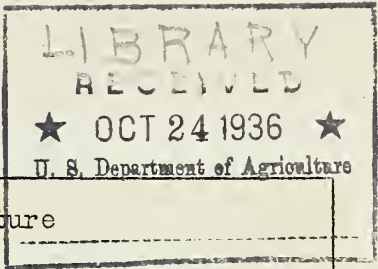


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POLYGAMOUS MATING OF FOXES

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Principles of livestock production with regard to feeding, breeding, and management have been developed through centuries of domestication of one-time wild animals. This period of time is ample for a phenomenal change to take place in the type of the animal itself through selective breeding. In fact this has progressed to such a degree that many present-day domestic animals bear little resemblance to their wild progenitors. The changes have been accelerated in recent years by the application of scientific principles of breeding, based on present-day knowledge of genetics.

Properly adapted, the accumulated knowledge of successful livestock practices should prove of inestimable value to fur farmers. The difficulty in the past has been that the feeding and breeding habits of fur animals were so little understood that they could not be used as a basis for developing management practices. In fact, until recently little occasion arose for studying the fox, except as to how to prevent it from raiding chicken coops or to inveigle it into a trap. A systematic study of such animals as the fox in the wild is extremely difficult. Fox farming required that a knowledge of the life habits of the fox be obtained, but progress was slow because of the fact that when penned up this animal does not behave naturally. Attention given to unscrupulous promotions in the early history of fox-farming was for some time a thousandfold more remunerative than the tedious study of basic principles of fox breeding and feeding. Ever-increasing and keener competition, however, necessitated that these principles be learned and diligently applied if a profit was to be made in the undertaking.

This financial incentive, together with the wide-awake fox farmer's constant inquiry as to why successful practices of livestock breeders cannot be applied to foxes, has been primarily responsible for the present-day progress in polygamous mating of foxes as well as in other phases of the industry. Domestic animals mate polygamously and even promiscuously, and why shouldn't foxes? Repeated attempts to answer this question proved that some foxes, contrary to prevailing opinion, would mate polygamously, and that these same foxes would do so later under proper management even more readily than previously. A careful study of the rather meager available literature on

polygamous mating of foxes and the technical as well as the practical data on livestock breeding suggest unlimited possibilities and advantages in polygamous mating. The animals and the fox farmers themselves are the limiting factors.

Foxes have potentialities for wide selection, because reproduction in the wild was by promiscuous mating, a procedure conducive to mixed inheritance. The evidence of this variability in respect to polygamous proclivities has been disclosed repeatedly by those who at present are successfully practicing polygamous mating of foxes. Continued proper selection will enhance this polygamous tendency. The fox farmers are limiting factors because the indifferent, careless, haphazard person will not be successful with polygamous mating of foxes. The fox farmer must have the ability through careful observation and close study to recognize the physical indications of mating time in the vixen, and then he must develop his management practices so as to get the desired results. A careless person cannot manage such a program. He had better leave it to the foxes.

That polygamous mating of foxes is possible there can be no question; as to whether it is practicable in all cases is another matter. Some ranchers may prefer pair-mating because of the size of their ranch, the location of the pens, inability to obtain competent and reliable assistants during the mating season, and personal indifference towards keeping records.

Following are some of the advantages of polygamous mating: Any male having superior germ plasm can distribute the highly prized qualities of thriftiness, quality and silvering of the fur, prolificacy, and rapidity of growth throughout the herd directly in proportion to the number of vixens to which he is bred. Surely a fox farmer would not object to having as many as possible of these highly desirable factors in his animals. Polygamous mating also will permit of rapid systematic line-breeding, a most potent method of obtaining great uniformity in the stock. The kind of uniformity, good or bad, will depend entirely on the germ plasm of the foxes and the ability of the rancher to select his animals for desired traits. Families or strains that nick well are disclosed quickly by giving the dog an opportunity to mate in one year with several vixens of different families or strains. Perhaps the outstanding advantage of polygamous mating to most ranchers would be the considerable saving of money invested in pens, equipment, animals, and feed. With fewer animals the labor costs are materially reduced except during the mating season.

For a detailed description of the vixen during the mating season and for successful methods of handling both vixens and dogs during that period consult the article on "Polygamous Mating of Males", by Lowell W. Hancock, published in the February 1935 issue of the Canadian Silver Fox and Fur, and one on "Polygamous Mating", by Wm. B. Erektion, in the December 1935 issue of the National Fur News. Valuable discussions of this subject have also appeared in the other fur-farming periodicals. It is important that every fur farmer keep in touch with current developments by reading the fur-farming journals.

A check on the heat period of vixens through the physical appearance of the external organs, as described in the articles mentioned, was made by Chas. F. Bassett, Director of the United States Fur Animal Experiment Station, Saratoga Springs, N. Y., between January 28 and March 15, 1936, with 31 vixens, a very small number it is true. Twelve were pups, and four of these pups did not show swollen external genitalia nor were they observed to mate, and they did not produce young. All the other pups as well as all the adult vixens showed various observable degrees of external genitalia enlargement.

These observations covered only one year. Undoubtedly a technic would develop with experience; and a group of vixens selected, in addition to other desirable traits, for conspicuousness of external signs would tend over a period of years to display more prominent evidence of being in heat. The above results are good indications, however, of what the average breeder may expect with the average group of foxes.

The practice of mating a male to more than one vixen was begun at the Fur Animal Experiment Station in 1922, when 1 male was mated to 5 vixens. Since then each year (except in 1925) 2 to 4 males have been mated with more than one vixen, a rather broad use of the term "polygamous mating." During these 14 years 30 males and 82 females have been so handled. Of the 30 males, 16 were used one year, 6 two years, 6 three years, and 2 four years. Of the 82 vixens, 5 were used polygamously for 5 years, 3 for 4 years, 7 for 3 years, 16 for 2 years, and 51 only 1 year.

Up to 1931, of 77 attempts to bring about polygamous matings, 9 vixens showed no indications of having mated and did not produce young. It is possible that some of the 9 did mate, as there were other cases with no observable indications of mating that did produce young. During this 9-year period there were only 2 instances of 1 dog mating with 4 vixens, 7 instances of 1 with 3, and the rest of the matings were with 2 vixens each.

During the 5-year period 1932-36, 13 males were used polygamously with 41 vixens in 70 attempted matings, and only 13 cases failed to result in pregnancy. This is about 19 percent failure as far as actual production is concerned. Undoubtedly some of the 13 vixens had mated though they did not produce young. One dog mated with 6 vixens during a period of 15 days, all cases resulting in pregnancies; 2 dogs mated with 5 vixens each in 17 and 19 days, all the vixens becoming pregnant; 4 dogs were mated with 4 vixens each, with only 2 of the 16 not producing young; 4 were mated with 3 vixens each; and the remaining dogs were mated with but 2 each.

Of 5 vixens mating and producing pups each year over a 5-year period, 1 was mated to 3 different males, 1 to 4, and the other 3 to 5 different males. A check on the other matings does not in any way indicate that it is necessary to put the vixen to the same dog each year in order to effect a mating.

The longest time between the first and the last mating of a dog was 45 days, extending from January 19 to March 3. The normal reproductive period of male foxes is limited to about 2 or 3 months, if Dr. G. W. D. Hamlett's study of coyotes in the wild is applicable to foxes. He found that the reproductive period of the male coyote was only about 2 1/2 months, extending from late in January to the end of March (based upon changes in size of testes and presence or absence of sperm in testes and epididymes). No definite information on this point for foxes, however, is available. The short breeding season naturally restricts the number of vixens that can be mated to a single dog.

At the Fur Animal Experiment Station no attempts at extensive polygamous matings have been made because of the extremely small number of animals there, comprising Standard, Alaskan, red, and cross foxes. Furthermore, some of the problems being studied there require definite matings regardless of the polygamous ability of the animals. Information at the station on the production records of the vixens has purposely been omitted. Experimental feeding tests, weighing, and the consequent frequent handling of the animals, as well as the excitement caused by the visitors that are always encountered at a ranch of this kind, have a decidedly unfavorable influence on such results.

A word of caution: A program of polygamous mating, if deemed practicable, under no circumstances should be established throughout the entire ranch at one time. Foxes of both sexes vary in adaptability to polygamous practices. Also, animals used polygamously must carry the maximum of desirable characteristics. Foxes wholly suitable for polygamous mating may be hard to find. Most foxes have been accustomed to pair matings. Proper training of the animals in polygamous mating and the development of this polygamous trait by proper selection are most important. And perhaps still more important is the gradual education of the rancher in proper methods of management of polygamous animals. There are many advantages in polygamous mating and few, if any, serious disadvantages, but the practicability of its application in any particular case must be determined by the rancher himself.



