Fresh Chilled Semen Breedings: Tips for Success
Part 2: Brood Bitch

The following interview was originally released as a podcast on June 4, 2015.

In this podcast interview, Dr. Scarlette Gotwals discusses tips for success with fresh chilled semen breedings with a focus on the bitch as part of CHF's Reproductive Health Series done in collaboration with Zoetis Animal Health. Dr Gotwals received her DVM from The Ohio State University in 1987. She has a special interest in canine reproduction and has been involved with canine reproduction and semen cryopreservation for 21 years. She is a nationally recognized authority in these areas and serves as a consultant to veterinarians through the Veterinarian Information Network. Dr Gotwals practices at Country Companion Animal Hospital in Morgantown Pennsylvania and is a consultant for the Canine Reproduction Division of Zoetis.

AKC Canine Health Foundation (CHF): What makes a bitch an acceptable candidate for fresh chilled semen breeding?

Dr. Scarlette Gotwals (Gotwals): The bitch should be in god health and have all her expected genetic clearances. She should also not have any fertility issues. Bitches with fertility issues are best bred with fresh semen of high quality so they are the only variable. Accurate ovulation timing maximizes success. Ovulation timing has been covered in an earlier podcast. It is very important for the bitch not to be inseminated until ovulation has occurred. Fresh Chilled semen is expected to live at least 3 days—-1 day in transit and 2 additional days in the bitch.

Bitch owners are at the mercy of what is shipped to them so selecting suitable stud dogs is paramount to success.

CHF: What do bitch owners need to ask potential stud dog owners?

Gotwals:

1. How many times have you shipped fresh chilled in the past 6 months? How many litters? How many puppies per litter?

   Stud dogs vary in how well this breeding method works for them. Some stud dogs have excellent semen that chills well and as long as not inseminated too late have high rates of success. Other studs may have semen that appears to be of high quality but just doesn't chill well and are not as successful.

2. What breeding methods were used for the breedings? AI, surgical AI or Trans-cervical (TCI)?

   Fresh Chilled semen is generally meant to be vaginally inseminated but TCI has the potential to increase pregnancy rates and litter size. Surgical insemination is generally reserved for cases where the bitch may have fertility issues or the semen is low in quality.

   Knowing how the semen has been successfully used in past will help determine how the bitch owner inseminates the semen.

3. Do they have a veterinarian experienced in collection, processing and shipping fresh chilled semen or does stud owner collect and ship?

   Using an experienced veterinarian increases the likelihood of receiving good quality semen. Stud owners who ship semen frequently can learn to be very proficient in collecting and processing semen.

   There are many excellent veterinarians with interest in canine reproduction throughout the country. Ask for referrals from other breeders. Breeders generally figure out who is most successful in their geographic area.

4. Does stud owner or their veterinarian have fresh chilled kits on hand or do you need to ship them kits?

   Kits should be sent in advance. Most experienced veterinarians have kits on hand at all times as do breeders who breed frequently with this method. There are many very successful commercially available canine chilled semen breeding kits available.

5. Will stud owner commit to only collecting the stud for your bitch when needed and won't be breeding another bitch on the same days?

   It is easy for stud owners to forget—out of sight out of mind. Stud dogs first 1-2 collections after a period of sexual rest contain the highest counts.

6. Will they have a teaser bitch available?

   I cannot stress enough how critical it is to have an estrous teaser bitch. It is true many males will collect without a teaser but they will often release 30-50% higher sperm counts with a teaser present. This is especially true of less experienced males. A teaser bitch often makes or breaks a fresh chilled shipment. Sometimes the veterinarian doing the collection may have another client willing to let their bitch be used for collection.

CHF: How does a breeder locate a skilled veterinarian for the semen collection and shipping?

Gotwals: First ask other local breeders for veterinarian referral. Experienced breeders usually know who is most successful in their geographical area. If there is a canine semen freezing center nearby they tend to have more experience with semen collection and shipping. But there are also many veterinarians in private practice who have become skilled in collecting and processing semen for fresh chilled.

CHF: What is the best insemination method for Fresh Chilled?

Gotwals: Fresh chilled is most commonly inseminated vaginal as a standard artificial insemination (AI). Trans-cervical inseminations (TCI) are a great way to increase the chance of pregnancy and to maximize litter size. Now that the availability of TCI has become more widespread surgical inseminations are not as common or needed.

Semen quality on arrival determines best insemination method. If the semen has a count at or higher than expected for the breed, and is greater than or equal to 75% progressively motile, success will often be achieved with a vaginal AI.

However if the semen count is lower than expected and the motility is lower than expected 75% or less than a TCI can increase the chances of success. Surgical inseminations are usually reserved for cases where the bitch might have uterine problems or if the breeder's veterinarian does not have TCI.

CHF: How many shipments are needed?

Gotwals: One breeding during the optimum fertile period is often all that is needed. BUT if there are any factors that prevent the semen from arriving on the best day or if the stud does not have high semen quality success can greatly be increased by shipping 2 separate collections. In my opinion, shipping two collections increases success. Far too often unforeseen things happen—shipping delays, failure to have a teaser, weekend shipments, semen not fractionated on collection that lowers the quality of the semen.

CHF: Can you split one collection for 2 inseminations?

Gotwals: Yes, but why would a bitch owner want to? It is far better to receive 2 inseminations to maximize number of sperm inseminated than to reduce the amount inseminated by slitting one collection. Sperm cells also live inside the female after insemination so if the female has ovulated, her uterus is a better place for the sperm cells than a refrigerator. Not every male

has semen that survives for more than 24-48 hrs. despite buffer being used. Just because a 5-10 day buffer was used, it does not make lesser quality semen last any longer.

If the semen is shipped prematurely and the bitch has low progesterone then holding the semen until the bitch is post ovulation would be prudent. I am not a fan of splitting and saving for later insemination. It can be done successfully when unforeseen events occur but is not advisable to plan a mismatch of collection and insemination times from the beginning.

The goal is to maximize chance of pregnancy and litter size. Inseminating more sperm cells within 24-48 hrs. after collection is a big step towards this goal.

CHF: What can be done if semen on arrival is dead or poor quality?

Gotwals: Semen that is DOA (dead on arrival) typically froze during transport. This occurs most commonly from improper packaging. If the cool-t bricks are in contact with the semen tube there can be enough cold transfer to freeze the semen sample with in the first hour of packaging. Semen may be thawed on arrival but early freezing damaged the sperm cells.

In extremely cold weather you may only want to ship with a refrigerated brick if shipping point to point in extremely cold weather. If using a shipping container that uses 2 bricks: one can be frozen and one closest to semen sample refrigerated. Also bricks should be frozen in a regular freezer over a refrigerator. Freezing bricks in a freezer set at a very low temperature.

The other leading cause of poor quality semen on arrival is failure to separate out the sperm rich fraction at collection. Including excess prostatic fluid in the shipment decreases survival time of the sperm cells. Either learning to fractionate sperm rich fraction or centrifuging excess prostatic fluid greatly improves the motility of the semen on arrival.

CHF: Do bitch owners need a backup plan?

Gotwals: Absolutely! Bitch owners are at the mercy of what they receive. Having a plan B helps salvage a pregnancy if the semen on arrival is not sufficient for a pregnancy to result. If you inseminate the semen you owe the stud fee. Plan in advance what your options are if the semen is poor quality.

Another contingency plan is to consider a dual sire breeding if the semen is still alive on arrival but of low quality by motility, count or both. If you plan in advance, your veterinarian would be able to ensure that the ovulation timing would be sufficient for whatever breeding you are doing. Especially true if frozen semen is your backup plan.

CHF: What is a dual sire breeding?

Gotwals: A dual sire breeding is when the bitch is inseminated with semen from two different stud dogs. The dog of choice should be inseminated first then the backup dog is inseminated later same day or a day later. If the stud dog of choice has good quality semen it will be unlikely to get puppies from the second sire.

Resultant puppies will have to be DNA tested before registration papers can be issued. AKC has information on their website concerning multiple-sired litter registration. There are fees for DNA testing plus $200 litter registration fee in addition to standard registration fees.

For breedings where the goal is to achieve a dual sire litter there are a few different approaches. A surgical insemination can be done and one dog inseminated into each horn. Alternatively the semen can be mixed and inseminated but no guarantee a mixed litter will result. Often one stud may still dominate. I am not aware of any studies determining best approach to achieve a dual sire breeding. Dual sire breedings add genetic diversity in the litter. In cases where a litter results and puppies are lost at birth or prior to genetic testing they should be frozen so cheek swabs can still be done for parentage determination.

Summary:

Fresh chilled semen breedings are a viable method of achieving breedings without transporting the bitch. However there are many more variables encountered with this breeding method than a side by side or even a frozen semen breeding. Weather, stud dogs availability and health, availability of a suitable teaser bitch and willingness of stud owner to collect when necessary. I always tell my clients that these breedings are not for the faint at heart because you are always at the mercy of what you receive. Be flexible and always have a back plan!