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CANINE REPRODUCTION

Factors to consider when deciding on breeding your dog:

- Will your dog contribute excellent health, temperament, working ability or conformation to the breed standard?
- Do you understand that spaying and neutering will prevent certain health problems?
- Are you aware of any problems in the health and temperament in either pedigree?
- Do you have good homes or potential buyers for all the puppies?
- Are you capable of raising these puppies if there is a problem?
- Are you prepared for emergencies and problems with the bitch both emotionally and financially?
- Are you willing to keep and properly socialize all puppies until they go to a good home?
- Are you willing to take back any puppy if it has congenital/heritable problems or if it is no longer wanted?
- Are you willing to educate and help the new owner?
- Limited or full registration?

Why do I want to breed this dog and prospective mate?

- Conformation
- Agility
- Field trial/hunting dog
- Companion
- Puppy for family and friends
- Income or contractual obligations

What is the health status of this dog and prospective mate?

- Genetics behind this dog
- OFA hips and elbows
- CERF clearance
- Thyroid levels
- Vaccines
- Nutrition
- Parasites
- Systemic diseases- Valley Fever, Tick Fever, diabetes, etc.
- Medications and surgeries
- Age (female 2-5 years) after 5 years old litter size decreases as well as increased problems with Dystocia and ability to raise pups

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What is the reproductive history for both dogs and their pedigrees?

- Brucellosis testing
- Previous heat cycles and interval between cycles
- Previous breedings and success/failures
- Pregnancies and outcomes
- Pyometra/vaginitis/infections

Physical examinations

- **Female**
 - overall health and conformation
 - vaginal examination
- **Male**
 - overall health and conformation
 - size and feel of testicles
 - rectal and prostate evaluation
 - penis evaluation

***THE NUMBER ONE REASON FOR INFERTILITY OR
SUBFERTILITY IS IMPROPER TIMING OF THE BREEDING!!!!
WE MUST UNDERSTAND THE ESTRUS CYCLE TO IDENTIFY
THE PROPER TIME FOR BREEDING!!!!***

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The estrus cycle is made up of 4 distinct parts that are predominantly controlled by one or more hormones which regulate the behavior and the body's physiologic actions.

Proestrus

- The first heat cycle occurs from 6-10 months in the smaller breeds to 16-24 months in the giant breed.
- The first cycle may not be noticed by the owner due to decreased signs and is considered a silent heat.
- Proestrus is under the control of estrogen which gives us the first signs of being in heat (vaginal swelling and bloody discharge).
- This phase is considered the follicular phase. This can be as short as 2-3 days and as long as 25 days in an ordinary cycle.

Estrus

- This period of the cycle is when the female will accept the male or allow him to mount her. This can be from never to 5-9 days duration.
- This period is under control of rising progesterone levels.
- The uterus is preparing for implantation of the embryo. The bleeding usually decreases and the uterus has increased blood supply and glandular development.

Diestrus

- This phase follows mating and is also under the control of progesterone but it is a more steady state of higher progesterone.
- This is the time of the corpus luteum which produces progesterone and this maintains our pregnancy.
- Diestrus ends when the progesterone levels drop at the time of whelping at 65 days after ovulation or up to 90 days in a false pregnancy.

Anestrus

- This is the period of rest and recuperation for the reproductive tract.
- The period between cycles needs to be at least 4 months in the "normal" bitch. This can be as short as 3 ½ months and as long as 13 months but is typically about 6 months. The Basenji typically cycles annually in Oct-Dec.

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The common indicators of timing a bitch's cycle are the following:

1. Flagging/ vaginal swelling/ color of vaginal discharge
2. Vaginal cytology or smears
3. Vaginoscopy
4. Progesterone assay
5. LH assay

All the changes of the estrus cycle are due to changes in the various hormone levels. The first three indicators are affected by estrogen level changes and are used in varying degrees to predict optimal breeding times. Unfortunately, these changes are not always accurate predictors of ovulation and can vary by more than a week in some bitches. The most important determining event in the estrus cycle is ovulation or release of the eggs from the ovaries. The most precise measure of predicting ovulation is the LH surge. When the LH surges, it causes the eggs to be released in 2 days. Unfortunately, there is not a readily available LH test on the market. We must use the progesterone levels begin to rise dramatically indicating that ovulation is about to occur. This helps predict the optimum time for breeding. The optimum times for breeding are 3-7 days after the LH surge. This is due to the fact that it takes 2-3 days for the eggs to mature before fertilization can occur. Mature eggs live for 48-72 hours. **THE MOST FERTILE PERIOD FOR THE BITCH IS ON DAY 5 AND 6 AFTER THE LH PEAK.**

This information has great significance when deciding whether to use fresh or frozen semen. Fresh semen can live up to 3-5 days in the uterus of the dog. Frozen or fresh-chilled semen lives only 24-48 hours. Timing must be right for the eggs to be fertilized by the sperm.

RECOMMENDATIONS FOR TIMING BITCH

Record the outward events of the estrus cycle day-by-day (color of discharge, swelling, flagging etc.)

Vaginal smears to help determine some timing strategy.

Progesterone tests starting on day 7 or 8 and repeating them at a minimum of every 48 hrs until ovulation has occurred. A single progesterone can not determine ovulation time. It can determine if a bitch has ovulated if it is elevated about 4ng/dl. The fertile period should span from 3 to 7 days after the LH peak. Recommended breeding times are days 3 and 5, or 4 and 6, after the LH surge.

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FACTORS IN DETERMINING TYPE OF BREEDING/SEMEN USED:

Love breeding vs. artificial insemination
Fresh vs. frozen or fresh chilled

	Advantages	Disadvantages
Live Breeding	Easy and less expensive Multiple breedings Larger number sperm per breeding	Risk of disease and trauma Proximity of dogs/shipping dog Schedules of shows/field trials
Fresh chilled semen	Less expensive than frozen Large number sperm Separation of dogs no longer problem	Timing of collection/shipping is a variable Requires artificial insemination Cost
Frozen semen	Lasts almost indefinitely Shipping no longer critical Stud deceased/neutered	Cost Sperm may not survive freezing Requires artificial insemination

AI vs. NATURAL LIVE-COVER BREEDING FACTORS:

1. Cost
2. Disease/trauma
3. Travel stress
4. Resistance of bitch
5. Number of live sperm
6. Breeding experience of owner and dogs
7. Schedules
8. Anatomical problems
9. Dogs' behavior