The College Column

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OUR recent visit to the "Ideal Fox Ranch" has proved so instructive to us that we show little hesitation in accepting another invitation from our congenial host, the "Ideal Fox Rancher" We are fortunate in that our arrival at an early hour in the morning allows us to observe the breeding method practiced on this ranch. The breeding is strictly polygamous.

From the observation tower we view the well-arranged pens nearest the tower which contain the male breeders. The tower room is light and comfortably warm and contains the breeding records as well as the necessary equipment for the microscopic examinations of smears. Our host explains that the herd favors the early morning hours for its breeding activities, which are usually completed by noon and which are resumed the next morning.

Females Checked Daily

At least half the females are being checked daily for signs of approaching heat and all animals which show developmental changes in the external genitalia are earmarked to be bred the next morning. This ranch uses the vaginal smear technic to help determine just when a vixen will be in heat. The animals are handled easily and gently while the smears are being taken. Our friend explains that after some practice, these smears are not difficult to take. A fire-polished glass rod with blunted end is inserted in the vulvar opening for about 2 to 3 inches in adult breeders and from 1 to 2 inches in pup vixens. Only gentle pressure must be applied. never force. The attendant holds the fox head-down and up by the brush while the rancher inserts the rod. This is now rotated and slowly withdrawn. The blunted end is rubbed into a drop of water on a clean glass slide until a thin milky film is spread evenly over an area of a square inch.

Cells Revealed

The microscopic examination of the smear reveals a number of flattened cells which are large and have irregular margins. They may show a nucleus or they may not. Among them one finds a variable number of smaller, nucleated cells which are rather regular in size and rounded. As oestrus (heat) approaches, the smaller cells become fewer and the large, scaly cells increase in number. The vulva becomes swollen, increases in size, discolors at first to a purplish-pink and later to a grayish-pink and will show evidence of discharge which dries around the margin. Such a vixen should be ready for breeding.

The vaginal smear technic is a reasonably reliable means of helping determine the state of the oestrous cycle of the female, but, like any other technic, it requires practice and patience. Some pup vixens are not so easily checked because of the narrow vaginal tract. The rod cannot be inserted very far and in some cases not at all because of the possibility that a semi-pervious or impervious hymen is present which will defy any attempt to obtain a vaginal smear. The progress of the cycle in such animals must necessarily be judged by observation of the vulvar swelling, color, discharge, and finally the behavior of the vixen when brought together with a vigorous male.

May Not Show Swelling

Many a vixen may not show swelling of the vulva to any appreciable extent. However, when such a female is offered to a dog she may breed readily. Others may show considerable swelling and will refuse the male at the moment, but will stand for the male a few days later when the swelling has subsided half way.

There is a considerable variation among vixens and dogs as to their breeding behavior. Some females which show all the indications of oestrus will fight off a certain male and refuse to breed, while copulation may take place without difficulty when the female is offered to another male. The same thing holds true to a certain degree for some males.

We are interested in knowing whether or not there is a timely correlation between the occurrence of heat periods in certain females as compared with last year; if a pup vixen will breed early or late just because its mother happened to accept service at an early or late date last year; and lastly, will the onset of the heat period be governed by the fact that a pup vixen was born early or late during the last whelping period.

Keeps Breeding Charts

Our host proudly points to his breeding charts and declares that such information is available because he has summarized the essentials of last year's breeding for quick perusal at this time. He points out that it is beyond his comprehension that so many fur farmers still attempt to operate efficiently without such information. It is vital for the fur breeder, and his efforts in keeping accurate records should be repaid many times.

Our friend brings out the following facts: (1) The breeding season had a late start this year. Excepting a few ranches, this holds true for the whole region, and because of its generality seemed to be governed largely by climatic conditions. (2) Some females are coming into oestrus within a few days of the date of last year; others which were early or late last year as compared with the remainder of the herd are late or early this year. It seems, however, that the majority will duplicate their breeding performance as far as time is concerned. (3) Pup vixens are known to be generally tardy in coming in heat irrespective of whether or not the maternal parent [illegible] were early breeders. However, since early whelped pup vixens show a tendency to be among the first virgin females to breed each year, their sexual maturation and general body development seem to be the major governing factors of how early or late they will breed. This idea is further supported by the fact that most virgin breeders will show an earlier initiation of oestrus by several weeks in the following spring. Naturally, behind all this is the genetical makeup of the individual which influences breeding performance. We are inclined to believe that this latter consideration applies more to male pups than it does to female pups. The male progeny of a vigorous father, or of a mother boasting a paternal parent of such type, most likely will show similar tendencies; such a pup, even when whelped late, may be one of the first ones on the ranch to perform.

Reproductive Organs

Our inquisitive nature prompts another question. (The prominence of this trait of ours is exceeded only by the willingness of our host to satisfy such curiosity.) We would like to know how much lack of development or anatomical deformity of the reproductive organs is encountered in males and females. We are told that it would be difficult to determine such deviations from the normal in females beyond the presence of an impervious hymen. The latter may not be too great an obstacle to a good male because of certain anatomical features of his copulatory organ and its ability to penetrate such membranous closures. The absence of a uterus could, of course, not be detected until the animal is pelted for reproductive failure; a female lacking a uterus may exhibit during breeding season a nearly normal sex drive, as long as ovaries are present. However, this condition is seldom observed.

It is much easier to detect anatomical deformity in the male The penis may be underdeveloped or may refuse to emerge easily from the enclosing preputial sheath. A competent veterinarian would recognize the latter condition at once as phimosis and would correct it by surgical means. Under-development of the male sex organs such as the testes and penis should be detected before the breeding season commences in order that treatment can be attempted. Your veterinarian is qualified to use hormonal therapy in conditions such as undescended testes, unilateral or bilateral, and an underdeveloped penis. The treatment may have to be repeated several times and therefore should be initiated early.

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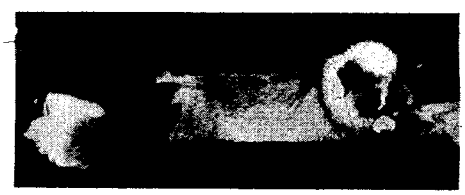

White face platinum, son of 8-year old "Pinkie". This dog, as a pup in 1941, produced five litters of 24 pups total, and so far in 1942 has made eight matings. Owned by the Black Forest Fox

Tumor Formation

Unequal size or oversize of one or both testes requires careful scrutiny. The canine family is very susceptible to tumor formation in the testes. If one testicle is greatly enlarged, surgical removal (orchidectomy) of the organ is indicated. The other testicle will increase in size and may enable the dog to carry on breeding to pay its way until the next pelting time. The possibility of such a procedure has been demonstrated recently on a Colorado ranch. It should be pointed out that male breeders who have shown a tendency to tumors of the testes should not be kept in the breeding herd; neither should their male offspring. There is reason to believe that this weakness is transmitted in the germ plasm.

If both testes are diseased, bilateral castration should be done. The male may be kept until next fall for pelting unless the fur is still prime at the time of discovery of the malady and can be recovered by sacrificing the animal at once.

Shy-Breeding

Our question on shy-breeding is answered thus: It takes considerable patience to get some pup males and females started, and the judicious use of teasers of both sexes usually brings satisfactory results. Because of the inherent and natural aggressiveness of the male, females have to be teased more often than males. However, some pup males may have been intimidated by a reluctant or vicious female, and it will take careful manipulation of the particular pup to bring him back and not lose his services for the breeding season. Again, expertly applied endocrine therapy may prove beneficial along with special feeding of easily digestible, high-energy foodstuffs. When he is brought together with vixens of known gentleness, his daunted masculinity will soon assert itself again.

The "Ideal Fox Rancher" is always certain when a female has been bred because he watches every mating and notes the time elapsing between contact and break of the copulating pair. There are still some ranches practicing so-called "polygamous breeding" by leaving a male with several females day and night and hoping that breeding took place even though the actual act was not observed nor copulation verified by examination of vaginal smears.

We are impressed by the efficiency with which our rancher handles his program. The female is removed to her future home, which was prepared in advance with the kennel well bedded down with clean straw or native hay. Before she is released a vaginal smear is taken either with the glass rod or an eyedropper, the end of which has been carefully fire-polished to prevent injury to the delicate membrane in the vaginal tract. The material retrieved is spread on a clean glass slide into a drop of weak salt water and then is examined microscopically.

While it is relatively easy to observe the field of sperms, more care as to speed of operation, temperature, etc., must be observed to check the germ cells for motility. The eyedropper will be helpful in obtaining a larger amount of fluid from the vagina, which, provided it is kept warm, will give a more satisfactory motility picture. For practical purposes, however, the presence of an adequate number of sperms which show few deformities (not over 20%) serves as a reliable criterion as to whether the service by the male was successful.

The Sperm Picture

The sperm picture will vary considerably with the individual. Older proved breeders usually produce a profuse field of germ cells. Young breeders may disappoint at first because their spermatazoa are scanty and show many deformities, such as double heads, deformed [redacted] ens should not be bred at the first sign of heat anyway, but rather on the second day. One should use the young male at least every other day, and in most instances it will be noted that the sperm picture has considerably improved as to number and morphology of the spermatazoa.

We believe that the male can be held responsible only for part of the misses encountered when post-copulatory vaginal smears are taken and examined. Many a vixen is being bred as soon as she half-heartedly stands for the male; a greater number of successful conceptions would be obtained if such animals were kept over to the following day. The viability of the sperm is relatively short lived, and since most vixens ovulate (shedding of ripe eggs) on the average at 48 to 72 hours after the first signs of heat are observed, such spermatazoa may perish while waiting for the transcent of the eggs, and consequently a miss will result.