



Breeding Your Bitch

By – Bob Franklin

Any successful canine breeding must first start with a healthy, fertile female (bitch) and likewise a healthy, fertile male (stud) both of whom are willing and interested in breeding. Obviously, good genetics, proper nutrition, excellent temperament and proper socialization of both dogs are prerequisites to a successful breeding and the eventual whelping of healthy, "nice" puppies.

Both individuals should be up-to-date on locally recommended immunizations and be free of parasites. Neither individual should exhibit genetic abnormalities and both must have tested free of Brucellosis (a venereal disease that can cause abortions and sterility) by having a veterinarian send a blood sample to a diagnostic laboratory 10 to 30 days prior to the planned breeding. Pregnancy is a poor time to be administering vaccinations, giving worm medications or introducing any other foreign substances to the bitch. Both individuals should be BAER Normal (not deaf) and both should have tested CERF Normal within the last year (eye tested by a veterinary ophthalmologist). Both should be registered with the JRTCA which means they would have been checked by a veterinarian when they were at least a year of age for other genetic defects (bad bite, heart murmur, luxating patellas, etc.)

Most bitches have their first "heat" cycle anytime after 6 months of age and then repeat their heat cycle approximately every 6 months thereafter. However, every bitch is unique and some will not have a heat cycle until 2 years of age and then usually once a year thereafter. Once the heat cycle is established, most individual bitches will maintain a fairly consistent cycle throughout their lives. Most veterinarians recommend waiting until the bitch's second heat cycle or at least until the bitch is well over a year old before breeding her. It is recommended that the owner or breeder keep detailed records of each bitch and her heat cycles

The visual indications of a bitch coming into heat, or "into season" as some call it, are when her vulva starts to swell and a few days later she starts bleeding (dripping reddish blood from her vulva). Any potential studs in the household will also know the heat cycle is beginning from the distinctive odors the bitch exudes and usually much howling occurs and these "wannabe" studs may not eat. You may even have to shoo a few local Romeos out of your yard when a bitch is in heat. An understanding of the various parts of the heat cycle can help the breeder plan for an effective breeding and remove much of the worry and uncertainty that accompanies each breeding.

The bitch's reproductive tract goes through five distinct phases during each heat cycle.

1. **Anestrus**, the quiescent period during which the ovaries are inactive and the bitch is not involved in a heat cycle.
2. **Proestrus**, the preparatory phase of the heat cycle.
3. **Estrus**, the receptive phase when the bitch can be bred.
4. **Metestrus**, immediately following ovulation when fertilization occurs.
5. **Diestrus**, the pregnancy (or false pregnancy if the breeding fails).

Since **Anestrus** is self-explanatory and **Diestrus** is not pertinent to this article's discussion, let us only consider the three critical phases of the heat cycle – **Proestrus**, **Estrus** and **Metestrus**.

Proestrus – Gradual swelling of the vulva along with a reddish discharge signal the advent of the Proestrus period. Internally, the ovaries, under the influence of the pituitary hormone FSH (follicle stimulating hormone) are developing follicles, which are approximately spherical group of cells in the ovary containing maturing ova (eggs). The lining of the uterus is also developing in preparation to receive the fertilized eggs. The Proestrus period lasts for 7 to 11 days. The bitch is attractive to the stud during this time, but she is not receptive and often violently discourages his attempts at mating.

Estrus –During this stage, the bitch is “receptive” of the stud's advances. She will “flag” by holding her tail to the side and she will often actively encourage the stud by romping with him or even attempt to “hump” him herself. The Estrus phase can be as short as 3 days but can be as long as 14 days with average length 5 – 6 days. Estrus ends when the eggs are released from the ovary.

Metestrus - The phase when the actual fertilization occurs. The fertilized eggs then travel down the oviducts, (fallopian tubes) to the uterus. The bitch still exudes odors making her still attractive to the stud, but the bitch usually reverts back to her uncooperative state of mind during Metestrus.

The most important key to successful breeding is timing. It is necessary to have a few million viable sperm waiting in the upper third of the oviduct for the mature eggs as the eggs travel down the oviduct on their way to the uterus. The timing of when the eggs will be in the location where the sperm is waiting cannot be predicted exactly (actually it occurs over a period of 24 to 36 hours because several eggs are making the trip and they are not always together). Therefore, we always want the first mating to occur well BEFORE eggs are released to make certain sperm are already present and waiting.

The breeding should take place in the stud's home environment, preferably in a relatively small area or room with only the bitch to be bred in the vicinity. The bitch's natural urges are usually strong enough that a strange environment will have no effect. On the other hand, a nervous stud will be easily distracted and may not breed effectively if he is in a strange environment or is aware of potential outside challenges.

Keep in mind that ovulation can occur as early as 3 days or as late as 14 days after the bitch becomes receptive so we always want to breed as soon as the bitch will accept the stud. Just leaving the bitch and stud together after she starts her heat cycle will often result in a very unhappy, uncooperative and sometimes injured stud. Therefore, introduce the two about the 6th or 7th day after the first noticeable bleeding. This will get the stud's interest but it probably will result in the initial rebuff. Usually it is wise to hold the bitch by her shoulders or at the bare minimum with a leash every time a breeding is attempted. This restraint is especially important in the beginning while the stud is testing so the bitch can't totally wheel and “nail” the stud. Some breeders even muzzle the bitch to further protect the stud and, of course, the holder. If she refuses to breed, then separate them immediately and try again the next day and every day thereafter until a successful breeding is accomplished on the bitch's first receptive day.

The stud mounts the bitch from the rear and through forward thrusting motions of his pelvis attempts to insert his penis, which has emerged from its protective sheath, into the bitch's vulva. This often appears to be a fairly random effort, but eventually results in penetration of the stud's penis into the bitch's vulva. Novice or so called “virgin bitches and studs” will occasionally go at it all wrong, but eventually instincts prevail and they sort it all out. Experienced studs will know exactly what to do as well as exactly what a reluctant bitch in Proestrus can do. Therefore, some experienced studs will look at the breeder and will not do anything until the breeder holds the

bitch's shoulders or head. If a bitch is too heavy and has no "waist line" the stud may have trouble staying close enough to the bitch when he clamps on her sides with his front legs. If this is the case, a second person may have to assist the stud by pressing on his rear once penetration is accomplished.

If there is a significant size difference between the stud and the bitch, help may be required. A solid pillow or folded towels can be used to raise the rear of the small bitch to the level of the taller stud. Or, if the stud is small and the bitch large, a platform may be required to allow the bitch to stand on the lower level while the stud can maneuver behind her on a higher level. It is best to do all breeding on a non-slippery surface such as an old piece of carpet or other slightly rough surface to give traction to the stud's hind feet as he attempts the breeding.

Once penetration occurs, the stud dances a little jig as he begins his ejaculation. At the beginning of the ejaculation, only fluid from the urethral glands is injected into the bitch. During ejaculation, the stud's penis is very rigid, extends to 6 inches or so on a JRT, actually has a bone inside and a bulb about the size of a golf ball appears up near the stud's body. This bulb does not expand until penetration occurs and the stud is dancing his "jig". A "tie" occurs by the stud's bulb starting to expand which stimulates the muscles in the bitch's vagina to constrict around the bulb and separation cannot then occur. Once the "tie" is accomplished, the stud's ejaculation jig becomes less frantic. Some studs may elect to stay mounted for a few minutes and some may even faint briefly, but most will try to dismount after 30 seconds or so. It sometimes helps to assist the stud as he tries to get his rear leg over the bitch's back. There is no discomfort to the stud when he moves into this different position. The "tie" continues with the bitch and the stud standing tail to tail while his ejaculation continues.

The second phase of the stud's ejaculation is when the sperm is pumped into the bitch's uterus. Each ejaculation will contain many, many sperm each of which looks like a miniature pollywog composed of a "head" and a "tail". Swimming-like movements of this tail and contractions of the bitch's vagina and uterus help the sperm move into the oviduct where they then lie in waiting for the arriving eggs. A "tie" is not absolutely necessary to achieve conception, but is desirable because it stimulates the muscle contractions in the bitch's vagina and uterus which help sweep the sperm up into the oviduct. A "tie" can be for only a few minutes or it can also last as long as an hour with the average being 20 minutes to ½ hour. After sperm is injected by the relatively short second phase of the stud's ejaculation, considerably more fluid is secreted by the stud in the third phase of his ejaculation to help the sperm swim up to the oviduct. When the "tie" eventually does separate, the breeder may wish to elevate the bitch's hind quarters for a few minutes longer to keep all of this fluid from draining right back out.

Another important reason to restrain the bitch during breeding is that once the "tie" occurs, some bitches may become quite agitated and attempt to bite the stud's rump or even to twist enough to roll which could cause trauma to the stud's penis. However, they usually both stand quietly tail to tail although a long "tie" may cause some discomfort for both and they will start straining against each other. It is probably a good idea to restrict their activity until the "tie" separates naturally.

Healthy sperm can survive in a healthy bitch's oviduct environment for as long as six days, (the author found three separate books stating that sperm can survive this long in the bitch and there are documented cases where it has happened). However, the best rule of thumb to achieve a successful breeding is to assume that the sperm can remain viable for two days. Therefore, since it is impossible to pinpoint when the eggs will descend into the oviduct, breeding should be repeated every 48 hours as long as the bitch is receptive. This may result in anywhere from two to as many as six or seven breedings, with three probably the most common if the initial breeding is done when the bitch first becomes receptive. Since the sperm can easily remain viable for at least two days in the oviduct, there is no point in breeding more frequently.

While we are on the subject of sperm, a normal stud can be used every other day almost indefinitely with no loss of semen quality or quantity. Most can even breed several bitches simultaneously. However, if the stud has not been used for some time (six months or so), the fertility of his first ejaculate may be below par. Therefore, at least two breedings are desired for best results. For this reason, some breeders prefer to breed on two consecutive days for the first two breedings and then breed every other day thereafter.

The color or quantity of the bitch's discharge can help give an approximation for determining the optimal breeding time. While a lightning of color and reduction of quantity may often occur at the onset of the estrus phase, the inconsistency of these changes as indicators makes them of questionable value for determining optimal breeding time. Instinctively, the bitch and the stud know far more than we can determine and the bitch's receptiveness is by far the best indicator.

There is a technique whereby cells from the vaginal tract are obtained by a swab or a flushing and, after staining on a glass slide, are examined microscopically. When this test is performed by a veterinarian experienced in this procedure, they can determine reasonably well the phases of the cycle. But, they cannot accurately predict when actual ovulation will occur, although a series of these smears can allow the veterinarian to follow the cycle and determine with reasonable accuracy when estrus occurs or when metestrus is over and breeding is no longer useful. Vaginal smear testing has a primary use as a timing aid in bitches who for whatever reason are not receptive or are having irregular heat cycles. Vaginal smears are also a necessary adjunct to artificial insemination, but that is a subject best left for another article.

So, the basics of successful breeding are a healthy and willing stud and bitch, a basic understanding of the estrus cycle, proper timing and finally breeding early and for as long as the bitch will allow. In most cases the result is puppies. Of course you will have about 63 days to wait before puppies are whelped. Next article will provide useful information about this 9 week wait and the whelping of puppies.

Primary source of information for this article came from an article on "Breeding" written by L. Paul Lanctot, VMD that was published in the "The Russell Rag". Other resources were the following books: "Breeding a Litter - The complete Book of Prenatal and Postnatal Care" by Beth J. FINDER Harris publish by Howell Books, "Canine Reproduction - A Breeder's Guide" by Phyllis A Holst, MS, DVM published by Alpine Publications, Inc.. and "Successful Dog Breeding - The Complete Handbook of Canine Midwifery" by Chris Walkowicz and Bonnie Wilcox, DVM published by Arco Publishing, Inc.