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A general survey of mink farming practices in Oregon was made from visits to fur farms and by the raising of these animals at the Oregon State College Experimental Fur Farm. A history of mink farming in Oregon is presented. Special attention is given to ranch organization, equipment and housing of mink. The feeding schedules used by the most successful mink farmers in the State are outlined. Practices used in rearing young are presented and some data on inheritance characteristics is included. The general practices of preparing pelts and methods of marketing are explained.

THE MINK INDUSTRY OF OREGON

by

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INDEX

INTRODUCTION	Page 1
HISTORY OF THE MINK INDUSTRY IN OREGON	" 1
RANCH ORGANIZATION	" 4
EQUIPMENT	" 6
HOUSING BREEDERS	" 10
HOUSING PELTERS	" 16
COLD STORAGE PLANTS	" 19
FEEDING	" 23
FEEDING AND REARING KITTENS	" 30
DISEASES AND PARASITES	" 34
BREEDING	" 37
PELTING AND SELLING PELTS	" 44
CONCLUSION	" 47

THE MINK INDUSTRY OF OREGON

There are approximately two hundred and fifty persons engaged in mink farming in Oregon. (11) Since no information has been written heretofore, this dissertation presents the practices used by the more successful mink raisers in the State. The material is given mainly as a guide for profitable mink farming under Western Oregon conditions. The information used was compiled from observations, interviews and discussions with mink farmers; independent research at the Oregon State College Experimental Fur Farm; and practical experience in raising mink for profit independently since 1936.

HISTORY OF THE MINK INDUSTRY IN OREGON

The history of mink farming in Oregon dates back to 1913. (6) At that time, G. H. Folland in Tillamook caught three females and two males. However, these mink escaped before breeding season. Mr. Folland did not try again until 1924 when he trapped fourteen females and five males. He states that in his first year he raised thirteen kits and lost several more due to the mothers' killing them. Pelts were then worth from five to ten dollars.

In 1928 Mr. Folland went to Alaska and trapped ten wild mink for breeders from the area near Juneau. On that trip he compared his trapped mink with some raised on the Marsh and Brown Mink Farm whose source was the headwaters of the Yukon River, and found that the latter were darker and silkier. He purchased a pair at the time and then or-

dered thirty more pair in December of that year. One hundred and thirty six kits were raised from these mink the following year. It may safely be said that from this strain some of the best mink in Oregon can be traced. Mr. Folland had over two thousand breeders and kits in 1939.

Although Mr. Folland was one of the first to attempt raising mink in captivity in Oregon, Mr. L. C. Daniels, (1) also of Tillamook, was one of the first to start mink farming as an enterprise. In 1923, Mr. Daniels started with native mink. In 1929, he obtained his first Yukon mink and in a few years had eliminated all his native strains. His pens at the start were on the ground with the kennel or den inside a building. Later he constructed his pens to half the original size and raised them off the ground. This move reduced losses and feed disturbances. Mr. Daniels also stated that raising the pens helped in priming furs by eliminating "yellow-bellies" and stains.

It is interesting to note that Mr. Daniels is following much the same feed schedule now as he did in the beginning. The variations are in the use of refrigeration instead of canning and in the use of tomato juice and larger variety of vegetables in the ration. Finding a satisfactory feed schedule seems to have been the key to establishing the mink industry in Tillamook County as it is today. The following is an exact copy of Mr. Daniels' feeding schedule, which he sent to prospective mink farmers in 1927 and 1928.

"FEEDING SCHEDULE AS USED AT THE
DANIELS MINK FARM, TILLAMOOK, OREGON"

"We feed mostly beef and horse meat, either cooked or raw, and always run it through a food grinder, and in doing this we can mix a few other ingredients with it which we find are very essential.

We mix the beef or horse meat, as follows:

Remove about all the fat that can be easily gotten out of the meat, then add 1/6 part of mill-run to check the laxative effect of the meat; add about one tablespoonful of steamed bone-meal (to each ten mink); add a little iodized salt; add enough water or milk to make it mix easily and thoroughly stir and mix. Always feed just what they will clean up, for over-feeding makes everything so messy and unsanitary, and it is more harmful than under-feeding. About once a week we add one leaf of lettuce or one tablespoonful of finely ground alfalfa meal (to every six mink), and then about every two weeks we put in the same mixture a half cup of tomatoes (to every six mink), put through a colander or ricer. We find that the tomatoes and lettuce are very important and we also add a little powdered charcoal now and then. When the females are nursing their young we put about five drops of some good grade of codliver oil to the mixture to each female, and as the young ones get so that they are coming out to eat, give them about the same amount of the oil each day to prevent Rickets, which is very common in growing mink, and which is sure death if they get it.

We also feed all the fish we can get, either cooked or raw and change from one feed to another as often as possible. Crawfish are very good feed for a change. Birds of any kind, chicken heads and rabbits with the fur on are all excellent food.

We always save all surplus meat to be used when it is not easily obtained by canning it in the following manner: Cut the meat up in small pieces and fill glass jars with glass tops, add a little salt. Thoroughly boil three or four hours in a wash boiler or other receptacle by covering over with cold water. You will find that it comes in pretty handy, but always add a little mill-run just the same and supply the other ingredients as before stated."

RANCH ORGANIZATION

A mink farm should be located in an area where there is an adequate source of feed, desirable climate, source of power and light and a suitable geographical setting. Feed must be available in large quantities and must be close enough to avoid high costs.(4)(5) In the mink industry, the final mixed feed should not cost more than two cents per pound.(13)(14). Climate must be considered because it not only affects pelt value, but also may affect the general health of mink. Mink will die from the results of excessive heat. Death does not seem to follow a certain temperature range so much as it does a combination of temperature and humidity. Mink east of the Cascade Mountains in Oregon can stand higher temperatures than west of the mountains.

Another consideration in locating a mink farm is the question of neighbors.(15) Since a desirable location should be away from noise, particularly during whelping time, a farm should not be close to a field that will be worked in the spring, or too close to a place where the inhabitants are naturally noisy in their work. Odors that may come from the mink are apt to bother the neighbors.

Mink have been raised in the back yard of a small town lot. There the animals became used to regular sound. Outstanding disadvantages in such a location are the cramped space and the chance of contracting diseases from stray cats and dogs that may be around.

It is best to locate the main plant in a place having good drainage.(3) Ground with a gentle slope toward some close natural drainage, such as a creek, is best. Building on a side hill is not



Fig.1 - This is a very good setting for a mink farm. Drainage is satisfactory. The hills shelter the farm against heavy winds and the location lends itself to beautification.

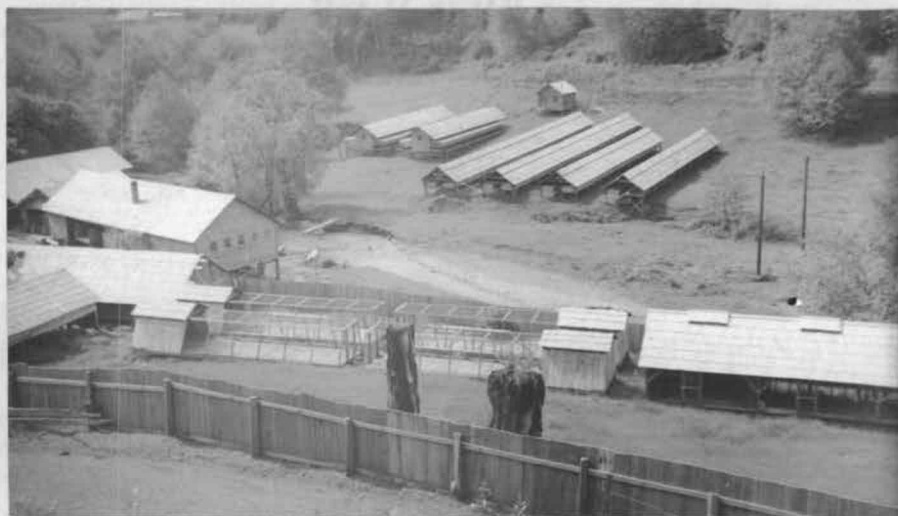


Fig.2 - This is an example of a board guard fence. The posts and cross pieces are on the outside of the fence. In addition, drainage from the farm is to the creek, and the buildings are sheltered from winds by the hills on each side.

desirable because of difficulty in leveling the structures and of the added burden of climbing while going from building to building.

Breeding houses and pelter houses should not be so crowded that they cannot be readily cleaned, or that a disease in an animal in one may be easily transferred to animals in another. Breeder houses or pens should be in one unit and pelter houses in another unless a combination house is used.

A guard fence should be built around the pens. This may be built of wood or wire. Sixteen gauge wire should be used with a piece of galvanized tin about 16 inches high on top.(12) Mink will readily climb wire but have difficulty in climbing a board fence unless they can get footholds in corners or near posts. Guard fences for mink should be set about six inches below the ground surface.

Other buildings include a cold storage plant, a feed house, a house in which to handle pelts and living quarters for the operator. The cold storage plant and the feed house should be combined in order to shorten the chore route. Such a building should be accessible to the mink yard and yet handy for unloading feed that is brought in. The pelting house might be located in any convenient place where it can be guarded during the pelting season. It should have accommodations for a hired man or two also. If the operator's house is at one corner, the pelting house may be toward the other corner in full view of the operator's house.



Fig.3 - This picture illustrates the use of a wire guard fence with a tin overhang.



Fig.4 - This is an example of a modified type of Alaskan breeder house. The mink are in runs on wire floors. They are fed and watered inside. The small portion of the pen extending outside allows the mink to sun itself.



Fig.5 - The guard fence is 4 ft. high and of 16 gauge 1 in. mesh wire with a 12 in. piece of galvanized tin on top. The house and runs are all built on the same joists. The stringers can be seen at the end of the runs.



Fig.6 - Several different types of houses are used on this farm. The newer buildings have the outside runs. The building at the extreme right with the chimney is the work shop and pelting house. Beyond the work shop, nearer the trees, is the cold storage plant.

EQUIPMENT

Consideration must be given the equipment necessary in the operation of a fur farm. If one is in a community where mink farms are already established, he may make arrangements to buy feed already mixed. For small herds this procedure is desirable. In the same way, pelting may be done at another farm. In such a case, the equipment would merely consist of those items necessary for handling mink. Catch traps, gloves and a shipping crate are all that would be necessary. The catch trap may either be purchased at a fur farmers' supply house or built to suit the individual tastes. There are catch traps made of wood, or tin, or wire netting and of welded wire. The latter type has proven to be the most satisfactory. In the case of the wood and tin catch traps, one is unable to examine the animals. The traps made of wire netting, on the other hand, are not as easy to use and are difficult to build so that the mink can be held or kept from cutting itself on the wire ends. The welded wire catch traps are easier to operate, more stable and lock securely.

Gloves for handling mink may be purchased, but are not as satisfactory as a good pair of "rigger's" gloves taped over the knuckles and around the thumb and first two fingers. A mink rarely reaches the little finger to bite when being handled. Bites usually occur on the thumb, first two fingers and the top of the hand. Have the gloves come well upon the wrists, as a mink often climbs a person's arm, when being held by the tail. When taping a glove, it is wise to run a broom handle up each finger as it is taped, so that

the glove will not be too stiff to flex the fingers. The tape over the knuckles should be applied with the glove on the wearer's hand for the same reason. A double thickness of tape is ample.

As the farm expands, it is desirable to have a device in which to hold mink in restraint. Such articles are usually home-made and are called clamps. They are very handy to examine mink and to hold them so they may be humanely disposed of for pelting.

For a larger establishment, a mink farmer should have his feeding equipment. This comprises a good grinder, feed mixer, feed containers, pans or boxes in which to freeze meat and fish and equipment for butchering. At first, one may grind his feed with an ordinary hand-turned meat chopper; but later, a power grinder is essential. Various sizes are available. For a farm of 100 breeders, a grinder with 10 to 15 pounds per minute capacity can be used, but one driven by at least one-half horse power or even a one horse power is more desirable. The larger grinder costs more, but it is more desirable, as the operator does not have to cut the pieces of meat as small and may run calf meat bones and all. The time saved is the important factor. For a farm with more than 100 breeders, a grinder the size of an Enterprise #41 or larger is desirable.

There are many feed mixers on the market, most of which are satisfactory. For smaller farms, feed may be readily mixed by hand. Many farms use bread mixers and find them fully as satisfactory and cheaper than the expensive commercial mixers. The bread mixers have a greater capacity and require more power.

For butchering, a mink farmer needs a place to kill and hang the carcass while he cuts it up. Many use a tree for "horses", but have a place provided in the feed room for butchering calves. Meat hooks, knives, gambrels and feed containers are necessary. In addition, one should have a small grinder, oil stone and a steel with which to keep his knives sharp. A meat cleaver or broad bladed hatchet is handy for chopping bones and frozen meat and fish before grinding. A meat block or a table for cutting meat is quite necessary. When one has the equipment and convenience for butchering and preparing meat and fish for feed, considerable time and energy can be saved.

There is a great variety of feed containers. For storing feed in small quantities, five gallon cans, five quart oil cans, and No. 10 cans prove very satisfactory. The smaller cans are handy to use for measuring feed quantities for carrying mixed feed. Ten and twelve quart pails and small tubs with bails are best. Small quantities of feed may be mixed by hand in buckets also. Where large quantities of feed are mixed, the mink farmer needs tubs varying in size from No. 0 to No. 4.

Cans may also be used for freezing meat. However, most farmers use either smelt boxes or tin pans about 20"x24"x4" deep. The tin pans are more desirable but more expensive. Since wood is more of an insulator, meat and fish do not freeze as rapidly in smelt boxes as they do in the tin pans. After the feed is frozen, it can be dumped out of the tin pan and stacked to conserve space. The tins are then available for another supply of meat. Cans are desirable for storing such feeds as salmon heads or other oil fishes

which may become rancid since cold water can be poured into the can of frozen heads and frozen into an ice block. In this way, air cannot contact the feed as readily to oxidize the fats or cause dehydration. Salmon heads can be kept fresh for several months by this method whereas otherwise they should be fed within three weeks. Meat and fish frozen in the pans can be more easily glazed than that in smelt boxes. However, the smelt box may be lined with heavy wax paper.

HOUSING BREEDERS

There are many types of pen arrangements for breeding animals. Although they vary considerably in size, they may be classified as individual pens, Alaskan breeder house, kennel house and variations between these three. The individual pen type construction is as the name implies. Runs are built with a nest box attached. They are not necessarily under roof and are portable. The Alaskan breeder house has no runs but has a space entirely under a roof for each mink. The kennel house has kennels built in under a roof for each mink with pens on the outside. Nest boxes are placed in the kennels in the building. In Oregon, the kennel house arrangement for breeders is predominate.

Each type has its advantages and disadvantages. The individual run is cheap and easily moved in case of disease in the animal. Whenever one has a sick mink, the pen may be easily cleaned and disinfected. However, at breeding time, these pens are very unhandy. Mink must be caught in traps to be taken to the male and escapes are quite frequent. A mink farmer must clean out the kennel and renew the bedding often during rainy weather. Where outside individual pens are used, it is a wet, disagreeable job for the operator, and often the rain wets the straw or bedding as he carries it to the pens. A simple roof removes this disadvantage but raises the cost of housing breeders to nearly as much as a breeder house would cost. Whenever more breeder pens are needed, the exact number required may be built. On the other hand, the individual pens take much longer to build than other types.



Fig.7 - Individual pens, well sheltered, are often used by beginners.



Fig.8 - Batteries of outside pens are used on many places to take care of the overflow at the time mink are weaned and litters separated. Oftentimes they are used to winter mink. This practice avoids keeping mink in the dark peltier pens during the summer months.

The Alaskan type breeder house is probably the most expensive method of housing breeders. The advantages in using this construction are that mink are always under shelter and have plenty of room. Since the operator is able to go into each pen, it is also the most convenient at breeding time. One can let a male mink out of his pen and then allow him to go down the alley to the female pen or vice versa. In case a pair starts to fight, the operator may go into the pen and separate them quite easily whereas in other types of pens this is impossible. This pen has some marked disadvantages. In the first place, wooden floors are used. This involves dampness and necessitates cleaning every day. Some houses have been built with a cement floor. Again dampness is encountered and daily cleaning is necessitated. When a farmer fails to clean pens each day, the minks become dirty and may become paralyzed. Most of the cases of internal parasites found in ranch raised mink in Oregon have come from the Alaskan type pen. If, however, the floor were made of wire, the parasite and pen cleaning problems would be greatly reduced, but it would be difficult to clean beneath each pen, and the advantage of being able to go into a pen would be lost.

In the second place, the daily routine of feeding and watering is much slower in the Alaskan breeder house. The feeder must go from door to door, and that takes time, thus cutting down the efficiency of operation. Many of the Alaskan type houses are not supplied with feeders. Food is tossed on the floor where it may become contaminated with feces. Thus it may be seen that the Alaskan type of mink



Fig.9- (a) and (b) - Individual pens of a circular design are easily and quickly built. However, the cost is slightly higher. Note the feed board hooked on the front and the small watering trough in the lower picture.

house requires much work and time with a given number of mink.

The kennel type house is being adopted by the more progressive farms, because it is more convenient, more compact and easier to build. The built-in kennels provide a warm dry place for the minks to rest, and an airy outside run where they can exercise and bask in the sun freely. The advantages are that the minks can be moved about and handled without much danger of escaping, bedding can be kept drier and nesting materials can be changed regardless of weather, a dark place is provided to put the nest box at whelping time, thus cutting down litter losses and individual records of mink can be hung over each kennel without becoming wet or destroyed by weather. During storms mink will keep their nests in better condition. It is also easier to clean out beneath the pens.

Disadvantages of the kennel type house are not as outstanding as with the other types of housing. The mink must be fed outside. In bad weather they will get wet in feeding and their feed will become rain soaked. This type of house is more expensive than individual pens, but not as expensive as the Alaskan type house. Individual runs will cost in the neighborhood of \$2.00 a piece, whereas the kennel type will cost from \$3.50 to \$6.50 per animal, depending on the permanence of construction. Usually a breeder house will outlast the individual pens.

In building this type of house, it is an advantage to have a large kennel at least 2 by 2 feet, and if possible, 2 x 3 feet. The sides may be from $1\frac{1}{2}$ to 2 feet high. They should have wire bottoms rather than board floors. During the summer, wire bottoms afford more



Fig.10 - This breeder house is neatly built with a concrete floor under the runs to facilitate cleaning. Water cans can be seen in front. A piece of plate glass in the run serves as a feed board.

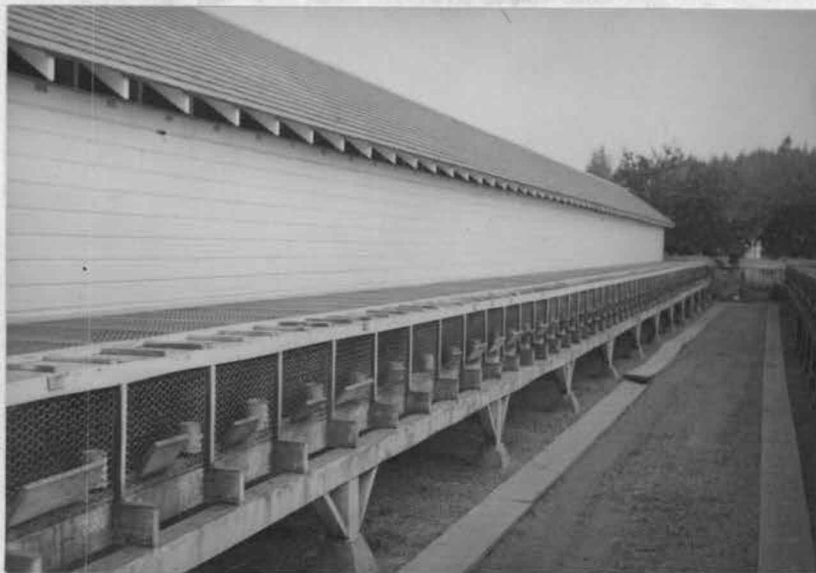


Fig. 11- This picture shows the construction and size of the breeder house seen in Fig. 5. Feed boards hook on the outside and water cans are fastened in the end of the run. A space under the eaves is left open for ventilation and to enable the operator to see the runs from the outside.

ventilation, while in the winter moisture does not accumulate inside when the mink comes in from the rain. Since droppings do not accumulate inside, work is reduced to the minimum. Before whelping time, false bottoms of boards should be put in so that kits will not drop through the wire. The opening to the runs should be four inches square and at least eight inches above the floor. Kits which are able to reach that opening and crawl out of the kennel are of sufficient size so as not to fall through the wire. The lid to the kennel is constructed of boards. Although this lid is solid, there should be a small hole big enough to see into the kennel without opening the lid. Slides are built in to close the mink either in or out of the building. Particular effort in construction should be made to avoid cracks in the partitions between kennels. Minks may fight each other, and kits are often disfigured if there is a crack as wide as one-fourth inch in the partitions.

During the whelping season, the 2 by 3 foot kennels are large enough so that two nest boxes may be placed inside them for the mother. In most cases, only one nest box is used by mink farmers. It is a controversial question as to whether or not two nest boxes are better than one. Men who use one nest box sometimes claim large litter losses, and they are required to do more cleaning. Those who use two nest boxes claim fewer litter losses, and that less work is entailed in cleaning out nest boxes. Their contention is that if the mink gets excited she wants to move her kits. With only one nest box the female has no place to take them and either packs them or kills them. Where there are two nests, she will transfer them from one to the other. (15)



Fig.12 - A poultry house is very easily adapted to mink. The extra space inside may be used for storage and for pelting pens. Note the different type of feeder on the right hand run.



Fig.13 - A simple shelter over the ends of runs makes a convenient mink house, but not so satisfactory as more complete structures.

When the mother is using one nest box, she will store food in the other and not dirty up the nest in which she keeps her kits. However, one may offset the second advantage of two nest boxes by using a single nest box with an antechamber. In such a case, the mink will store food in the first chamber and yet keep the nest clean.

Where the two nest boxes are used, it is a simple matter to clean them. After the mother has been locked out in the pen, the floor of the kennel and the dirty nest box can be cleaned. It will rarely be necessary to clean the nest box containing the kits. In case a single nest box is used, it will be necessary to change the bedding in addition to cleaning the kennel.

Oftentimes it is possible to get a mink to leave her droppings on a foot square board placed in the run. In order to encourage her in that habit, the board should be smeared with droppings from her pen. It is her desire to keep her house clean, but she invariably will prefer to leave her droppings on some solid surface, so unless otherwise provided, she will mess up her kennel. In that case it should be cleaned every three or four days. By training the mother, the mink farmer need only look in the kennel each week. The board in the run can be washed each day as the minks are watered. This not only reduces the amount of work, but saves on bedding and minimizes the disturbance to the mother.

As has been previously stated, there are variations between the three types of mink housing accommodations. Among these, a combination of the individual pen and the breeder house has much promise.



Fig.14 - A mink house may be built so as to use the ground as an aisle. However there is not so good circulation underneath the nest boxes. Mink are fed on the wire and a V-shaped trough is used to shelter the feed.



Fig.15 - Small watering troughs with a small spout from which the mink may drink are being developed and used more extensively.

This consists of pens under a roof so that the nest box, kennel and half of the pen are under shelter and the other half outside in order that the animals may have plenty of sunshine. Wire partitions made of 1 inch mesh 20 gauge poultry netting enclose the alley so that in case a mink escapes from a nest box, it is still confined, thus retaining the advantages of the mink house. Pens are made in units of three or four and set on runners so that they may be pulled completely under shelter or pushed out to get more sunlight as the weather permits. In case mink become sick, the units may be taken out and cleaned or replaced without destroying a whole house. Due to the simplicity of building, the cost for this type of construction is lower than a mink house and yet retains many of the advantages of a mink house.

HOUSING PELTERS

There are two principal types of housing for pelting mink. The predominant housing system is to keep the animals in specially constructed buildings where there is no sunlight or chance for marked dampness from the weather. The second housing system is to put the animal to be pelted in a pen completely shaded but not protected as well from the weather. The former is prevalent where breeding houses are used; whereas the second method is common where the individual type pens are used.

The important considerations in providing shelters for pelting are to keep the pens dry, to keep the sunlight out and to have good ventilation.

Pelting pens vary in size and construction just as breeding pens do. Some are built with board partitions while others are built entirely of wire. Usually, pens are from 12 to 16 inches wide and from 4 to 5 feet long. In depth they vary from 12 to 18 inches.

Although pelt pens with board partitions are predominant, those constructed of wire are gaining in popularity. The latter type is better ventilated and has no rough surfaces on which the mink may rub and become dirty. Where the board partitions are used, lumber with pitch or rough sides should be avoided. Frequently mink in close quarters will claw at a crack and, eventually, they may make a hole in the partition. Mink have escaped in instances where unsound lumber was used. Loose knots should be tinned for the same reason. It is more difficult to place a nest box in a board parti-



Fig.16 - Pelting pens should be made so that droppings can be cleaned out easily. The above picture shows a dropping board which can be easily washed. The sides of the pens are made of wood.

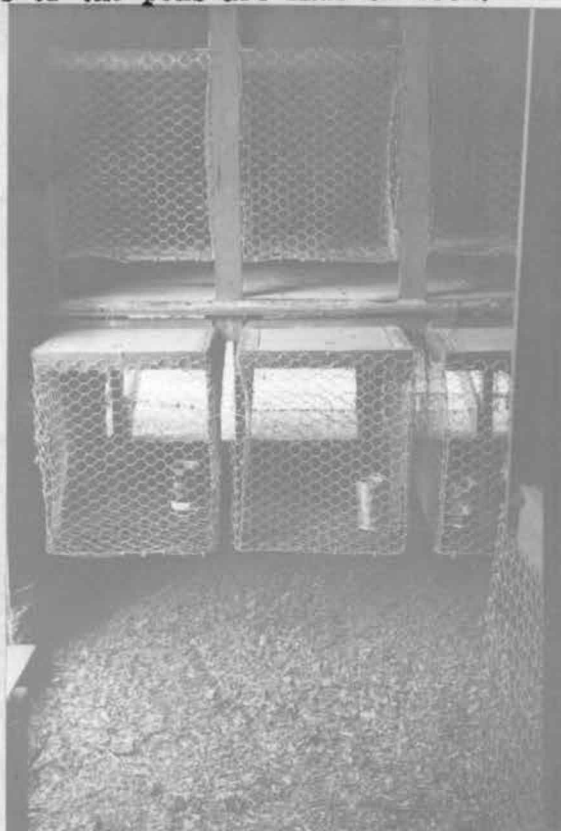


Fig.17 - These double-decked pelting pens are provided with a dropping board that cleans to the front. All wire sides are used to facilitate ventilation.

tioned pelter pen than in the wire pen. Finally, it is much easier to observe mink in the wire pens because light comes from all sides. In this way, the fur farmer may keep watch of his pelters without having to catch and handle them so much.

In order to have mink maintain their color, there are several ideas in construction to keep in mind. The first is to see that pens are far enough above the ground to avoid the ammonia fumes given off by droppings as they deteriorate. In order to do this, the bottom of the pen must be at least two feet from the ground, and some means of ventilation provided.(16) Additional precautions such as spreading sawdust or sand to take up moisture should be taken. Therefore, it must be convenient to rake and remove litter from beneath the pens.

The next item is the provision for watering the animals without allowing them to get wet. When a water can is used, mink dip their heads. In such instances, the fur over the face and head is lighter and contains less luster than fur on other parts of the body. In order to avoid this bleaching of the fur, three methods of watering have been developed. The first is to place an obstruction over the watering can so that the animals can only drink; the second is to use a watering pan with a small trough about three-fourths of an inch long and small enough to extend into the pen through the mesh of the wire; the third is a continuous trough carrying a steady flow of water running along the ends of several pens - each mink having access to that trough. (16)

Animals to be pelted should have a nest box. This box should be just large enough for a mink. If it is too large, the mink dirty

the nest box and the result is an off-colored or stained pelt. Most fur farmers hang the nest box from the top of the cage so that the animal will not rub between it and the sides of the pen.

COLD STORAGE PLANTS AND OTHER BUILDINGS

There are a few points to bear in mind in building a cold storage plant for a mink farm; namely, temperature, capacity and construction. The most reliable temperatures are one to five degrees fahrenheit in the sharp room and twenty-four to thirty degrees fahrenheit in the chill room or anteroom. In practically every case, mink farmers have stated that their plants were too small. Even though a plant may hold from two to three months' feed supply, it may not hold enough to carry through the late fall and winter months. During the late fall and winter, it is difficult to get fresh ocean fish in Oregon. Therefore, the plant must be able to hold enough feed for the "pelters" in the fall and for the breeders through the winter. Feed frequently must be held for about four and a half months until the fishing starts in the spring again.

Construction of storage plants may vary. An anteroom reduces the refrigeration losses due to air changes and provides a place to keep feed at a low temperature without freezing it. In determining the size of the compressor, amount of pipe, and other fittings, it is advisable to consult a refrigeration engineer or some one connected with an ice machine company, because conditions connected with each farm are often the determining factors. Capacity, outside temperatures, ground temperatures, insulation, and water temperatures are some of the main conditions which the refrigeration engineer will study in recommending the size of plant for a mink farmer.

A cold storage plant is the most costly single unit of the fur farm. Rarely can a plant be put in for less than \$750.00. The

usual cost varies from \$1000.00 to \$3000.00, depending on size of the unit.

In figuring the amount of room necessary for the peak feed load, one should allow from sixty-five to seventy cubic feet per ton of fish or meat. Since the coils will take up at least two feet in height, the room should be nine feet high. There is a new development in the placement of coils which should be desirable to a fur farmer. This consists of putting the coils on the side wall and spacing them so that they may be used as shelves for quick freezing of feed.

The feed house and the cold storage plant should be under the same roof for convenience in mixing feed.(3) When the structure is built, one cement foundation can be laid. A cement floor is quite essential for sanitation purposes since particles of meat and feed are always dropped regardless of how careful the operator may be. When a board floor is used, moisture and decayed meat make for unsanitary conditions whereas a cement floor can be washed with a hose each day. Feed bins can be raised from the floor enough to be kept dry. Most fur farmers have the feed room laid out so that it is handy to mix feed. This has to be worked out to suit the individual and his routine. In addition, it is advisable to have a table and a wash box equipped for cleaning fish prior to storage.

Location of the feed house is important with respect to two things. The first is disposal of water and dirt from washing out the feed room. Most farms are located near a small stream which carries waste material away. If it is allowed to accumulate on the ground, soon there is an area of rotting feed scraps which provide a place for

flies to breed, and in general, "stinks". The second point in location concerns the accessibility to trucks which haul feed in and yet the shortening of the chore route for the operator. Normally a fur farmer must bring feed to his place several times a month and convenience to the feed house saves much work. Oftentimes, he is rushed in his work at feeding time so that nearness to the pens is an advantage.

Other buildings which are desirable are a slaughterhouse, work shop, and pelting house. The slaughter house for large animals, such as cows and horses, should be located at a distance from the main pens because operations are not carried on at a regular time and entail a certain amount of disturbance. Also bones, hides and waste may be handled there without danger of getting in the way of regular work. Calves on the other hand can be handled in the feed house. The slaughter house should be solidly constructed so that heavy animals can be hoisted in order to facilitate skinning and cutting up. As an animal is boned, the meat can be put into boxes or cans for storage. Where there are quite a few hides, it is an advantage to have a bin, or some barrels in which they may be salted down. This should be at the slaughter house for convenience.

Finally, each farm should have a workshop which may also serve as a storehouse and a pelting house. Useful equipment on a fur farm are the usual carpentering tools and a tablesaw. A fur farm has so many little odd carpentering jobs to do which involve detailed work.

Pelting equipment consists of fleshing tools, fleshing boards, stretching boards, and either a drum or a sawdust box in which

to clean and limber up pelts preparatory to selling them. These can be put away easily when they are not used.

Most fur farms are bothered with flies. In order to keep them away from the feed, it is a good idea to enclose the feed room with fly screen. The best way to keep the flies down to a minimum is to place a few fly traps among the pens and near the feed house. Scrapings from the feed troughs may be used as bait.

Essentials of a ration fall into six classes, namely: fish meat, offal, cereals, supplements and vegetables. Each of these classes shall be considered separately.

Fish may be fed in three forms: fresh or fresh frozen, canned or vacuum dried. The fresh fish are the cheaper and are easily obtained in Western Oregon. Astoria and Newport are the principal fishing ports. Canned fish is probably the most expensive but requires less handling, while vacuum dried fish meals are made in Astoria or are easily obtained through commercial agencies. Fresh fish probably is the principal item used in a mink ration and may be further classed as oily and non-oily fishes. Flounder (sole) is the most extensively used and is quite easily obtained. Other fish used are: ling cod, rock cod, red snapper, chum salmon, salmon heads, halibut heads and Columbia River smelt. Particular care must be taken in storing salmon due to its being an oily fish. Chums should be glazed while salmon heads should be frozen into ice blocks. They should not be ground before freezing because air is incorporated into the fish in the process. That is undesirable. It has been found that the whole chum keep better. In fact, all fish may be said to keep better whole than ground.(15)

Meat is really the most difficult item to keep on hand for the mink. There are several sources of meat. In some communities, day old calves are readily available. In other communities horses are the main source of meat. Usually a mink farmer may obtain a cow or horse with a broken leg or some other injury which does not render

the animal unfit for food. It is generally unsafe to use any animal which is dead by the time the mink farmer arrives. However, some farmers take cows which have been dead for an hour or so from bloating. Rabbit heads make a good feed when they are available. They can be fed with the fur on but the front teeth cut out. Day old calves can be ground, bone and all.(4)

The offal used in mink feed consists of tripe, lungs, liver, spleen, kidneys and hearts. Care should be taken in handling offal, because it is more apt to spoil if it is not frozen fairly quickly.

There are many types of cereals used by mink farmers. These vary from mill-run to a complex commercial mixture. All have been used successfully. Perhaps the most significant things concerning the use of cereal is that farmers, who use more than 15% of raw cereal by dry weight in the ration, do not have the success in getting an increase as those who use between 8% and 12% of cereal in the ration. It is questionable whether mink digest much of the cereal be it home mixed or commercially prepared. Some fur farmers now mix, grind and bake their own cereal mixtures. Such mixtures consist principally of wheat and soy beans. In some cases, oat groats, rice polish, yellow corn meal, alfalfa meal and other ingredients are added.

A good home mixed cereal which has been used consists of three parts wheat bran, four parts mill run, one part yellow corn meal and one part rice polish. An improvement on this mixture would be seven parts fresh finely ground wheat, one part of yellow corn meal, one part of oat groat flour and one part of rice polish. These mixtures may be fed raw, but they seem to be more digestible when cooked

in a manner similar to breakfast cereal. This method consists of stirring one part raw cereal into four parts of boiling water and letting the mixture cool for about twenty minutes before incorporating it in the ration. Such mixtures can be procured for nearly half the price of commercially prepared cereals.

In addition to the above items in a ration, fur farmers feel it is necessary to add such supplements as cod liver oil, brewer's yeast, bone meal or mineral compounds, skimmilk or skimmilk powder, blood meal, alfalfa meal, tomato juice and a multitude of others. The good derived from many supplements is questionable. No one is sure what nutritional requirements mink may have for minerals and vitamins, and every experiment station seems to studiously avoid finding out. If there were any data on the feeding requirements of mink, no doubt some cheap forms of feed could be obtained which would meet their requirements. It is definitely known that some farmers never buy any supplements to speak of, but still are quite successful.

There are fairly good feeding recommendations to be made as found from present practices. In rations which contain little bone, it is advisable to add from one to two percent of bone meal. One or two percent of good liver oil is necessary when salmon heads are not included in the ration. During shedding and whelping seasons, brewer's yeast as a source of Vitamin B has proven valuable. Every animal must have some source of Vitamin C. Tomato juice, puree and green vegetables ground finely are a good source of this vitamin.

During the nursing period and the growing period of the kits, skimmilk and skimmilk powder have a place in the ration. They are

readily digestible and contain minerals necessary for good growth. At this time, a feed or supplement containing ample amount of Vitamin A and D in the ration is advisable. A good strong frame should be developed in the first six months of a mink's life so it is well to do everything in the operator's power to create a well rounded ration at this time.

Wheat germ meal is a supplement which is of debatable use, because of the rapid deterioration of the Vitamin E which it carries. There are also arguments concerning the season in which to feed it. And finally, there are farmers who have never fed wheat germ meal, yet they get good results. Many farmers feed it in January and February, whereas some Canadian authorities say it should be fed in the fall. A few farmers use wheat germ oil in their feed for a period a month or two before breeding until whelping time. It would seem that there would be some cheaper source of Vitamin E which would meet the mink's requirements just as there is in nature.

Feeding formulas vary from farm to farm, the principal differences being in the amount of cereal in the ration. The most successful mink farmers follow a reasonably close pattern to the following formula:

Meat, fish and offal -----	80 - 85%
Cereal -----	8 - 12
Vegetables -----	2 - 5
Bone Meal -----	1 - 2
Cod Liver Oil -----	1 - 2

On the Coast, fish often amounts to 70% of the ration, while in Eastern Oregon, horse meat may be the sole source of meat fed. Most farmers try to include about 3% liver, 10 to 15% tripe, and the remain-

der fish, horse meat, calf meat or beef. Near the cities in the Willamette Valley, rabbit heads are available to fur farmers, (10) but should not make up more than 10% of the ration. "Blood spot" eggs, if available, are excellent feed, but again they should not be used too extensively. An egg to every six or eight mink is enough. Blood has been used as feed, (9) but due to its laxative effect, not more than 5% should be included in the ration. During hot weather, blood deteriorates quickly and should not be used.

Fish heads and flounder skeletons may be obtained fairly cheaply, often for a half cent a pound. The heads are principally halibut and salmon. The former is good feed and may constitute about 20% of the ration since there is quite a bit of flesh on them. Salmon heads have been fed successfully when they make up from 40% to 50% of the ration, but only for short periods of time. Usually 10% to 20% is enough. Flounder skeletons consist of the head and skeletons after they have been filleted. Since they are high in bone, they should not constitute much more than 20% to 30% of a ration. Where they are fed, it is wise to include at least 1% of cod liver oil or some other Vitamin A and D carrying feed.

Practically all fur farmers follow a seasonal feeding schedule for their breeders. This consists of vegetables in season and an increase in red meat during January and February. Another point in the feeding schedule concerns the condition of the animal during the year. The following year's breeding success is often determined in the fall. At that time, the animals should be brought into good condition and be fat by the end of the year. Then, in January and Feb-

ruary, they should taper off in condition so that the females have lost most of their fat by the first of March. Through breeding time and pregnancy, they should be maintained rather than be allowed to gain too much weight. After whelping, the mothers should be allowed to have all the feed they can take until the litter is separated. After the mother has been brought into shape, she should be on a maintenance ration until fall when she should be allowed to become fat again. Care should be taken toward the end of the nursing season to see that the mother is not run down too low in weight. A mink is one animal which will milk herself to death.

Feeding the pelters is one of the phases of mink farming which needs much study. So little is known concerning the effect of feeds on the fur. It is known that too much horse meat will tinge the fur brown. On the other hand, it is also suspected that too much salt water fish will cause red hips. Many mink farmers feed their pelters the same feed as they do the breeders and have good results. Practically all prefer to feed calf and beef instead of horse meat if they can get it.

The usual pelting ration in Oregon consists of the following:

Meat, fish and offal -----	80-85%	by weight
Cereal -----	8-12	" "
Vegetable -----	2- 3	" "
Bone Meal -----	1- 2	" "
Other supplements -----	1- 4	" "

Few farmers feed very much cod liver oil to pelters because of its tendency to cause the pelt to go off color. However, they feed minerals, yeast and various other supplements with the hope they will help. Carrots have proven to be a very good vegetable to feed

animals to be pelted. (4)

To summarize the question of feeding pelters, it is best to say that one should not feed too much horse meat, cod liver oil or salt water fish. Calf meat, beef tripe and lungs are most suitable. The ration should not have more than 15% of horse meat nor more than 40% of salt water fish to make the best pelts. Valuable animal protein feeds if available are 1 to 2% of blood and egg for each 6 or 8 mink, 2 to 3% of liver, about 5% of rounds and about 5% of tripe. Thus the ration would be as follows to be ideal:

Horse meat -----	10 - 12%
Fish (sole)-----	40%
Calf, beef or lungs -----	15 - 18%
Tripe -----	5%
Rounds -----	5%
Blood -----	2%
Liver -----	2%
Cereal -----	10%
Vegetable (Carrots) -----	5%
Bone Meal -----	1%
Brewer's Yeast -----	2%
1 Egg for each 6 mink	
Water	

FEEDING AND REARING KITTENS

As has been previously stated, a female should not be allowed to gain very much weight through the gestation period. This is to prevent too great a development of the fetus. Many litters are lost at birth because the mothers have difficulty in delivering them.

For the first two days following whelping, the feed should not be increased. After the third day small morning feeds should be given and the feed increased as fast as the mother will take it. At the end of four or five weeks the kits will take feed which the mother packs into the kennel. By the end of the eighth week, the kits should all be coming out to feed. From the middle of July onward, the operator of a mink farm should watch the mothers very closely to see that they do not become too run down in condition. Many of the losses of adult mink in the heat of the summer are mothers which have become too poor in condition. Few other animals "nurse" themselves down as much as a mink.

Some breeders wean their kits at 8 to 10 weeks of age. They should be weaned as soon after the middle of July as possible, and at least before the first of August. There are two methods used. The simplest is to take the mother away from the litter and put her in a pen by herself. If she has been nursing, she may have some discomfort in drying up. It is inadvisable to use this method at 8 weeks. The second method is to take away part of the kits at first, then the remainder a few days later. A good method is to remove the males or females from the litter, whichever is in preponderance, then after three days remove all but one kit which may be taken away 3 or 4 days later.

The kits may be kept in groups of from two to four until September when they should be placed in the pelt pens.

Kits should be fed all they will take from the time they are born until they are pelted or selected as breeders. However, in the Willamette Valley one should be careful to avoid feeding too heavily during very hot weather. Oily fish, such as salmon heads, should be taken out of the ration. Cereal should be cut down to about 5% and bulky vegetables may be increased according to the operator's judgment. A certain amount of growth will be sacrificed on the one hand, but less loss will occur on the other. Perhaps such a sacrifice in growth may be beneficial in raising a silkier pelt. During the growing months, fresh skimmilk or skimmilk powder is beneficial, incorporated in regular ration. Particular care should be taken to see that none of the ingredients of the ration have become rancid or in any way spoiled. Meat and fish should have been well stored or fairly fresh. The animals should be fed twice daily in order that they will receive all they can eat and yet avoid leaving feed on the feed boards so long that it will spoil.

The feed formula may remain the same through the summer. However, precautions should be taken to see that there is plenty of Vitamin A and D carrying feed and some form of Vitamin B carrying feed.

Unless salmon heads are available, one teaspoonful of cod liver oil for each five or six mink should be added. Brewer's yeast or rice polish furnish Vitamin B. If the former is used, add about 1% to the ration. When rice polish is available, it may replace

about one-fourth of the cereal. In that case about 1% of some vegetable such as carrots should be added to help counteract the constipating effect of the rice polish.

Suitable rations by weight for growing kits are, as follows:

<u>I</u>		<u>II</u>	
Fish-----	30-35%	Fish -----	30-35%
Horse Meat -----	30-35%	Horse Meat -----	30-35%
Tripe and Liver -----	16%	Tripe and Liver -----	15%
Cereal -----	10%	Cereal -----	7%
Vegetable -----	5%	Rice Polish -----	3%
Cod Liver Oil -----	2%	Vegetables -----	6%
Bone Meal -----	1%	Cod Liver Oil -----	2%
Brewer's Yeast -----	1%	Bone Meal -----	1%
		Brewer's Yeast -----	1%
<u>III</u>		<u>IV</u>	
Fish (including salmon heads) -----	50%	Fish (including salmon heads)-----	40%
Meat -----	20%	Meat -----	30%
Tripe and Liver -----	13%	Tripe and Liver -----	13%
Cereal -----	10%	Cereal -----	7%
Vegetable -----	5%	Rice Polish -----	3%
Bone Meal -----	1%	Vegetables -----	6%
Brewer's Yeast -----	1%	Bone Meal -----	1%

The following ration has been used quite successfully when care was taken to see that the ingredients and the mixed feed were kept fresh on the hot days of the summer:

Salmon Heads -----	10%
Other Fish -----	35%
Meat (Calf, Beef or Horse) -----	20%
*Tripe and round -----	15%
Liver -----	2%
Blood -----	3%
Cereal -----	5%
Rice Polish -----	3%
Bone Meal -----	1%
**Vegetable -----	7%

* About half tripe and half rounds (small intestines)

**Vegetables consisted of half carrots and half green leafy vegetables, such as lettuce, spinach, Swiss chard and one or two green onions.

Whenever the danger of feed spoilage from hot days is not too great, skimmilk particularly, and blood according to experience, should be fed.

Skimmilk may replace the water used in mixing. Care should be taken in feeding blood. If it is added too quickly or fed in excess, the mink will scour.(15) Rice polish and mill run each have a constipating effect on mink and may be fed with blood.

There are many variations to the formula listed above, all of which have given satisfactory results. The feed source is the determining factor. Meat may vary from a small portion to all of the animal protein source of feed; and fish, on the other hand, may make up as high as 90% of the animal protein. Experience has shown that the best growth is obtained when at least one third of the animal protein feed is made up of meat.

DISEASES AND PARASITES

If the mink farmer follows an adequate system of disease prevention, he is quite safe. This consists principally of avoiding contact with places which have disease, and secondarily of eliminating the disease carriers such as cats and dogs from his place. The third item of disease prevention is to provide a sick bay or quarantine area wherein sick animals may be moved or newly purchased animals be kept for observation before housing with the rest of the herd. The ordinary precautions of feeding sick animals in quarantine should be observed.

One of the most important diseases to be faced by a mink farmer is distemper. It may be carried by cats or dogs, or possibly brought in on the clothes of the operator or visitors. Cats seem to be the worst carriers. When dogs are kept on a ranch they should be retained within the guard fence to prevent their contacting any sick dogs away from the place.

Since little is known concerning diseases of mink, a competent veterinarian, preferably one who has had experience with fur bearers, should be called.

Parasites in mink are not much of a problem. To avoid the common round worms and coccidia, the mink are kept on wire, thus breaking the life cycles of these parasites so that the animal will not re-infect itself. Horse meat, beef and salt water fish are reasonably free of tape worms which affect mink. However, wild life, such as jack rabbits are a possible source of tape worm cysts and should not be fed.

External parasites have not proven to be a problem as yet.

Other abnormalities frequently occur, such as pneumonia, loss of fur, sudden loss of appetite, lack of muscular coordination, etc. Very little is known concerning these diseases.

Pneumonia is the most important. When it occurs, there is not much to do. However, preventative measures are keeping the nest dry and seeing that the mink can get under shelter to dry off during wet weather. Nest material should not be dusty, but should be clean and free from mold.

Mink frequently shed clean in spots. During shedding season there is nothing to worry about. However, at any other time, the operator should see that the ration is complete as concerns vitamin and mineral source feeds.

Sometimes females with litters quit eating. This is due to calcium deficiency, and should be considered as a case of milk fever. Treatment is to add a teaspoonful of calcium glucinate in a small amount of feed or stir it into the water. The mink will usually get enough to return to normal feeding.

Tail chewing is quite common in some of the best herds, and is most frequently thought due to a dietary deficiency. There are many advocated cures, any of which may or may not work for a specific case. The most common are to give the animal more liver, a raw egg, a piece of hide with the hair from a cow, horse or rabbit, or a piece of potato or some potato peelings.(16) One mink rancher includes the fresh potato peelings from the house in the ration with the other vegetables and has never experienced a case of tail chewing in his herd.

Boils are usually more common than any of the previously mentioned ailments of mink. Infection in bites and foreign bodies working into the skin are the principal causes of boils. Small seeds in the bedding or small fish bones are the principal foreign bodies. The boils appear as smooth round protuberances, and in reality are pus pockets under the skin. Since the swelling is soft and spongy, it may be lanced with a sharp knife or razor blade and washed out with a mild antiseptic solution. One lancing is usually enough. A mink will usually break the skin of its own accord if it is on the lower part of the face. On any other part of the body, it will spread unless it is lanced.

Bladder stones occur in mink. However, due to the nature of the animal, when one notices it is sick, it is too late to do anything about it.

BREEDING

The breeding season is the most important phase of mink farming just as in other types of animal husbandry. Due to the seasonal mating characteristics of mink, it is important that as many females as possible should be bred. In addition an effort must be made to mate females to males which will produce kits with a good fur and satisfactory as replacements in the herd.

Adeptness in the procedure at mating time can be acquired only by experience. There are two methods of making matings. The first and most commonly used is to take the female to the male. This method has the most advantages in that the male wastes less time in making a mating attempt. He will chase the female, and if she will accept mating, he will have little trouble in catching her. In case she will not accept a mating, she will seek escape from the male and will be easier to separate.

The second method is to take the male to the female. If a male is accustomed to this procedure, everything goes nicely. Some males become docile and will leap into an open box to be carried to the female's pen. In case another buck has been with a female before he has, he will spend considerable time in investigating.

Many times, novices have great difficulty in mating mink, claiming that they fight or that females refuse service throughout the season. These breeders may be helped in following the procedure that has been adopted by most of the more experienced mink farmers. Before a female is tried with a male, she should be caught and examined. If she shows a definite vaginal swelling with a rough moist appearance,

she will probably mate then or within the next day or so. Often, however, females do not show so distinctly but should be tried nevertheless. In case a female does not accept service from the male, and definitely tries to fight him rather than to run away from him, she should be taken away and not tried again for two or three days. On the other hand, after a female has been mated, she should not be tried again for at least six days. The average lapse of time between heat periods is from seven to eight days (3) with some females running to nine or ten days. Seldom are the periods less than six days, nor more than ten. After the time between heat periods has been established by two matings, the third mating may be tried on that basis. Any abrupt change of feed or feeding schedule may disrupt these periods.

The gestation period is forty-one to forty-three days. Any period running over this time appears to be in multiples of the periods between matings. Thus, if a female has an eight day period between matings ending on March 20th, she will be due from April 30th to May 2nd. (8) If she does not whelp at that time, she will be due again from May 8th to May 10th, and less apt to have kits from May 16th to May 18th. The time from the last mating to whelping in Oregon has ranged from thirty-seven to seventy-nine days.

One can usually tell whether or not a mink is carrying kits. There is a noticeable increase in girth from the ribs to the hind quarters. A female which is large all over will either have a small litter, or else none at all. Before whelping, the female will start shedding and there will be dark circles around their eyes or even a

nearly full slick summer coat. While breeding season may start in the latter part of February and extend through to the first few day of April, kits seldom come before the last week of April.

To further illustrate the procedure at breeding time, a specific case may be narrated here. On March 6th, 1940, female 9292 was placed with male 9-261. She went to the front of the pen and proceeded to smell around and investigate her new surroundings. The male started clucking and went up to her. She turned around and looked him over. Shortly thereafter, he made an attempt to mate her by jumping on her and getting a grip on the nape of her neck. She made every effort to break loose and finally did so, racing around the pen with the male in pursuit. By this time she was mad..

9292 was taken away from 9-261 and not tried with him again until March 8th, at which time he again made his try and, although she struggled, she did little to try to break away. He started to work and she made the peculiar sound a female makes during the act of mating. After approximately fifty minutes, they broke apart and 9292 was returned to her own pen.

On March 15th, 9292 was placed with 9-261 again and accepted a mating. Since that mating was in the middle of March, she was tried again on March 22nd and accepted a third mating. However, on March 29th, the vulva showed definite signs of drying up and she was not tried again. On May 4th, forty-three days later, 9292 had eight kits.

Another example that should be given is that of female 9252. She was tried with male 9-242 on March 3rd and refused by putting up a

real fight. She did the same on March 5th. But on March 8th, the swelling of the vulva was so pronounced and had such a damp appearance that she was tried with a series of males. Finally she was left with 9-216 who was not a particularly aggressive male. For about an hour he lay and watched her. Finally she calmed down, and he made an attempt, catching her so securely that she could not break away. After about fifteen minutes she began to make the sounds of a female that is being mated, and an hour later the pair separated. During the rest of the breeding season, she refused every attempt to mate her and was given up as a miss. However, early in April she began to get black circles around her eyes and appeared to be carrying kits. Her whelping date figured out to be April 19th, so her nest box was made ready by the middle of the month. She did not have kits on April 19th, but carried them to April 25th when she had seven. Apparently, she had one more heat period following her mating at which time fertilization took place. Very seldom do Yukons have kits that early, but the point to be made in the preceding example is that there are fairly definite indications as to whether the mink will have kits or not.

Barren females do not put on the weight or shed as soon as females carrying kits. The preponderance of whelping is through the first three weeks of May.

In addition to the actual procedure of mating, there is the matching for desirable inheritance to be considered. More items than just the fur qualities should be considered because from twenty to thirty percent of the kits produced will be needed for replacement in a herd. Thus the breeding qualities of the mink are a vital consid-

eration. For this reason herd improvement is always a factor in the business.

Herd improvement may be brought about in livestock farming by two methods. The first and slower method is to introduce improved stock into the herd for breeders. The second is to select the best individuals of the herd and practice a system of inbreeding and line breeding, selecting progeny which appear more like the ideal. The former method presents the least pitfalls to the inexperienced breeder, while the latter has the advantage in that improvement is expedited and established on a sounder genetic basis.

The common system of inbreeding and line breeding is to limit matings to father-daughter, mother-son, grandfather to granddaughter, etc. Experience has shown that the least productive combination is the brother-sister mating. Half brother-half sister matings on the other hand, are advantageous when there is a common exceptionally good parent. Any combination or series of combinations can bring very good results when there is a system of culling based on individual appearance and productivity.

There is so little information available on the inheritance of specific characteristics that it is difficult to make positive statements at this time. However, it appears that fur color and quality are accumulative characteristics. That is to say, the result of a mating between a dark, silky mink and a coarse brown will usually be a blend between the two parents.(8) Productivity, vigor and the tendency to have good health are hereditary.

Proper selection in a herd of mink might be based on the fol-

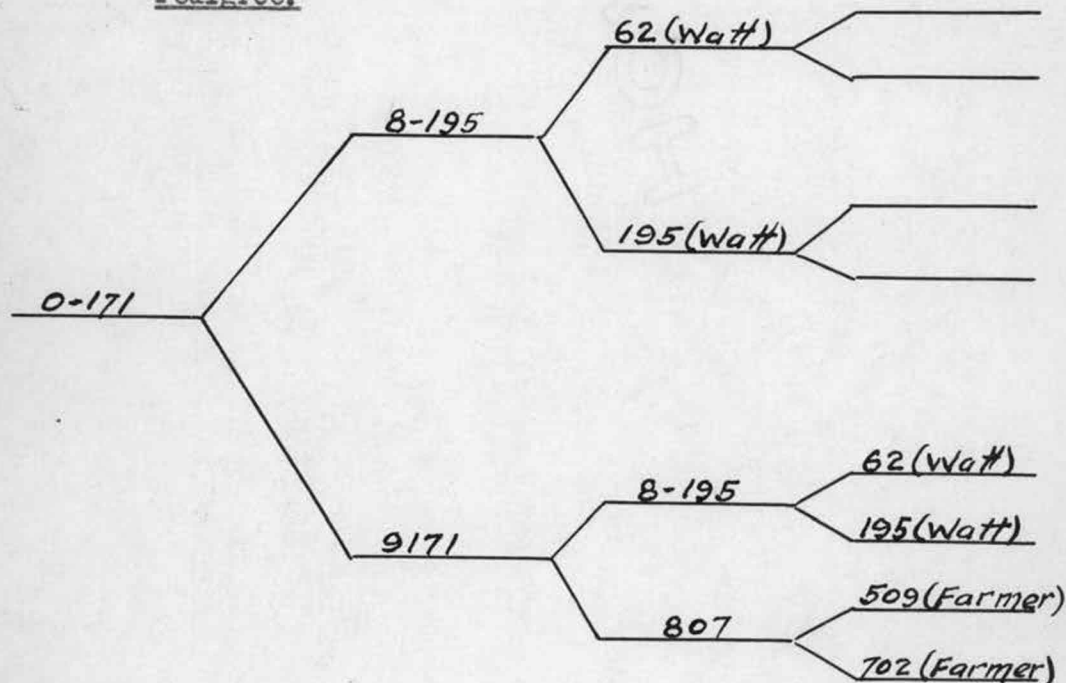
lowing pedigree charts:

Strain YUKON Number or name 1-171

Sex MALE Number in Litter 7 Date of Birth 1940

Health of Litter: No runts, good growth, no sickness, mother was good.

Pedigree:



Size LARGE - (4 lb. 2 oz. Dec. 1)

Temperament - Quiet, easy going, lazy.

Fur Characteristics:

GUARD FUR -

Color - Blue Black - shiny

Length- Medium - 3/4 in.

Texture- Silky and smooth, but not too soft.

Density- Thick and even - stands out.

UNDER FUR -

Color - Slate Blue

Length - About half as long as guard fur

Texture- Very fine

Density- Thick, strong

BODY CHARACTERISTICS:

Definite Masculine appearance
Broad well arched back
Good Bone structure

As has been indicated on the preceding chart, the desirable type of mink is one which has a good shiny, blue-black, silky, but not too soft guard fur, and a thick slate-blue underfur; a good sized frame, but not too large, and a history of good health and growth.

PELTING AND SELLING PELTS

Another critical period in a season of mink farming is pelting time. Preparation of pelts for market may mean that one will derive a fair price, or else receive a reduced price for poorly dried or unprimed skins.

Mink should not be pelted until they are prime. The prime may be determined by catching the animal and blowing a part in the fur. If the skin appears white over the shoulders, back, and down to the tail tip, the skin is prime. However, one should watch to see that the fur does not take on a brownish tinge or go off color before the skin is prime. If it should do so, it should be taken before the pelt is fully prime.

There are several methods by which mink may be killed. One of the most common methods is the use of chloroform. A small can containing cotton soaked with chloroform in the bottom has been used very satisfactorily, but is not considered to be as humane as other methods. However, chloroform may be used in a hypodermic needle. The mink is held in a clamp while the needle is plunged to the heart and the contents ejected. Death is instantaneous.

Mink skins are cased. A slit is made down one hind leg to the base of the tail and up the other hind leg. The hide is peeled away from around the base of the tail and the finger inserted in the opening. A firm grip is taken on the tail and the bone and flesh is pulled out. A small bladed knife is used to slit the skin down to the tip on the under side. The rest of the fur is peeled over the

hips and down the back over the front shoulders. The front legs are pulled out down to the toes which are clipped away from the foot so that the claws are included with the fur. This also applies to the back feet. The fur is then peeled from the neck and head. The ears are left on the pelt. The only cutting really necessary is the initial opening down the back legs, the slit down the tail, over the ears and eyes and around the mouth. The toes may either be cut away or clipped with a pair of side cutters.(15)

The pelt is then slipped on a fleshing board and the fat and flesh scraped away from the hide. Hardwood sawdust should be rubbed on the flesh side of the hide and on the exposed fur to take up the grease so that it will not get into the fur. The handiest fleshing board is round and tapering - or rather shaped like a bullet, about three feet long, and about two and a half inches in diameter six inches in back of the point. The point should be rounded. A fleshing tool with a flat edge should be used.

After the hide is fleshed and the fur cleaned of grease with hardwood sawdust, the skin is slipped loosely but smoothly on a stretching board, fur side out. Long wedge strips are then slipped up under the skin to tighten it, and the hind feet, tail and back end of the pelt pulled tight and tacked down. Stretching boards should be of varying sizes for different sized pelts. The boards with the hides are then hung up three or four days where air of a fairly constant temperature can be circulated to dry them. It may be advisable to work the hides a bit through the fingers to make them soft and smooth before putting them on the market. It is particularly nec-

essary that the skins should be worked over the front shoulders until they are thoroughly pliable in order to keep them from shrinking there. Then the pelts are ready for sale.

The selling agencies for furs are the various auctions throughout the country. The most prominent for Oregon fur farmers is the Seattle Fur Exchange. Others send to the New York Auction, Fromm Brothers Sales, San Francisco, and to private dealers. Furs may be shipped by parcel post up to \$200.00 worth, or by express.

CONCLUSION

In conclusion, much more information concerning mink farming is necessary. Such data can come from active fur associations, from the Government Experimental Stations, and from the State Experimental Stations. Mink farming is past the promotional stages, so there is no more point in individual farmers holding "secrets". Since there are so many mink farmers now, all effort should be turned toward promoting markets for mink pelts. (2)(7) Otherwise, the statement of over-production will be truth, and mink farming will be reduced to the status of raising game cocks; in other words, in hopes of a good year or as a hobby.

The information given is purely fundamental and purposely lacks any reference to theories.

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