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MAKE YOUR FARM FLOCK PAY



Extension Service
Montana State College
Bozeman, Montana

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Make Your Farm Flock Pay

By

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Farm Flocks

There is added income to be had on many Montana farms and smaller ranches. Farm flocks of sheep are the answer. It is a "side-line" kind of business with a nice profit. For years, many farmers have realized this extra income and other advantages as well. They have found them to be:

1. Added income from wool and lambs.
2. Weed control — sheep will graze and control weeds which cattle and horses will not touch.
3. Use of waste feed — stubble, ditch banks, fence lines.
4. Out of season attention — wintering and lambing should be ended before field work begins.

The common use of the term "farm flocks" is applied to a rather small number of breeding sheep on an irrigated farm or ranch in any Montana valley. There may only be 50 head of breeding ewes or 100 head or even more. Farm flocks also have an excellent place on dry land farms wherever the owner is able to build a sheep tight fence.

Crested wheatgrass pasture should be established for early spring use and native pasture is best for July and August. The sheep can run on the stubble in the fall until feeding time.

This publication is concerned with commercial production of lambs and wool and not with purebred rams. The latter is a type of sheep ranching which requires much experience and the establishment of a widely recognized reputation for good rams.

Forty to 60 head is a practical-minimum number for a farm flock. This is because of labor and attention, sire service and equipment. It is probably better to run 80 to 100 head (2 sires), pasture resource permitting, than to hold to the minimum of 40 to 60 head.

Dual use, or the grazing of cattle and sheep on the same pastures, has proven to be more profitable than single use of either sheep or cattle. This is simply because the cattle will graze the coarser feed that sheep will not use and vice versa. The cattle may be either for dairy or beef production. They might be dual-purpose cattle such as Milking Shorthorn or Brown Swiss. The idea that cattle will not graze sheep pasture is erroneous. The cattle merely need to become used to the sheep and they will do very well. Pasture **should not be abused** by overgrazing or lower total production will result.

There are many factors of importance to farm flock growers. These are: breeding program, pasture management, feeding management, fencing, marketing, parasites, and killing by dogs or other predators. These will be dealt with in separate sections of this bulletin.

Breeding Program

Follow a System There are 3 different breeding programs which the farm flock owner may follow. It is strictly his own choice in the selection of the particular one.

1. Black-faced ewes and black-faced sires (preferably Hampshire because of availability of breeding stock)

A. Advantages

- High twinning
- High milk production
- High market lamb weights
- Replacement ewe lambs
- High carcass grades

B. Disadvantages

- Low wool production
- Lower wool value
- The picture on the cover illustrates high-quality Hampshire ewes which have been bred to a Hampshire ram

2. Open-faced, Columbia, Targhee or cross-bred type ewes. Either similar sires for replacement ewe lambs, or if all lambs are marketed, use black-faced sires and buy replacements.

A. Advantages

- High twinning
- High milk production
- High lamb weights
- High wool production
- High wool value
- Replacement ewe lambs (white-faced sire)

B. Disadvantages

- Lower carcass grade than black-faces

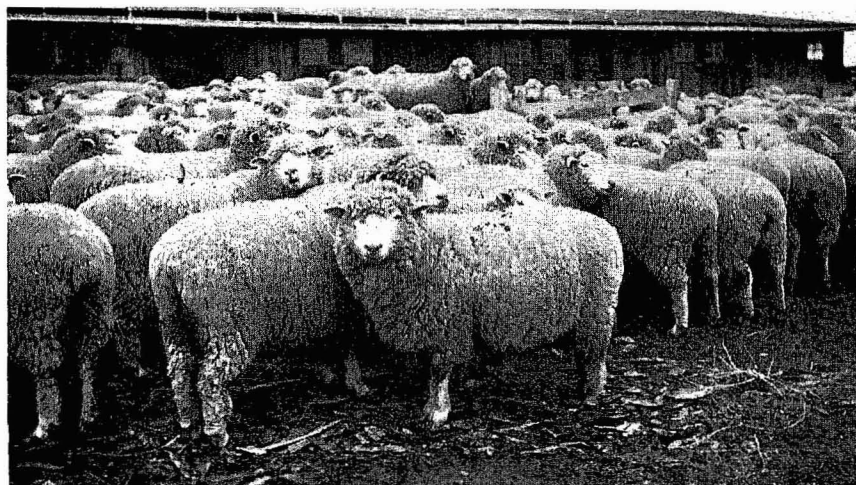


Fig. 1—Excellent Columbia ewes. These illustrate the most desirable type for breeding program.

3. Old range ewes. Use sires as in program number 2.

A. Advantages

- Low cost
- High wool value
- Replacement ewe lambs (white-faced sire)
- Moderate twinning and lamb weights

B. Disadvantages

- Wool blind
- Lighter lamb weights
- Lower carcass grades

Only the grower can select his best breeding program but if he does not stay with it for 8 to 10 years he will be disappointed

Soundness Is Important in his production. The ewe should be thrifty in appearance even though allowance is made for having raised one or two lambs during the preceding season. **Her teeth and her udder** are important considerations in soundness.

First, the teeth. The age of sheep is only determined by the teeth. The milk or lamb teeth are replaced by permanent teeth in the following order: The center pair of permanent teeth appear in the center of the front part of the lower jaw at one year (sheep have no teeth in the front part of the upper jaw). Permanent teeth are much larger in size than lamb teeth. They are easy to recognize. They come in the following order.

1 year old—1 pair in center

2 years old—2nd pair (one each side of center pair)

3 years old—3rd pair

4 years old—4th pair (the two outside or "corner teeth")

Eight permanent teeth is a 4 year old ewe or older, and is called a "full-mouthed" ewe.

After five years, the teeth commence to spread, become very long (on soft feed) or drop out. These are called "spreaders", "broken mouth", or "gummers." These terms all apply to sheep that have passed their prime.

These permanent teeth do not always come on schedule. Sometimes they are several months early or several months late. Even so, a buyer of old ewes will find eight permanent teeth unless some have broken out. A ewe with broken teeth should ordinarily be rejected as unsound. However, if the farm flock owner has plenty of soft feed, such as silage and irrigated pasture, he might buy broken mouthed ewes with one or even two teeth gone, providing the seller sets a lower, compensating price figure.

On rare occasions the molars or rear teeth may be defective. This very seldom happens so that only a small percentage of old ewes need to be checked for this unsoundness.

Second, the udder. It should be handled rather carefully in order to learn whether any lumps are present and whether both of the teats are normal. If either abnormality is found, the ewe should be rejected.

A thrifty appearance indicates soundness. Yearlings and two-year-olds seldom show unsoundness. The above suggestions are primarily applicable to the purchase of old ewes.

Breeding

The Ewes If you have a small number of ewes, it is best to keep track of breeding dates on each individual ewe to know when to expect the lambs. If a ewe does not breed at the first service, she will come in heat 15 to 19 days later. If a large percentage of the ewes do not breed at the first service, it is a good plan to get another ram. The one you have may be sterile.

The Ram The lambs will carry 50 per cent of the blood of the ram, therefore, it is important to get a good one. He should be straight and strong in his back and of excellent conformation. The fleece should be dense, of good length for the breed, bright in color and free from black fibers and hair. Color markings and wool should be characteristic of the breed. The head should show masculinity. The body should be symmetrical with plenty of depth; straight top and bottom lines; strong broad back; good spring of ribs, well covered with flesh and finished with a square rump and heavy leg of mutton.

A thrifty yearling ram will breed 40 to 50 ewes during the breeding season. A ram lamb if well grown may be used on 20 to 30 ewes but it is better not to use him until he is a year old.

The ram should be well conditioned before he is used. Yearling or older rams should be started on a light feed of grain (oats, barley, corn or wheat; or a mixture of these grains) 2 weeks to a month before breeding time and worked up to one pound per day through the breeding season. After the breeding season, the ram should be separated from the ewes. Yearlings or older rams, if in good condition, can be wintered on about four to six pounds of hay per day. Their summer care consists of good pasture with plenty of shade and water. They should be watched carefully during fly time to see that they are not infested with maggots.

It should be remembered that the **breed** of ram or rams selected should be consistent with the breeding program adopted by the grower.

Wintering Ewes

Feeding and Management Ewes that are in good condition when winter starts will do very well on a ration of three to five pounds of good alfalfa, blue joint or clover hay per day. Straw is not considered a good sheep feed, but may be fed with limited amounts of good hay and with a supplement of linseed, soybean or cottonseed oil cake. Oat or beardless wheat straw is much better than rye or barley straw. The beards are bad in the sheep's eyes and wool. Silage is good for ewes, but spoiled, frozen or moldy silage should not be fed. Ewes should have access to salt and water

at all times. Many sheep are wintered with snow as the only water supply but they do much better if they have plenty of de-chilled water. About a month before lambing time the ewes should receive some grain. Commence by feeding one-fourth pound per day and gradually increase to one-half pound per head just before lambing.

A good shepherd will see that his ewes have **plenty of exercise** during the winter months. Exercise for farm flock ewes cannot be over-emphasized. Much loss has occurred in the past because of lack of it. Too often the ewes spend the entire winter in one pen or corral. Abortions result and unthrifty lambs are common. The practice of feeding these ewes $\frac{1}{4}$ to $\frac{1}{2}$ mile from their bedding ground pretty well solves the problem. Pregnancy disease is associated with lack of exercise. It is discussed in the veterinary section.

Every livestock man must feed on clean ground whenever weather and snow conditions permit. Using the same feed ground all winter—or even for more than one week—is a risky method. A clean feed ground will promote good health in the ewes.

The winter water supply is as important as the winter feed supply. It is often neglected. Chopping a hole in the ice so that the ewes have to get down on their knees to drink, is the poorest watering method that could be imagined. **Clean, de-chilled water** is the cheapest feed which can be supplied—and it is part of the feeding. Vibrionic abortion is a disease which can be transmitted in the winter water. **Clean water troughs, strong stream flow**, in other words, a **clean water supply**, will go far in controlling vibronic abortion. It must be maintained throughout the year for full protection.

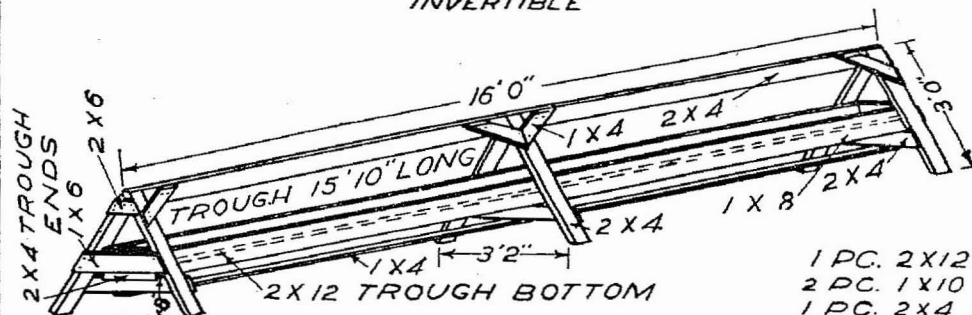
Equipment Grain should be fed in troughs that are easily kept clean, such as the "Montana grain feeding trough"
Fig. 2. This same type of trough without the frame may be used by placing it on a frame made in the following manner:

Drive two pair of stakes in the ground ten feet apart. The stakes in each pair should be twenty inches apart connected by a cross piece (2" x 4") nailed with the top side six inches from the ground. The reversible trough is set on these cross pieces. A 1" x 6" or pole nailed to the stakes lengthwise of the trough, 8 inches above the top of it, will keep the sheep from jumping into the trough.

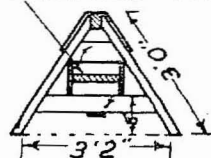
Hay may be fed on the clean snow or in panels of a design shown in Fig. 2. These panels may form one side of your sheep pen or hay pen. The hay is placed on the opposite side of the panel from the sheep and they feed through the 8" opening in the lower part of the panel.

Another type of feed rack is shown in Figure 3. It is widely used and very satisfactory.

MONTANA GRAIN FEEDING TROUGH INVERTIBLE



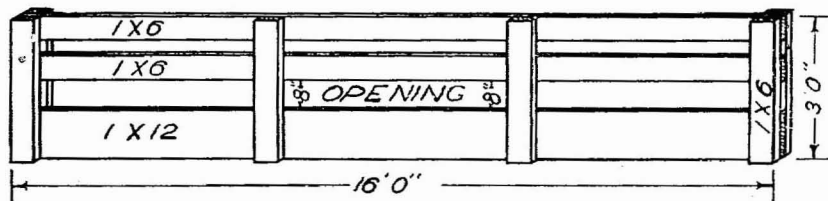
DOUBLE TROUGH
WHICH CAN BE
TURNED OVER



MATERIAL

- | | |
|----------------|---------------|
| 1 PC. 2X12-16' | 2 PC. 2X4-16' |
| 2 PC. 1X10-16' | 1 PC. 1X6-6' |
| 1 PC. 2X4-16' | 1 PC. 2X6-2' |
| 2 PC. 1X4-16' | |

PANEL FOR FEEDING HAY OR PULP



MATERIAL

- | |
|----------------|
| 1 PC. 1X12-16' |
| 2 PC. 1X6-16' |
| 1 PC. 1X6-18' |

Fig. 2.—This trough is made so that either side may be used. When ice, snow and litter accumulate in one side the trough may be turned over so that on thawing the refuse will drop out while the other side is being used. The hay feeding panel can serve as the outside fence of the pen as well as for feeding.

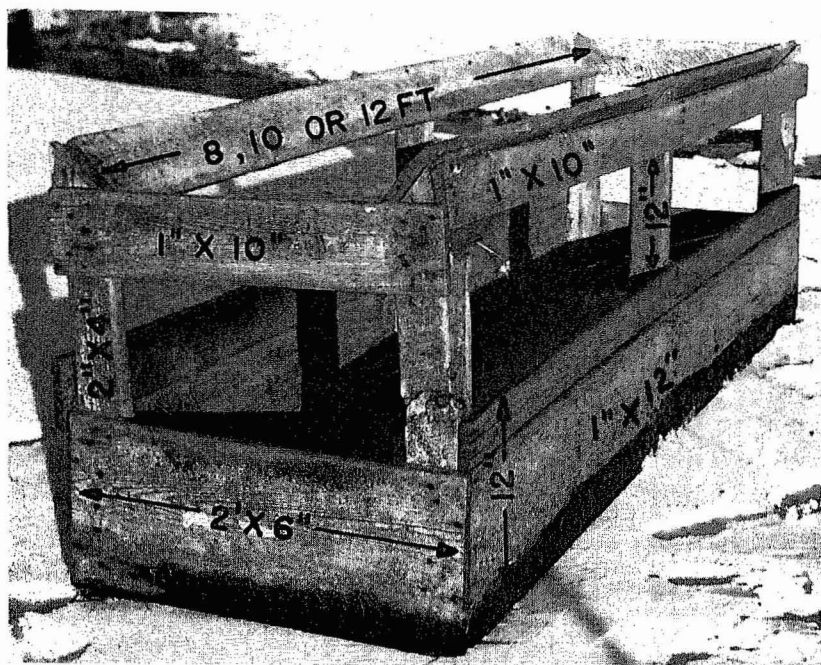


Fig. 3.—Feed-rack. A good feed-rack for sheep — home-made, low cost, practical.

Lambing

Careful Attention Is Necessary

Ewes should be tagged (clipping wool from flanks, hind parts and around the udder) five and not less than four weeks before lambing so the new lambs will have less trouble in locating the teats.

Early lambs, February or March, can be dropped in an open pen, provided they are moved into the "jugs" as soon as dropped. This means 24-hour-a-day attention. Anything short of this is poor lambing. If there are only 40 or 60 ewes, the grower should see them 3 or 4 times during the night and the same during the day while lambing. They can well be placed in a good shed and the "drop" taken care of when the owner goes out to see them. The largest profit for any sheep man can be realized through 24-hour attention during lambing time.

The pens or "jugs," as shown in Fig. 4, may be made with hinged panels and set in the sheep shed. Ewes with strong, single lambs may be moved out with other ewes and lambs after

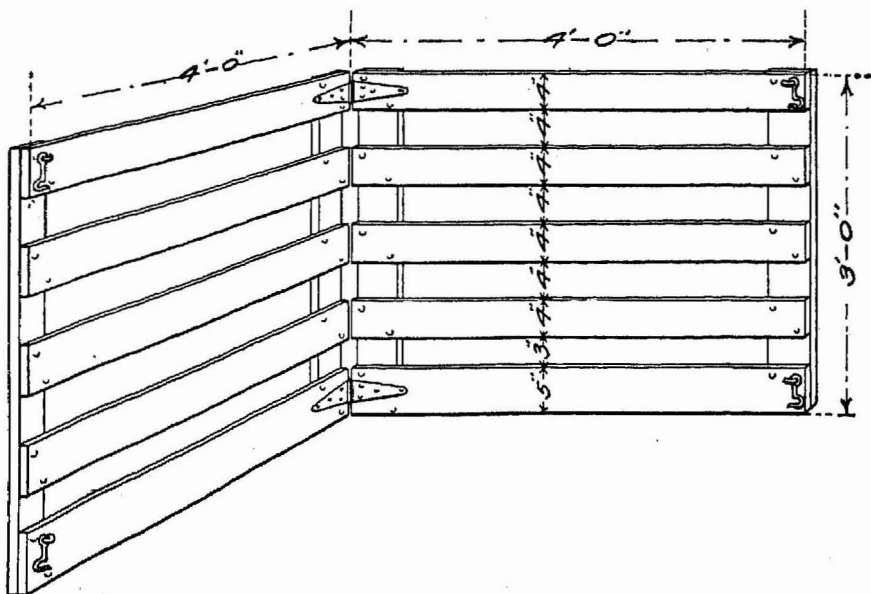


Fig. 4.—Hinged panels are very handy during lambing.
Two of them make a good “jug.”

24 hours. Twins should remain in the individual pens two to three days, then gradually worked into bunches of 10 ewes with their lambs.

Assistance Well-fed, mature ewes seldom have trouble at lambing time. If the ewe strains for about an hour without making progress, aid may then be given. The normal presentation of the lamb at birth is with the front legs extended and the head lying between them. A second presentation is with the hind feet foremost. This is not common but seldom causes trouble if the lamb is not doubled up. If the presentation is not normal, then it is up to the shepherd to correct it by inserting the hand into the vulva. Before this is done the hand and arm should be washed, finger nails trimmed and the hand and arm rubbed with soap and water. As soon as the lamb is in the proper position, delivery is generally easy, but may require some help. The pull on the feet and head should be outward and downward as the ewe strains. Rest when she rests and continue until delivery is complete.

Ewes which are lambing for the first time—“coming two-year-olds”—need special attention and more often need more assistance than older ewes. The grower should watch these young ewes very carefully.

Iodine Treatment Sever the navel cord about one to one and one-half inches from the body and cover it thoroughly with iodine. This iodine treatment may best be applied by putting a small amount in a clean cold cream jar about one and one-half inches in diameter. Place the mouth of the jar against the body of the lamb and over the severed navel cord and tip the lamb backward so the iodine will thoroughly saturate the navel and surrounding skin.

The lamb should be promptly returned to the ewe. If it is strong, it will find the teat and suck within 30 minutes. If weak, it should be helped with the first nursing.

Lambs Disowned Sometimes a ewe will refuse to let her lamb nurse or it may be desirable to replace a dead lamb with one of a pair of twins from another ewe. If the ewe is cross, tie her short to one side of the pen by placing a rope or strap around her body just behind the front legs. The rope should be tied low on the panel so she will not hang herself. Where the ewe's own lamb has died, the hide of the dead lamb may be skinned immediately and the pelt put on the lamb to be adopted before it is placed with the foster mother. This hide should be removed within three days. Other methods used are: Smear some of the ewe's milk on her own nose and on the head and rump of the lamb to be adopted. Smear some of the phlegm or membrane in which the dead lamb was born over the lamb to be adopted. Keep a dog or cat near the pen to attract the ewe's attention. Be patient and persistent. Each healthy ewe that has milk should raise a lamb.

Chilled Lambs Lambs that have been chilled soon after birth may be revived by putting them in water at about 95 degrees or water that feels warm to the elbow. They should be immersed in this water and the nose held up so they will not strangle. After a few minutes they will commence to kick around and as soon as they get active they may be removed from the water and dried off with a gunny sack or some other rough cloth. Vigorous rubbing stimulates the circulation and also encourages the lamb to action. After he has been thoroughly thawed out he should be suckled on his mother or a ewe which has recently lambed. "Upset" the ewe and put the teat in the lamb's mouth.

An electric brooder is very satisfactory. It is simple to construct and, if desired, information may be had from the Livestock Specialist, Montana Extension Service, Bozeman, Montana. A pen brooder can also be used if electricity is in the shed.

Docking and Castration All lambs should have their tails cut off before they are two weeks of age. Five to ten days of age is probably the best. The stump of the tail left on the lamb should be about 1 inch long, measured on the underside.

Lacking any special docking tool, the sheepman can do a good job with a sharp knife. It is well to have a hot iron ready to sear the stump in cases of excessive bleeding. A dressing of pine tar is favored by many sheepmen.

The method of holding the lamb for docking or castration is best learned by demonstration. Some experienced man can be found in any community if the farm flock owner is uninformed.

Castration is more difficult than docking and should be done at the same time. All ram lambs must be castrated unless they are purebred and are to be saved for sires.

The lamb is held the same as for docking, the end of the scrotum is cut off and the testicles pressed out where they can be firmly grasped. They are pulled completely out with the hand, a special instrument, or as for many years past, with the owner's teeth.

Lambs docked and castrated as above described should always be placed on clean ground or a **fresh-bedded** pen immediately and remain there quietly until the fresh wounds have dried on the surface. Twelve to 24 hours is enough.

Using the "Elastrator" A new instrument called the "elastrator" has just recently come into general use for docking and castration without drawing blood. The "elastrator" simply snaps a strong rubber band on the tail and another on the scrotum. The rubber band cuts off the circulation and the extremities atrophy and usually drop off in the course of two or three weeks.

The "elastrator" is recommended for farm flocks and pasture sheep. The instrument is expensive and only one of them is needed in a neighborhood. The county agent or the livestock specialist can give anyone information on the purchase of an "elastrator." Full directions for use accompany each instrument.

Spring Lambs Are The Product Winter or early spring lambs that are to be marketed as "spring lambs" or in the early summer need some supplemental feeding. This is sometimes known as creep feeding, that is, a separate pen is made and grain troughs placed in the pens. The openings are just large enough to permit the lambs to enter but not the ewes. This type of feeding is practical for the small flock

owner especially where there is a surplus of grains and a shortage of pasture.

The main feed that really makes the lambs fat is the mother's milk. Therefore the first thing of importance is to try to feed the ewes so that they will give as much milk as possible. This may be accomplished by feeding good, bright alfalfa hay and one-half to one pound of oats per ewe per day. If oats are not available or if too high in price, mill feed may be substituted. A mixture of grains such as mill run, oats, or wheat, in equal amounts by weight will be a good ration for the ewes where they are getting all the alfalfa hay they will consume. This can be supplemented with beet pulp or silage, if available. As soon as good pasture is provided the extra feeding of the ewes may be stopped.

The supplemental feed for the lambs would be as follows:

If pasture and milk will not be sufficient to make the lambs gain at maximum rate they should be "creep fed" with something like the following ration.

50% bran and 50% rolled oats for 2 weeks, and
50% bran and 50% whole oats for 2 weeks, and
100% whole oats after going on pasture.

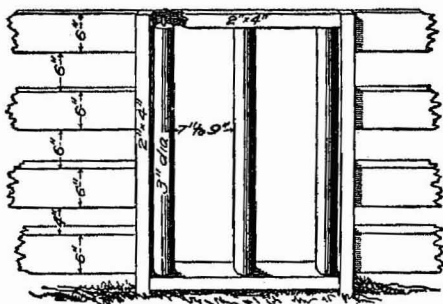


Fig. 5.—Lamb Creep.

This feed should be before the lambs at all times. However, it is best to feed just enough so that they will clean it up twice a day, or perhaps a better way would be to clean the trough twice each day and feed what the lambs have left to the ewes. They should also have their own fresh hay and not be required to

compete with their mothers for any of their feed.

When the lambs are put on grass their creeps should be located where the ewes would come close to them several times a day, for example, near the water.

If dried molasses beet pulp is available, it is a very good feed for the ewes and also to start the lambs eating some concentrates. This could be fed the same as oats if not too high in price. Dry pulp is generally considered about equal to barley when fed at not more than 50 per cent of the concentrated ration. If no bran is available, rolled oats could be used to start the lambs on grain.

Sometimes lambs are allowed to go through creeps to fresh pasture ahead of the ewes. This may be done by making holes in the fence (Fig. 5) large enough for the lambs to pass through but too small for the ewes. If it is desired to feed grain in addition to the extra pasture, the lambs' grain troughs may be placed in their pasture, close to the creep.

Summer Care Of The Farm Flock

The summer care of the flock depends on local conditions. In some sections small farm flocks are pooled into a band and sent to distant range or the National forest for summer grazing. This is a good way to handle farm flocks to keep them healthy. A sheep-

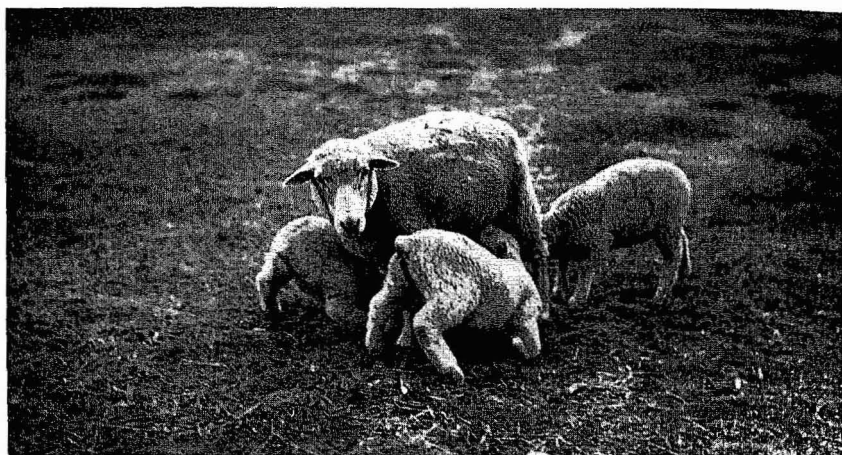


Fig. 6.—An example of high production. Note that all 3 lambs are Thrifty. This illustrates real milking ability and good feeding.

man with enough sheep might form one of these pools or the pool may form a band. If any of the above practices are followed each individual member should have his own brand, ear tag or mark so that the sheep can be identified in the fall.

Irrigated Pastures

Irrigated pastures furnish profitable feed for sheep if properly managed. Proper management of irrigated pastures requires rotation so that the sheep are moved from one pasture to another every 10 days during the grazing season. The shorter period is better. Shade, salt and abundant clean water are necessary. Three pastures, each of which carries the sheep ten days to two weeks, is the best method.

All owners of farm flocks, or any sheep which spend spring and summer grazing over the same ground, are faced with the

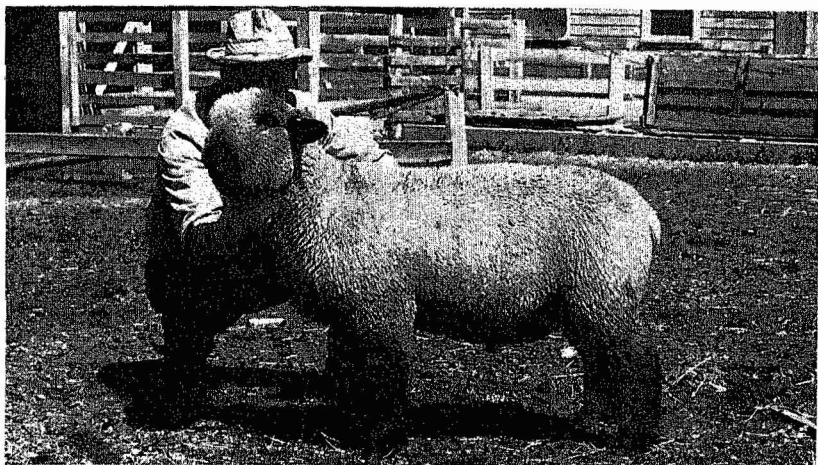


Fig. 7.—This ram lamb was raised at the College in 1949. He weighed 120 lbs. at 100 days of age — gaining over 1 lb. per day since birth. This is about the peak in rapid gains.

problem of parasite control. Each sheepman can obtain a copy of Experiment Station Circular No. 192, "Intestinal Worms in Sheep". This publication must be carefully studied and the recommendations carried out.

Weaning The Lambs

Commercial milk fat lambs are weaned when they are ready for market, ordinarily when they weigh 80 to 90 pounds. Mutton bred lambs that have had plenty to eat from birth should reach market condition at four to five months of age. A local "lamb pool" is suggested for marketing.

Lambs kept for breeding purposes should be weaned at four to five months of age. The ewe and buck lambs should be separated at that time to prevent the possibility of any of the ewes being bred. Purebred buck lambs should be started on grain and continued on a liberal feed of grain until sold. This means following the schedule as outlined for fattening lambs except that well-grown ram lambs will eat more grain than 50-to 60-pound feeder lambs. Farm flock ewes that have to rustle for their feed from the time their lambs are weaned until breeding time will be in better breeding condition than those allowed to become too fat. This is very important.

Care Of Ewe Lambs Only the best ewe lambs, whether purebred or grade, and ewe lambs which are only suitable for the breeding program, should be kept for breeding purposes. Small, off-type, or runty lambs should be sold for mutton. Allowance must be made for twin lambs. They are often smaller at weaning time, yet are valuable prospects as grown breeding ewes. The grower can determine from his records if one of the smaller ewe lambs is a twin. Otherwise, he might sell a very good prospective breeding ewes.

The ewe lambs selected to keep for breeding should be turned into good pasture or allowed to run in the fields after the crops have been removed. They should be kept separated from the older ewes until after breeding season so there will be no danger of being bred as lambs. After the rams are removed, then they may be turned with the bred ewes for the rest of the winter and following summer. As yearling ewes, they will be bred with the rest of the flock in the fall.

After breeding, these yearling ewes carrying their first lambs will need a little more care than older ewes. They should have one-fourth pound of grain per head per day as soon as winter weather starts. About one month before lambing, this should be increased to one-half pound per day. They will also require more attention at lambing time.

Care Of The Wool The wool is a valuable part of the annual income from sheep. It will prove profitable to the grower to prepare his clip for market in the best possible way. The market value of wool can be seriously reduced by allowing it to become contaminated with burrs, straw, dung locks, dirt, or any other foreign matter. Many good fleeces are damaged at shearing time by taking them off the sheep while wet or having the shearing operation done on a floor covered with straw, dirt, or manure. Sheep should never be allowed to run to straw stacks or under hay racks where the chaff and leaves will work into the wool. The actual job of shearing is learned by practice.

A few things to remember in producing good wool are:

- Poor sheep produce poor wool

- Keep brand marks small

- Shear sheep only when the fleece is dry

- Shear on warm days and protect shorn sheep from storms and cold

- Remove all dirty locks by tagging

- Remove the fleeces from the sheep in an unbroken condition.

Roll fleeces with flesh side out and tie with paper twine. Never use sisal, rough jute, or hemp twine for tying fleeces

Place the prepared fleeces in a regulation wool sack and pile them in a dry place. Be sure that the sacks are clean on the inside. Wool should never be stored in a damp place and should never be placed directly on the ground.

Read "Preparing Wool For Market," leaflet No. 92, U.S.-D.A.

Predators Coyotes are pretty well controlled with the new "1080" compound. It is handled only by the U. S. Fish and Wildlife Service. Neighborhood dogs present another problem and the solution is not simple. Posting the farm or ranch with "No Dog Trespass" signs might help. It then may be legal to kill any stray dogs on appearance. The county attorney should be consulted in this matter.

Marketing Marketing farm flock lambs and wool often presents a problem because of their quantities. A lamb buyer



Fig. 8—In several areas the growers assemble their small clips in order to have a large enough quantity to interest the buyer. "Reputation wool clips" are necessary if this is to be successful.

cannot very well handle less than one deck of lambs (125 head). The grower with 10 or 20 head of lambs for immediate market—they will not all be of slaughter grade at the same time—must combine with a “pool” if he is going to interest the buyer. These “lamb pools” have been very successful in recent years. Even though the farm flock grower has many advantages in production, he must recognize this specific marketing problem on both lambs and wool. He can solve these two problems, cooperatively, if he wishes. There does not seem to be any other solution in Montana.

Veterinary Highlights

By

H. WELCH

EXTENSION VETERINARIAN

Sheep in farm flocks are subject to more ills and ailments than are sheep in range bands and considerably more care has to be exercised in farm flocks, along the lines of disease prevention. This is due almost entirely to the methods of management of farm flocks: early lambing, confinement to sheds and corrals, restriction to small fenced pasture, and in general, a rather abnormal life compared with that of range sheep.

The Ewes

Pregnancy Disease There is some risk in farm flocks that about the fourth month of pregnancy some ewes will develop a highly nervous condition followed by paralysis, coma and death in two to four days. It has been noted that practically all these cases are ewes carrying twins, that there has been a sharp drop in nutrition, caused by shipping, changing to strange or unpalatable feed, or being temporarily out of feed. Sometimes it is brought on by a system of feeding that allows the ewes to lose weight throughout the pregnancy. Exercise is also a factor, in some cases, the principal factor.

The sheep should be compelled to exercise, either by arranging the feed, water and salt so that they have to walk some distance each day, or by taking the bunch for a half-mile walk every day.

At the same time a good grain ration should be supplied. There is no satisfactory treatment for the sick ewe.

Pregnancy disease should always be guarded against in big, heavy ewes—especially in cramped quarters.

Iodine Deficiency In certain quite definite areas of the state a shortage of iodine in soil, water and feed may result in goiter in the new born lamb and death loss. In these areas, iodized salt should be supplied to the ewes at least from January to lambing time. We prefer the loose, iodized salt, refilling the salt boxes as necessary from a stored salt supply. In some cases, the use of iodized, block salt has not been satisfactory.

Poisonous Plants Farm sheep, run mostly on cultivated pastures and irrigated land, are not likely to encounter poisonous plants. About the only plant that might cause loss is the Death Camas, found in wild grass meadows and poisonous in May, principally. Death Camas comes up with the first grass blades and resembles a heavy tuft of grass. About the first of June each plant sends up a single flower stalk, 10 to 12 inches high, with a dense clump of very small white or pale yellow flowers. After this, the plant soon withers and is no longer dangerous. There is nothing that can be done about Camas except to use some other pasture until the middle of June or the 1st of July. The common blue lupine may also be found in some pastures and in late summer, when the seed pods are formed, may be very dangerous to sheep. If the grass is very short, or hungry sheep are driven or unloaded near this lupine, losses might result.

Sheep Ticks Very little is known as to actual damage done by sheep ticks, but most sheepmen agree that the ewes and lambs would be better off without them though the best method of eradicating these parasites is by no means agreed upon. Most any insecticide will kill sheep ticks if it actually reaches the ticks and wets them and, for this, there is no substitute for the dipping vat. A ewe climbing out of a dipping tank is wet all over and every tick on her is wet. A hard driven spray should accomplish the same result but in practice it often does not. Dipping or spraying ewes and lambs within a few days after shearing with Rotenone, lindane, DDT or any reliable insecticide will destroy practically all of these parasites and make the sheep more comfortable and presumably more profitable. If it seems advisable the spraying or dipping can be repeated in about 18 to 20 days.

Foot-rot We distinguish between true foot-rot and the more or less common sore feet that may be little more than a badly infected foot injury. Foot-rot is an infectious disease and

there are usually many cases of it if it occurs at all. In every instance it gets started by the introduction of an infected sheep into the flock. Ordinarily a single ewe with a bad foot is not a foot-rot case and these sore feet can be dressed, disinfected and protected and will recover. If true foot-rot occurs it must be reported to the nearest veterinarian in order that the disease be properly treated and eradicated.

The Lamb

Stiff Lambs Within a few minutes after the lamb is born the broken stump of the navel cord should be immersed in iodine and thoroughly disinfected. Without this precaution, shed and corral filth may infect the raw stump of the cord and a crippling Arthritis develop a few days later. Acute lameness and swollen, painful joints, even in lambs at a month old or older, are due to this type of infection. Disinfecting the navel takes but a few seconds and is almost complete insurance against Arthritis.

An infected navel cord may also result in multiple liver abscesses. The affected lamb simply becomes sick and dies in a few days. A post mortem examination will reveal numerous small abscesses thickly scattered over the liver surface. Arthritis and abscessed livers may combine to make a heavy death loss in lambs from one to three weeks old.

Another type of stiff lamb is the result of White Muscle Disease, affecting lambs about 12 days old and often confused with Arthritis. The lamb becomes stiff all over, walks with a waddling

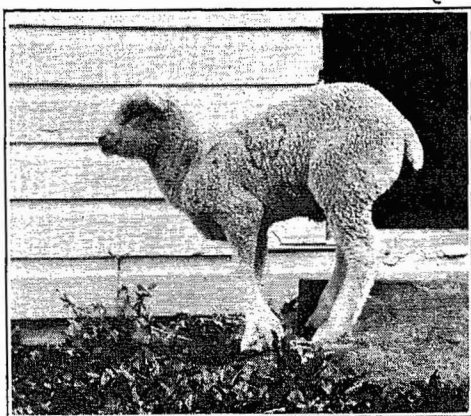


Fig. 9—Arthritis in a lamb one month old.

gait, lies down a great deal and has trouble getting up. Most of these lambs die, some in a day or two, some after a week or so. In a typical case on removing the pelt the white streaked muscles can be seen at once. We know that this disease, which also affects calves, is found in rather well defined zones or districts. We are quite sure it is caused by some nutritional disturbance but not much more is known. A shortage of vitamin E is suspected and the use of wheat germ oil, which runs high in vitamin E, has apparently cured a number of typical white muscle lambs. Also, the liberal use of wheat-bran, also high in vitamin E, in the ration of breeding ewes, has apparently prevented the occurrence of White Muscle Disease in the lambs.

Lamb Dysentery Lambing sheds, especially if dark and poorly ventilated, may get damp and filthy. The common result of this is a diarrhea or dysentery in the lamb at 12 to 48 hours old. Lambs older than 3 or 4 days seldom become affected. Dysentery cases become prostrated almost at once and may die in 12 to 24 hours and the death rate is higher in severe



Fig. 10.—A good kind of lambing shed **not** to have. Dark, muddy and possibly infected. Note the lamb nursing on a piece of canvas.

weather. Very fair results follow treatment with sulpha drugs. Prevention lies in providing ample sunlight and dryness and warmth for the young lamb. The use of the canvas roofed lambing shed, in western Montana and Idaho, has practically eliminated losses from dysentery in shed lambs.

Dysentery is strictly a filth caused disease and any preventive measures must be along the lines of sanitation and improved housing for the new-born lamb.

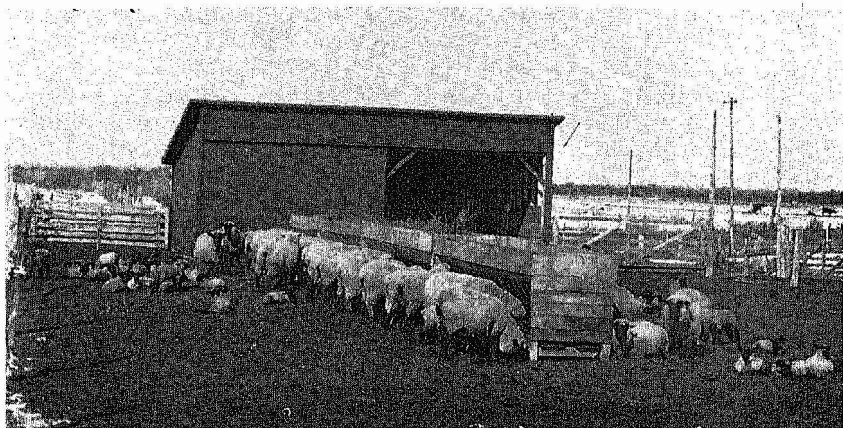


Fig. 11.—A really good lambing pen — in spite of the mud. Open shed, feed racks and bedding. The lambs are contented, spread out and the ewes are getting plenty of feed.

Enterotoxemia (over-eating disease)

Enterotoxemia sometimes kills a number of the larger, thrifty, single lambs, at a month to six weeks of age. The affected lambs are seldom sick more than 8 to 12 hours. Most of them are found dead. The disease is also called the "pulpy kidney" disease because, on post mortem examination of a lamb that has been dead for four or five hours, the kidney, normally a pale brown organ of firm texture, is dark red, soft and mushy. When this disease occurs a supply of serum (not vaccine) should be obtained and all the large, single lambs inoculated. Serum provides immediate protection against this infection and even though the protection only lasts three or four weeks, it is long enough.

The vaccine for this same disease is used extensively on feeder lambs when they are first started on feed in the early winter but is not used on suckling lambs because, like any vaccine, it requires 8 to 10 days to establish its immunity and a half dozen more lambs might die in that period. Serum protects the lambs at once and is the product to use.

Parasites

As spring grass becomes available and ewes and lambs are turned out the problem of worms has to be faced. Every ewe carries her quota of intestinal worms and the eggs from these worms soon infect the pasture. With limited pasture and the sheep back and forth over the grass day after day, the pick-up of larval worms is continuous and the worm population soon builds up in these lambs until they can no longer carry

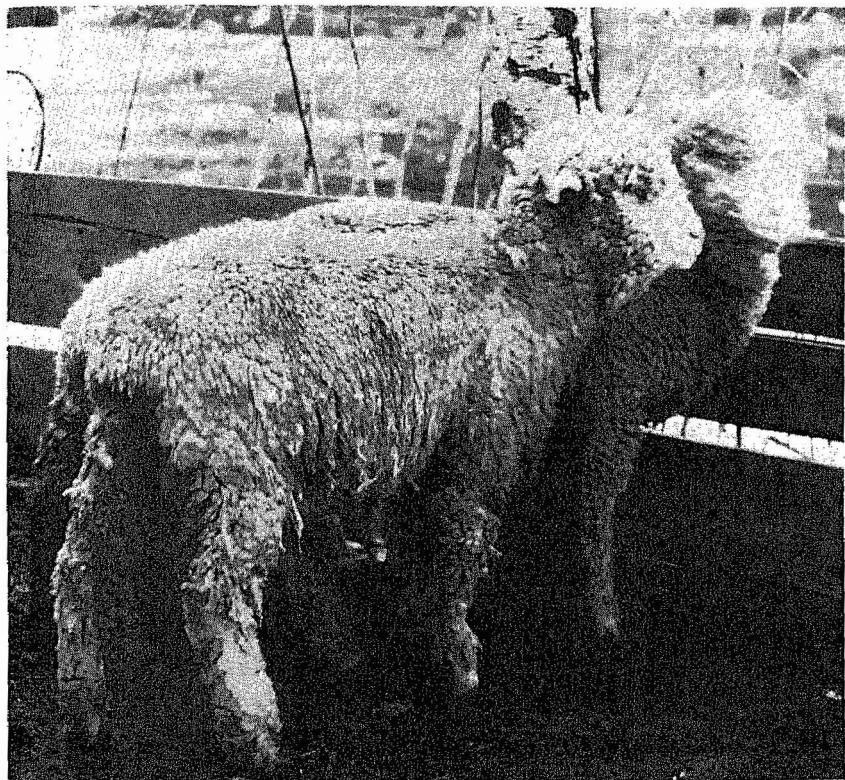


Fig. 12.—Lambs harboring internal parasites, showing unthrifty appearance and rough wool.

the burden. Stunted growth, ragged wool and a chronic diarrhea results.

It is highly important that the first symptom of worm trouble be recognized and treatment started, because the stunted, scouring "pee-wee" lamb in middle or late July is almost beyond repair. Treatment will remove the worms but the lamb will not make a profitable sheep. A diagnosis may require expert help. Many of the most troublesome species of worms are too slender and small to be seen on post mortem examination. The actual treatment of heavily parasitized lambs is described in Montana Agricultural Experiment Station Circular No. 192. There is scarcely room for these details here.

Worm prevention is by far more satisfactory than treatment and a systematic rotation of pastures through the summer will

get much better results than medical treatment. The ideal setup is three or four small pastures made by cross fencing a larger pasture and changing the sheep to fresh pasture about every 10 days. This does away with the parasite problem. Even a change back and forth between two pastures will help greatly. If no pasture change can be arranged the use of a Phenothiazine-salt mixture (1 to 10) beginning in early June and continued all summer will keep the worms down to a minimum.

Sore-mouth This disease, probably more common in range sheep than farm flocks, usually occurs in late summer or early fall. The lips and nose develop small sores, the lamb cannot eat well and loses weight. The disease runs a course of about 10 days, followed by complete recovery. Recovery may be hastened by the application of any soft salve or ointment. If sore mouth does occur it may be best to vaccinate the lambs the next year. Any veterinarian can either vaccinate the lambs or instruct the flock owner in the use of the vaccine.

Mastitis (blue bag) in ewes This highly important disease of ewes occurs from lambing time until mid-summer.

It is a germ caused infection and the germs probably reach the udder by way of infected bed grounds. Generally, only one side of the udder becomes infected and it becomes swollen, hot and painful and turns dark (blue bag). The ewe becomes very sick and many of these cases die. Those that recover have a "spoiled bag", one side of the udder is permanently enlarged and does not produce milk.

There is no way to definitely prevent Mastitis but a large dose, about $\frac{1}{2}$ ounce, of sulfa methazine or sulfamerazine will cure most of the cases that are recognized and treated in the very early stages. Those ewes that are far advanced with Mastitis when treated, often live but may lose the use of the udder.

Other Ailments There are many minor ailments—indigestion, colds and coughs, injuries, lambing troubles, etc. which do not follow any set pattern and each case has to be treated as it develops.

Mature ewes do not require any vaccines or medicines or any special handling except that prescribed by common sense. Since farm flocks are more or less a hot house product special care has to be given to feeding, housing and lambing. Nearly all the ailments are, in a way, man-made and can be avoided by special attention to details of management.

Maggots Common blow-fly infestations must be watched throughout spring, summer and fall. The resulting maggots can actually kill a sheep unless they are cleaned up. Watch the ewes carefully during these seasons and treat each one infested, with complete thoroughness. Clip off the wool from the infested area and 3 or 4 inches beyond. Treat the wound and all of the maggots with either "Smear 62" or "KRS". Either one should be available at your drug store. Re-treatment may be necessary.

Tagging the ewes, as previously recommended, greatly decreases maggot trouble in the spring.