigan State University (MSU) type. History may be one of the most important factors in this visit.

1. **Scrotum**- visual inspection and palpation. Skin abnormalities such as scrotal dermatitis may influence semen quality.
2. **Testicles**- inspection and palpation, sometimes ultrasound and fine needle aspirate if a tumor is suspected. Size, shape and consistency are very important.
3. **Epididymis**- palpation is performed to evaluate size and shape
4. **Prepuce**- inspection and palpation looking at size and shape and checking for discharge. When indicated, cytology and culture can be performed.
5. **Penis**- inspection and palpation looking at size and shape. We check carefully for signs of infection, tumors, congenital anomalies and trauma. Normal function can be observed during manual ejaculation. Ideally, observing the dog breeding a bitch would be best but rarely practical in the clinical setting.
6. **Prostate**- palpation, ultrasound and collection of the third fraction of ejaculate. If indicated, prostatic wash, biopsy, or semen culture. Evaluation of size and shape and presence of infection, cysts or tumors.
7. **Semen** – collection of ejaculate and microscopic evaluation to determine potential fertility. Suitability to freezing and chilling may be indicated based on owners’ plans. Cultures may be performed as indicated.
8. **Laboratory testing**-
 - a. Brucella Screen- twice yearly.
 - b. Culture of abnormal fluids- semen, paired with a urethral culture (label well as these seem to confuse the labs).
 - c. Thyroid testing

- d. Hormone testing
- e. Chromosome analysis

Ovulation Timing

We recommend ovulation timing for all of our clients, even if they are planning a natural breeding. Knowing when ovulation occurred can become valuable if there is a need to determine a whelping date or if problems occur during pregnancy. Ovulation timing is imperative if AI is planned. Our goal is to estimate the day of ovulation and breed 2-3 days after when using fresh collected or fresh chilled semen and 3 days later when using frozen semen.

Progesterone testing

When we begin ovulation timing a bitch I run quantitative progesterone tests starting day 7-9 of their heat cycle. Our receptionist are well coached to suggest earlier examination if the bitch has short heat cycles. The progesterone tests are available on a walk-in basis to avoid monopoly of the appointment schedule. We have developed a relationship with a local human laboratory for progesterone testing. They do two runs per day so that we get results at about 4:30 for blood that is drawn before 12:00 noon. There is also an evening pickup for 9:00 A.M. results the next day. The frequency of blood draws needed for accurate LH testing is impractical in our setting. Without daily testing, and even sometimes with daily testing the surge can be missed. I have had great results with quantitative progesterone testing. I have the clients fill out a form (Figure 1) with regards to breeding plans i.e. type of semen, type of breeding etc... when clients arrive for the first progesterone test. (See fig. 1) This way I can decide when I feel the best time to breed according to their plans. For the clients that live far away, I have them Priority Fedex the serum on ice and they have the results the next day.

Vaginal Cytology

Vaginal cytology is done with every progesterone test at no extra charge. I started doing this early on because I had a few occasions where a bitch came in the morning of the progesterone test and the progesterone results came back very high (25-30 ng/ml). By looking at the numbers, there was no way of knowing when she ovulated or if she was already in diestrus. By keeping dated slides from every progesterone draw for reference, I can refer to them when questionable progesterone results come in. In certain situation, I will teach owners to make vaginal smears and label them daily. They can bring in the slides for me to stain and evaluate.

Boarding for Breeding

We often board bitches in heat for breeding. Many of our clients drive long distances for our services and it is more convenient for them to leave their bitches and studs here to be bred when the time is close. This way, if they drop off the bitch at 11am, we can draw the blood and get the results back at 4:30pm if the bitch is ready to be bred that day, she's already here and the owner does not have to get back in the car and drive all the way back to our office. We can also fit the procedure in between appointments and not have to schedule a must do breeding at 6:00pm. These bitches also come in very handy as teasers for semen collections and evaluations. We actually offer a discount for boarding if we can use the bitch as a teaser.

Types of Insemination

Today we have more choices for insemination. I discuss these options with the owner and guide them in making an appropriate choice. Semen type (fresh, chilled or frozen) and quality of semen are the main factors in the decision. Occasionally, we deal with bitch factors that may influence the decision. Again, I want to stress that the following protocols are based on my opinions and what has worked well at my practice.

Regardless of the type of semen being used, thought must go into the appropriate volume for insemination. Too large a volume is likely to have sperm wasted with backflow. The goal is to maximize the number of sperm in the uterus. The volume that is most appropriate is often an educated guess based primarily on the size of the bitch and whether or not she has had previous litters.

Vaginal Insemination

Vaginal inseminations are only used on young healthy bitches or bitches with normal reproductive histories. I only recommend vaginal inseminations when using fresh or fresh chilled semen of excellent quality. This is the least common type of breeding in my practice. Many of our breeders are capable of doing these on their own, we sell the supplies at the office for their convenience. I prefer a volume of 1.5ml-2.0 mls for toy breeds and up to 10-12 mls for giant breeds.

Trans-cervical Insemination

Trans-cervical inseminations are the most common type of insemination in my practice. I do both Norwegian Pipette and Endoscopic TCI, but by far I do more Endoscopic TCI's than any other type. When I am using frozen semen, I always insist on intrauterine deposit. The scope is very exciting for clients to watch and the idea of no anesthesia is very appealing to most of them. Occasionally I encounter a bitch whose vaginal canal is very narrow and the scope may be

uncomfortable. In those situations I will try the Norwegian pipette. I prefer a volume of .5ml for toy breeds and up to 3ml for giant breeds.

Surgical Insemination

I recommend a surgical insemination when there is a history of infertility, abortion or something that makes me suspicious of a uterine problem. This way I can check the uterus for abnormalities. I also recommend surgical when semen quality is marginal or poor, or when the owner wants “no stone left unturned”. I prefer a volume of .5ml for toy breeds and up to 3ml for giant breeds.

Types of Semen

We try to have owners bring their own teaser bitch when they come for collections; sometimes that's not possible. Many times we will have a bitch in heat boarding here (employees bitches in heat are always welcome at the office). When we have no bitches in heat we use frozen vaginal swabs collected from bitches in heat and hold them in the appropriate place with another bitch to “trick” the male.

Fresh Semen

Many of the breeders bring both the bitch and the stud to the office for breeding. We manually collect the stud, check the quality and count of the sperm before insemination. This is obviously the first choice in semen when available and of good quality because of the lifespan of the sperm.

With fresh semen it is easy to increase the volume by adding extender; or decrease volume by centrifuging and extracting some excess prostate fluid.

Chilled semen

I do a lot of breedings with chilled semen. It is very convenient for the clients to breed to studs and bitches from far away without having to put their animals on airplanes. If you plan to use a dog regularly for chilled semen, you may want to consider doing a test chilling. The sperm never needs to leave the office; viability can be checked at different time intervals if desired, and with different extenders.

With fresh chilled semen insemination volume requires more forethought. I have been able to centrifuge down fresh chilled semen when necessary, although I do not recommend it. It is best to plan ahead when requesting or shipping chilled semen for the specific type of insemination planned i.e. vaginal or transcervical..

Frozen Semen

Again, I think insemination volume is very important. Volume of semen needs to be considered at the time of freezing. Semen volume can be altered prior to freezing by altering the number of sperm in each straw, pellet or vial. When using systems that use a thaw media, volume may be altered at the time of thaw by adjusting the volume of thaw media used to achieve the required volume. This is especially important in toy breeds where a small volume (<1cc) is ideal. If a large number of straws or pellets are required to achieve an adequate insemination dose the resulting volume may be too large. Only in extreme cases do I centrifuge frozen semen, I do not recommend it!

Semen Arrangements

For fresh chilled inseminations, type of insemination should be noted whether you will be sending or receiving the semen. This is important so that you can pack or receive the proper volume. When dealing with “ordering” frozen semen, I always talk in terms of “breeding units”. I never specify number of straws or vials because without knowing the quality of the semen or the sperm count, there is no way to guess how much you will need. Depending on the clinic that froze it, their methods of freezing, quality of semen, etc...the number of vials, straws or ampules can vary greatly. It is the responsibility of the freezing facility to know the quality of the semen and the necessary amount for a successful breeding. We use the guideline of at least 100 million live sperm for a successful breeding unit. Semen quality reports should be provided with every frozen semen shipment.

If you have frozen semen storage capabilities, it is a good idea to have the owners arrange for semen shipment as soon as the bitch comes into heat if not earlier. Due to tank preparation time (charging), and the cost for overnight delivery etc... it is best if the semen can be shipped early to reduce stress on everyone since timing is so critical with the short life of frozen semen. We can also save the clients money by shipping 2nd day.

Shipping Requests & Payment Methods: We require that Bitch owners arrange for all semen shipped in and stud dog owners arrange for all semen going out. We do not involve ourselves in their arrangements.

We provide forms for all aspects of arrangements in order to make sure that we have all the necessary information for shipments. These include:

- Credit Card authorization form- the owners fill in their name, address and phone number, the card type, number, expiration date and **SIGNATURE** authorizing charges. Since we are frequently charging clients in other states for chilled semen and frozen semen shipments, having their signature is imperative to have the card owners' signature on file in the chart. If the breeding doesn't take owners' will sometimes decide to “chargeback” the credit card. If you do not have a signature on file you

will lose the money. We also put the CC# on the Fedex slip for the shipping charges since they vary from shipment to shipment. They also include:

1. Ship to Address- this should include the address of the clinic, and the name of the client the shipment is for.
 2. Value of semen (stud fee) plus tank for Fedex insurance.
- Frozen semen authorization form

Figure 1

PROGESTERONE TIMING

This form is very important in determining your bitches' best breeding time. Knowing the type of semen and insemination is vital!

Client's name _____ Phone # _____

Reg. name of bitch: _____ Reg.No. _____

Call name: _____ Breed _____

Approximately what day of her season is this? _____ Date: _____

What type of breeding are you planning to do?

☐ Natural Artificial Insemination: ☐ Vaginal ☐ Norwegian Pipette
☐ Tran-cervical ☐ Surgical

Is the AI being done at our clinic? ☐ Yes ☐ No

What type of semen is being used?

☐ Fresh (dog will be present for collection) ☐ Fresh Chilled
☐ Frozen - ☐ Stored at C.L.O.N.E. West ☐ Shipped from another clinic

Name of Stud? _____

FOR OFFICE USE:

Date: _____ Progesterone: _____ Smear: _____

Date: _____ Progesterone: _____ Smear: _____

Date: _____ Progesterone: _____ Smear: _____

Breeding date(s): _____

Ultrasound date: _____

X-Ray date: _____

Result: _____

Whelp date: _____ Cesarean? ☐ Yes ☐ No

Litter: _____