

delivery it is not necessary or wise to interfere with the ewe at the time of parturition. There are cases, however, where the lambs are very large, the passage of the ewe too narrow or the lambs coming in the wrong position, and in such cases the ewe may have difficulty in delivering her lamb. The attendant should always be on hand and ready to give any assistance in such cases. The experienced flock master will know when his help is required, but it is good policy to make reasonably certain that the ewe cannot lamb without some help before taking any action. When the ewe has been straining for some considerable time without any relief, it is a fairly good sign that the case requires investigation. Cleanliness and gentle treatment are two important things to keep in mind at this particular time. The hand and arm of the attendant should be first washed adding a little disinfectant such as carbolic acid or one of the coal tar dips to the water, then smeared with vaseline or linseed oil, and the hand gently inserted into the vagina. The object should be to ascertain whether or not the lamb is coming in the proper position, that is head and front feet first. If the presentations appear normal then it is a question of aiding delivery by gently pulling on the front feet of the lamb. At such times the inside passage of the ewe should be well lubricated with linseed oil which tends to soften the vagina and allow it to stretch. Unless the case is a very severe one it will usually yield to the treatment. Under conditions where the lamb is not coming in the proper position, then the case is a much more difficult one to handle. The lamb may be coming front feet first with the head turned back, or again the hind end may come first, in any case it will be necessary to correct the position of the lamb; it requires considerable patience and very gentle handling to do this in order to prevent injury to both lamb and mother. When the lamb has been put in the right position, the ewe may be able to deliver it herself, but if weak and unable to do so help may be given. A lump of pure hog's lard inserted into the womb of the ewe after difficult parturition will be very beneficial in healing it in case it has been injured in any way. If she is weak and exhausted give a stimulant to revive her. If the case has been a severe one it might be advisable to flush the ewe for two or three days by means of a rubber tube attached to a funnel using some coal tar disinfectant* or boracic acid in warm water.

THE YOUNG LAMB.—Lambs that are born strong will be on their feet and nursing in a short time, and provided the mother has a sufficient supply of milk they are well on the way to a good start. On the other hand weak lambs will require immediate attention. Lambs may be born that at first sight appear lifeless; these may often be revived by prompt action on the part of the attendant. First remove all phlegm from the mouth and nostrils of the lamb, then open its mouth and blow into it to start lung action. Next lay it on its belly and slap it gently on the body just over the heart. Repeat this action several times and unless the lamb is very far gone it will soon show signs of life.

CHILLED LAMBS.—Chilled lambs may be warmed by immersing several times in a bucket containing warm water then drying thoroughly by rubbing with a woollen cloth. Another method is to place the lamb in a box or large basket together with a jug of hot water covered with a cloth then cover the whole with a blanket. A few drops of stimulant in a little warm water administered to the lamb will often have the desired effect.

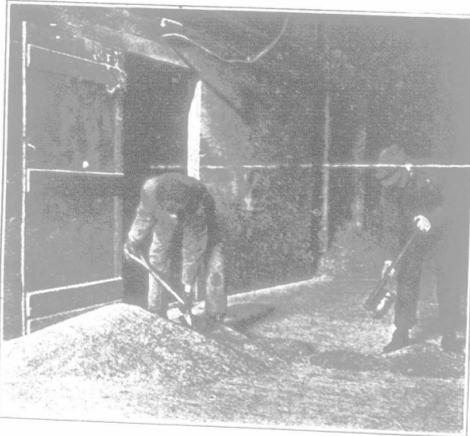
In case of weak or chilled lambs the aim should be to get it nursing as soon as possible as nothing seems to revive them quicker than the warm milk from the mother. If the lamb is sufficiently strong it may be possible to accomplish this by holding it up to nurse. If too weak for this a little of the mother's milk should be given from a spoon. Once the lamb is strong enough to stand up and suck the greatest difficulty is over. It is well to keep a close watch of both lamb and ewe for the first few days to make sure the lamb is getting a regular supply of milk. This can usually be determined by the condition of the young lamb, as a plump rounded-out appearance is a pretty good indication that it is getting all that is necessary. On the other hand the youngsters may not be able to take all the mother's milk and this will very soon result in a caked, inflamed condition of the udder. This is particularly true in the case of single lambs. They may nurse from one side only and the other half of the udder will give trouble. It may be necessary to hand milk the ewe for a few days until the lambs are able to take it all. For caked udder there is no better treatment than bathing well with hot water, dry thoroughly and apply warm, melted hog's lard. Care should be taken that the young lamb gets the first milk from the mother, this is necessary as the first milk is quite laxative and prevents constipation in the very young lamb. In case of constipation from one-half to a teaspoonful of castor oil will usually avoid any further trouble.

EWES DISOWNING LAMBS.—It not infrequently happens that a ewe may refuse to mother her lamb, or in case of twins she may disown one. This is particularly the case with young ewes with their first lambs. The ewe should be confined in a small pen or tied so she cannot move about and if the lamb is real strong they will often get an opportunity to nurse. In other cases it may be necessary to hold the ewe several times a day to allow the lamb to nurse. With a little time and patience the mother instinct will usually prevail, and she will give little future trouble. A dog tied in or near the pen is claimed by some to give good results in persuading the mother to own her lambs.

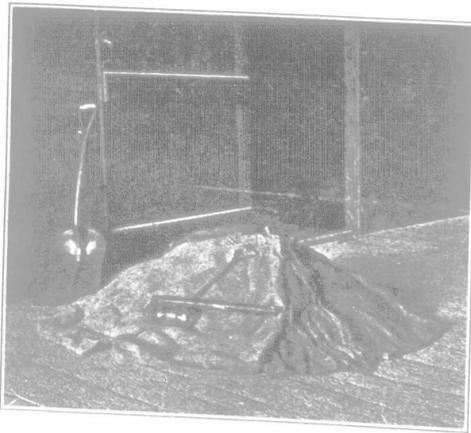
EWES ADOPTING LAMBS.—In the case of a ewe having only a single lamb and it dies, it is often desirable to have her raise another belonging to a ewe with two

lambs especially if the motherless ewe has a liberal supply of milk and the mother of the other lambs is not raising her pair any too well. This can be accomplished by taking the skin off the dead lamb and placing it over the lamb that is to be adopted. Another method is to smear some of the milk of the foster mother over the lamb she is to take. At the same time it will be necessary to keep the ewe with her adopted lamb in a small enclosure for a few days until she becomes satisfied to own her new charge. It is also advisable to hold the ewe for a few times each day to make sure the lamb is nursing.

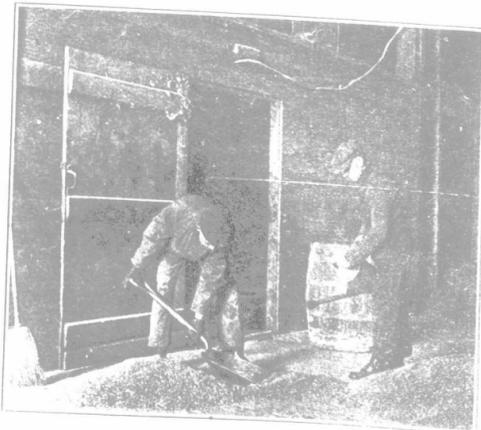
RAISING THE ORPHAN LAMB.—In attempting to raise a lamb on the bottle the aim should be to follow the natural method as far as possible. Ewe's milk is comparatively high in butter-fat, running on an average between 8 and 9 per cent., as compared with from 3 to 5 in the case of cow's milk. This being true the milk



Applying the Dry Formaldehyde Treatment.



Covered for Five Hours to Keep in the Fumes.



The Sprinkling Method.

used for rearing young lambs should be from a cow testing high in fat, and for the first few weeks the same cow's milk should be used at every feeding. Regular feeding every three or four hours, both day and night, and a little at a time, from two to three tablespoons, is absolutely necessary for best results. The addition of a little brown sugar to the milk has a beneficial laxative effect. After three or four weeks when the lamb's digestive system has become accustomed to the milk the amount may be increased and the length of time between feeds lengthened until at a month or six weeks a few feeds a day will be sufficient. At no time should the lamb get an overdose of milk, just what it will take each time with a relish. The temperature of the milk is important and during the early stages should not vary above or below 92 degrees Fahrenheit. An

ordinary sized bottle with a rubber nipple attached is the most satisfactory method of feeding and care should be taken to keep both bottle and nipple scrupulously clean at all times. Overfeeding, the use of dirty bottles and nipple and feeding at the wrong temperature is the cause of much of the difficulty met with in hand raising lambs. The various troubles and ailments usually met with in young lambs are discussed in another section so it will not be necessary to mention them at this time.

FEEDING AND MANAGEMENT OF THE FLOCK AFTER LAMBING.—In order to avoid udder trouble and to carry the ewe safely over this trying period immediately following lambing she should be fed carefully for a few days. Good quality hay and a few roots together with a light feed of bran should answer very well. The grain ration may be gradually increased until the mother is receiving her full allowance. A mixture of two to three parts of oats to one of bran fed in conjunction with hay and either roots or silage should maintain a good flow of milk for the young lambs. A little linseed oil meal added will aid in stimulating the milk flow.

FEEDING THE YOUNG LAMBS.—It is during the early stages of the young animal's life that it makes the most economical gains; every advantage should be taken of this fact and the feeding and general conditions should be such that rapid growth is possible. By the time the lambs are three or four weeks old they will commence to eat a little grain. Provision should be made for a pen into which the lambs may be fed separate from the ewe. This may be arranged by setting up hurdles in one part of the main pen and the openings into the smaller pen being the proper size so the lambs may enter and yet too small for the sheep to pass through. The same grain mixture suggested for the ewes is quite satisfactory for the lambs. The addition of $\frac{1}{2}$ to $\frac{1}{4}$ pound of linseed oil meal to the ration of two parts oats and one part of bran will improve it. Fine-stemmed, second cutting of alfalfa or clover hay together with a few roots, will be relished by the lambs and fed along with the grain will mean much in their growth and development. Care should be taken to feed no more than the lambs will clean up and the feed troughs should be kept clean. A little at a time and frequent feeding will give best results.

THE FARM.

The Prevention of Oat Smut.*

By Prof. J. E. HOWITT, O. A. C., GUELPH.

Every year the farmers of this Province sustain a loss of many thousands of dollars due to smut. At a very conservative estimate this average annual loss is between three and five million dollars. This is, to a large extent, a needless tax upon our agricultural wealth because it has been demonstrated over and over again that oat smut can be prevented by proper treatment of the seed with formalin. Why has the formalin treatment not been more generally adopted by the farmers of this Province? The answer to this question appears to be plain. The methods recommended in the past by the Agricultural Experiment Stations have involved too much difficulty, work and time, and were not simple enough to appeal to the practical farmer.

There are two effective, simple and easily applied methods of treating seed oats to prevent smut. One of these is the so-called "dry formaldehyde treatment." The last two summers (1918-1919) field experiments were made with this method by the Department of Botany, Ontario Agricultural College. The results were highly satisfactory. Some 600 bushels of oats were treated; these were sown on ten different farms and in each case some untreated oats were sown for check. No smut developed in the oats from the treated seed, while in the crop from the untreated seed the amount of smut averaged slightly over 5 1/2 per cent. In no instance was there any injury to the oats by the treatment. One man reported that his treated oats had not come up properly but when this was investigated it was found that the oats in the check strip did not come up properly either. The cause was, apparently, the cold wet weather which followed seeding.

After conducting these experiments on so large a scale, securing uniformly satisfactory results in regard to the prevention of smut, without any apparent injury to the grain, we feel safe in recommending the so-called "dry formaldehyde treatment" for the prevention of oat smut.

DIRECTIONS FOR USING THE "DRY FORMALDEHYDE TREATMENT."

Place the oats to be treated in a pile on the granary or barn floor and shovel them over into another pile, and as they are being shovelled over spray them with a solution consisting of one part formalin (40 per cent. formaldehyde) and one part water. Use this solution at the rate of one pint to twenty-five bushels of seed, that is, use half a pint of formalin mixed with half a pint of water for every twenty-five bushels of oats. If smaller or larger quantities of oats are treated, use proportional amounts of formalin and water. Thus, twelve and a half bushels of oats require only a quarter water. A small quart sealer, costing about \$1 like the one shown in the accompanying illustration, is most convenient for making the formalin solution on the spot. Two men can best do the work. One man should shovel the oats while the other sprays each shovelful. In order to avoid irritation of the eyes, nose and throat, from the strong formaldehyde fumes, provide for a free circulation of air through the granary and barn when

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