

## CANINE BREEDERS SYMPOSIUM NOTES – 9/4/10

I attended the 2010 Canine Breeders Symposium presented by the Society for Theriogenology on 9/4/10 at the Grand Hyatt in Seattle, WA. This was such an excellent presentation I thought I'd give a brief synopsis of the information presented for those who are interested. It was really great so I encourage anyone who has an opportunity to attend one of these to take advantage of it.

### Dr. Phillip Steyn - OFA vs. Penn Hip

Dr. Steyn spoke about the two types of testing in detail and it was his recommendation that breeders use Penn Hip as he considers it a much more reliable test for the diagnosis of Canine Hip Dysplasia. Dr. Steyn stated that OFA evaluates subjectively for passive hip laxity and has non-specific results such as Excellent, Good, Fair rather than a quantitative score like Penn Hip. Dr. Steyn's opinion is that the way an OFA test is administered with the dog upside down and hip turned in an unnatural position vs. Penn Hip where the hip is in a normal position using a distracter causes the OFA results to be less accurate than the Penn Hip. He stated that the advantages of Penn Hip are:

- Dogs can be screened as young as 16 weeks
- Quantitative measurement and not subjective scoring
- Positioning used allows assessment of true passive laxity
- Repeatability of distraction procedure within and between examiners

Concerns from the breeders in the audience were small populations tested in some breeds, no searchable database like OFA and lack of Penn Hip certified veterinarians.

### Dr. Cheryl Lopate - Increasing Litter Size in the Bitch

Dr. Lopate is a highly regarding reproductive specialist in Oregon. Below are some highlights from her presentation:

- Recommends breeding between 2 - 5yo and if bitch's health is good breed back to back litters then spay the bitch
- 1st litter will have lower litter size than 2nd litter and subsequent 3 litters tend to increase in size. 4th litter on will decline again
- Maintains open cycles are bad for bitches - pregnancy is protective for the reproductive tract
- She discussed various methods of insemination from Natural, Vaginal AI, Transcervical Insemination and Surgical insemination.
- Ovulation timing was discussed in detail with recommendation that progesterone testing be performed to maximize litter size by breeding at correct time
- Bitch ovulates immature eggs that require 2 - 3 days to mature before fertilization can begin
- After eggs mature, they remain healthy and fertilizable for approx. 2 - 3 days and then degenerate
- Eggs may be fertilized up to 200 hours (8 days) post-ovulation
- Sperm can live up to 10 days in vaginal tract
- Sperm quality, age of dog/bitch & # of insemination's dictates insemination method

- Total number of motile, morphologically normal sperm is determining factor in success of insemination
- Scandinavian study showed that uterine insemination regardless of type of semen used resulted in 20% higher whelping rates than VAI
- With VAI or TCI, 2 insemination's are recommended, SAI often single breeding is performed
- Acceptable breeding doses for fresh or fresh chilled semen for VAI in medium sized bitches is around 200 to 225 million normal, motile sperm
- Acceptable breeding doses for intrauterine insemination of fresh, fresh-chilled or frozen is around 100 to 150 million, motile sperm
- Bitches should be in good condition prior to breeding
- Bitch diet should be 30% protein, 20% fat with 20 - 30% carbs. Important nutrients in diet include omega 6 & 3 fatty acids ratio of 5:1 to 15:1
- Calcium and Phosphorous are the two most important minerals in diet. Too much calcium may result in problems of fetal development, labor & lactation
- Calcium - Phosphorous ratio should be between 1.2:1 to 1:1
- Only increase caloric intake in last 1/3 of pregnancy
- Raw foods are not recommended during pregnancy

Dr. Lopate recommended collecting male dogs from one year of age to 5 years for maximum semen quality

### **Dr. Harmon Rogers - Overview of Canine AI Techniques**

- Natural cover every two days during fertile period is most effective
- Fresh collected sperm generally has very high total sperm numbers with good motility and long life span
- Chilled and extended semen is similar except sperm motility & longevity are diminished by chilling and shipping or storage time
- Frozen thawed semen has limited number of live sperm, has greatly reduced motility & sperm have life span of about a day after thawing
- Canine semen is not degraded by short term exposure to room temp, however do not leave at room temp for long periods
- Semen is ejaculated in several fractions some of which have sperm and some which do not
- Sperm rich fraction should be separated from other fractions, and dilution of extended chilled semen or frozen thawed w/ prostatic fluid is not desirable
- Recent development for Vaginal AI is the Mavic vaginal insemination catheter sold by Minitube which also sells Funnels and tube for collecting semen
- The Mavic catheter device simulates an inside tie and provides a way to create and hold pressure to enhance movement of semen thru cervical canal
- With good quality fresh or chilled semen the preferred method for AI is vaginal insemination with a Mavic or similar device
- Transcervical Insemination (TCI) is preferred method for intrauterine insemination. Does not require sedation, anesthesia or surgery.
- Recovery from Surgical insemination is very rapid but can be done only once during a single heat so ovulation timing is important

**Minitube** – ([http://www.minitube.de/DE\\_eng](http://www.minitube.de/DE_eng))

**Mavic collection devices** [http://www.minitube.de/DE\\_eng/Products-Services/Canine/Semen-Collection/Canine-Collection-System-Includes-3-color-coded-funnels](http://www.minitube.de/DE_eng/Products-Services/Canine/Semen-Collection/Canine-Collection-System-Includes-3-color-coded-funnels))

**Insemination device** - [http://www.minitube.de/DE\\_eng/Products-Services/Canine/Insemination/TCI-Shunt-System-for-Endoscope-Used-for-insemination-of-dogs](http://www.minitube.de/DE_eng/Products-Services/Canine/Insemination/TCI-Shunt-System-for-Endoscope-Used-for-insemination-of-dogs)

### **Dr. Mushtaq Memon - I did everything right to breed my bitch - what went wrong!**

Dr. Memon recommends a pre-breeding exam of both the bitch and stud. He stated that many owners have spent a lot of time and money campaigning a dog only to find out he is infertile. Dr. Memon reiterated many of Dr. Lopate's information on having a thorough testing of the stud dog's sperm and Dr. Cynthia Smith gave the following as necessary information when doing a sperm evaluation:

- Motility - what % of sperm are moving fast in a straight line
- Morphology - what % of sperm are correctly shaped
- Sperm Count - assessed both as a total count and, more importantly, as the total number of live normal sperm in the entire ejaculate.

### **Dr. Kara Kolster - Common problems during pregnancy in the bitch**

Bacterial Infections are a potential complication during pregnancy and common concern of breeders. Those identified by Dr. Kolster were *Brucella canis*, *E. Coli*, Strep series, *Pasteurella* species and Staph species. These are normal flora that can cause opportunistic infections. *Campylobacter* and *Salmonella* have also been implicated in canine fetal loss.

#### **Brucellosis**

- Much discussion was given to *Brucella canis* both during Dr. Lopate's, Dr. Memon's, and Dr. Kolster's presentation. Both recommended having Brucellosis testing done on both the stud dog and bitch prior to breeding. Testing of the bitch should be done at the beginning of her cycle. Brucellosis is most prevalent in humid areas in the East and South; however there was a kennel in Oregon that had an outbreak of 80 dogs after dogs from Katrina came to the State. The recommended treatment for Brucellosis positive dog or bitch is euthanasia as there is no cure and even if the dog/bitch is spay/neutered they will continue to shed the virus.
- *Brucella Canis* is the only sexually transmitted disease that canines have. The disease can be spread through the air and Dr. Lopate stated that 60% of cases were aerosol transmission vs. sexually transmitted. A dog sniffing an infected dog's urine or fluids from a miscarriage can contract Brucellosis.
- Bacterial Infection with *Brucella canis* is a significant concern in all breeding dogs. Infection causes abortion in the female, and epididymitis and orchitis leading to sterility in the male. There is no effective treatment for *B. Canis* in the dog. It is highly contagious and is spread through most body fluids, including semen, vaginal secretions, urine, nasal secretions, and saliva.
- *B. canis* is transmitted through sexual contact, however many do not realize it is also spread through artificial insemination and non-reproductive routes. Positive results on a screening test must be confirmed by a more specific test as false positives occur. If *B. Canis* is identified in a kennel, the recommended treatment is euthanasia of affected dogs, and monthly testing of all individuals until

negative results are achieved in the kennel for 3 consecutive months. Antibiotic treatment of affected individuals can lead to improvement in clinical signs and negative serologic test results, but does not effectively eradicate the organism. B. Canis is transmissible to human's especially immunocompromised individuals and causes recurrent fever and flu-like signs.

**Viral Infections** are typically transmitted through oronasal exposure. The most significant virus in canine reproduction is herpesvirus. Exposure to a bitch who hasn't been exposed before during the last 3 weeks of gestation will cause stillbirth or neonatal loss. Exposure to pups during the first 3 weeks of life also results in near 100% fetal mortality. Herpesvirus complications can be prevented by exposing the bitch prior to breeding, isolating dam and pups during susceptible period and providing proper heat sources to pups. Maintaining body temp at 98 - 100 degrees F will help prevent viral replication.

Recommendation by Dr. Kolster is to prevent exposure to infections by maintaining strict biosecurity practices:

- Do not expose pregnant bitches to public areas such as dog shows
- Isolate pregnant bitches and pups from other dogs that have been outside the home environment
- Maintain clean hands, clothes and shoes for caretakers and visitors when handling pregnant bitches and pups.

### **Dr. Cynthia Smith - Common Post-Whelping Complications**

**Prenatal Care:** Preventing problems before they arise

**Diet:** Supplemental recommendations are Folic Acid, Fatty Acids, Vitamin E

**Not Recommended:**

- Calcium (over supplementation during pregnancy may increase risk of uterine inertia and eclampsia)
- Raspberry Leaf (generally NOT recommended as may cause uterine contraction leading to miscarriage)

**Pre-Breeding Exam** - always recommended to check for vaginal abnormalities, infection. If Thyroid testing needed must be performed at least 2 months prior to breeding. Brucellosis testing should be done no earlier than 30 days prior to breeding.

**Pre-whelping x-ray** - always recommended 4 - 7 days before due date to assess fetal size, numbers, and positioning.

**Timing** - Accurate ovulation timing is crucial if a C-section is planned or likely.

**Relaxin Tests** - Repro-Chek test found to be very reliable, Witness test far less so

**Teratogens** - multiple similar birth defects in a litter are often traced back to a teratogenic substance which bitch was exposed to during pregnancy. Topical products such as a selenium-based shampoo or some ear meds can potentially cause defects if given during critical period of fetal formation.

Avoid all non-necessary chemicals during pregnancy  
Make sure your bitch is in good shape before breeding

**Dental Disease** - Periodontal disease is a proven risk for miscarriage in both dogs and humans.

### **Post-Whelping Complications:**

- Infection-metritis
- Mastitis
- Eclampsia or "milk fever" – hypocalcaemia

Classic signs include high fever, restlessness, panting, aggression toward owner and/or pups, stiffness, twitching, - seizures and death. Most common form if approx 3 weeks post-whelping but may occur any time up until weaning

Prevention is calcium rich diet during nursing and making sure bitch is eating

The bitch must eat so hand feed if necessary

Calsorb or injectable calcium can resolve mild cases of eclampsia quickly

- Inadequate milk production - usually result of inadequate caloric intake.
- Post whelping diarrhea - very common however if extremely severe and not resolved within 48 - 72 hours it should be addressed. Probiotics have been found to have great value and Dr. Smith likes Purina's Forti-Flora.
- Uterine Prolapse - Uncommon, emergent and requires immediate surgery - usually emergency spay- in order to save life of bitch.

### **Dr. Michelle Kutzler - Canine Neonatal Mortality**

Dr. Kutzler stated that the overall expected mortality rate in young dogs should be less than 12 - 15% of full-term births by the age of weaning. Puppy's weight should be monitored twice daily for the first two weeks and any loss or failure to gain should be investigated. Birth weight is the single most important predictor of neonate survival. Postmortem examination of neonates should be done to determine cause of death. You can put the dead pup in the refrigerator and take it to vet the next day for examination.

Dr. Kutzler recommends freezing one placenta from the birth until the pups are weaned. She said she's thawed placentas and rubbed them on pups the bitch rejects and then the bitch accepts them. She recommends keeping the whelping box between 90 - 100 degrees F for first 2 weeks of life.

Keep serum plasma on hand from a high titer bitch (herpesvirus) to give to pups if they get infected with herpesvirus. Also, plasma has been found to turn around a fading puppy.

### **Dr. Cynthia Smith - Male Infertility**

Dr. Smith recommends a Breeding Soundness Exam for stud dogs and semen quality should be assessed every time the dog is used where a report describes the Motility, Morphology and Sperm Count. She also stated that previous fertility does not mean the dog is fertile today. The minimum for normal fertility is generally considered to be 200

million live normal sperm and some studies indicate it may take 200 million sperm vaginally to get 3 functional sperm to the ova.

Normal canine semen consists of 3 fractions:

- Pre-sperm fraction
- Sperm-rich fraction
- Prostatic fraction

Possible contaminants include urine, blood, pus and smegma. Of these urine is the most damaging, killing sperm quickly. Blood in semen may or may not be a serious problem.

**Factors affecting male fertility:**

Heat - fever, hair dryers, hot cement, any inflammation (hot spots, frostbite, insect sting)

Temperament - Shy dog, dominant bitch

Medications

Stress

Inherited factors

Low libido

Trauma

Age

Underuse - Use it or lose it!

Thyroid disease

Importation

Prostate disease

Retrograde ejaculation

Infections Disease

    Canine Herpes

    Canine Brucellosis

    Mycoplasma/Ureaplasma

    Other bacterial or viral disease

Neoplasia

**Take home message - Freeze Mr. Wonderful NOW!!**

**Supplements that may improve sperm quality and quantity:**

Glycoflex - impressive track record

Vitamin E - moderate doses

Vitamin C - possible benefit as antioxidant

Zinc

Omega 3 Fatty Acids

Acupuncture? - may increase quality of a single ejaculate by reduction of pain

**Commercial Supplements:**

PROSPERM (Minitube America, Inc)

Cell Advance (Vetri-Science)

Motility Plus (Platinum Performance)

**Each of these speakers was an expert in their field and excellent presenters! It is rare to get the opportunity for specific education as breeders and I was very pleased that I had the opportunity to attend this presentation.**