

properly manipulating the machine, these rollers are drawn apart. They then advance to the base of the teat, approach each other and descend to ward the tip, thus removing the milk. The whole is so placed that it adjusts itself to the udders of different cows, to the diminishing udder during the process of milking and any movement which may be brought about by the cow changing position. A girth band with rod firmly attached in the middle is placed about the cow and on the rod the milking machine is hung. It is very light, being made of aluminum. Our picture of the De Laval is the first ever published. The device is covered by patents in all countries and great expectations are indulged in for it, as was the case with the cream separator.

The milk drawn by any of the machines is not exposed to the air from the time it leaves the teat until it reaches the can. There is, consequently, no opportunity for dust or disease germs to reach it. Decomposition does not set in so soon as when hand milking is the rule and the product is more wholesome.

The flock.

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SHEEP FEEDING.

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(Under the supervision of the Office of
Experiment Stations.)

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In feeding all classes of sheep there are general details that contribute toward satisfactory results. Among these may be included all those things that are conducive to the general health of the sheep, such as considerate treatment, cleanliness of troughs and racks, healthfulness of the quarters in which the sheep are kept, regularity in feeding, and the use of such accessories as salt, pure water, and sulphur.

FEEDING BREEDING EWES. (1)

To enter into detailed discussion of the feeding of breeding ewes it will be best to divide the topic according to the season, and, in this way, present the subject of winter, spring, summer and fall feeding. Under climatic conditions permitting the breeding flocks to have pasture throughout the year, what may be termed summer feeding would largely prevail at all times, so with such an understanding local conditions will not necessitate much variation from the course of feeding suggested.

WINTER FEEDING OF BREEDING EWES.

Breeding ewes require 10 to 15 square feet of space in a building, and ewes weighing from 150 to 200 pounds should

(1) In lamb ewes "must" have nutritious food in some form. Hence the reason that Canadian farmers find pea-straw such a good food for sheep. Very few turnips, but a good allowance of mangels; plenty of clover hay, but timothy hay and corn-fodder are no better for them than good oat-straw.

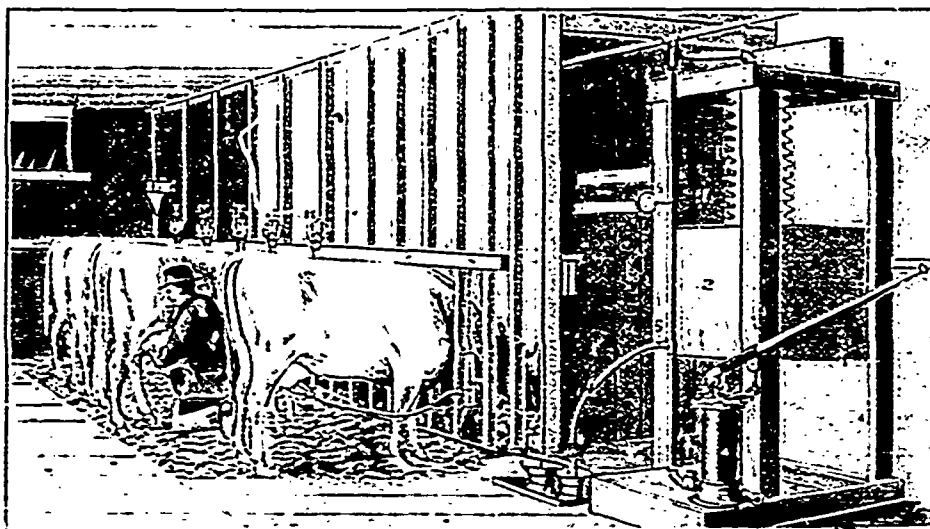
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have an allowance of 1.5 feet at the feeding rack. Less than this causes too much crowding at feeding time, which often results in the birth of dead lambs.

Breeding ewes need not be fed more than twice daily. It is a good practice, however, to feed them some fodder outside during the winter season, for in this way they are induced to take some exercise. With this in view, the fodder may be taken some distance from the

culent food, and the same weight of such dry fodders as clover hay or cut corn-fodder. As lambing time approaches, twice this amount of grain will be required. The quality of the fodder and grain will have an influence on the amounts to be fed, but the controlling factor should be the condition of the ewes. Overfeeding, especially if associated with lack of exercise, will be productive of disease in the flock and it is likely to result in the birth of

colored its distinctive coarse fodder, consisting of either alsike clover hay, corn fodder cut into inch lengths, cut or uncut oat hay, oat straw, or blue-grass hay. The sheep were very fond of the fine, well-cured alsike clover hay, and left only 16 per cent as refuse. Each ewe ate daily 2 pounds of alsike clover, 2.8 pounds of corn silage with 0.5 pound of oats and bran daily, which at the customary prices cost 1.5 cents. The ewes averaged 177.2 pounds in weight



THE CUSHMAN MILKING MACHINE IN OPERATION.

1—Suction chamber. 2, Sand box weighing 1,200 lbs. used in keeping suction chamber extended. 4, Hand air pump. 5, Vacuum gauge. 7, Rubber air hose. 8, Valve. 9, Tubes attached to milk can covers. 10, Main milk pipe. 11, Rubber branches from main pipe to each cow. 12, Teat cups attached to udder. 13, Weight to give cups slight traction and keep tube from under cow's feet. 14, Teat cups not in use. 15, Water receptacle used in cleaning main pipe.

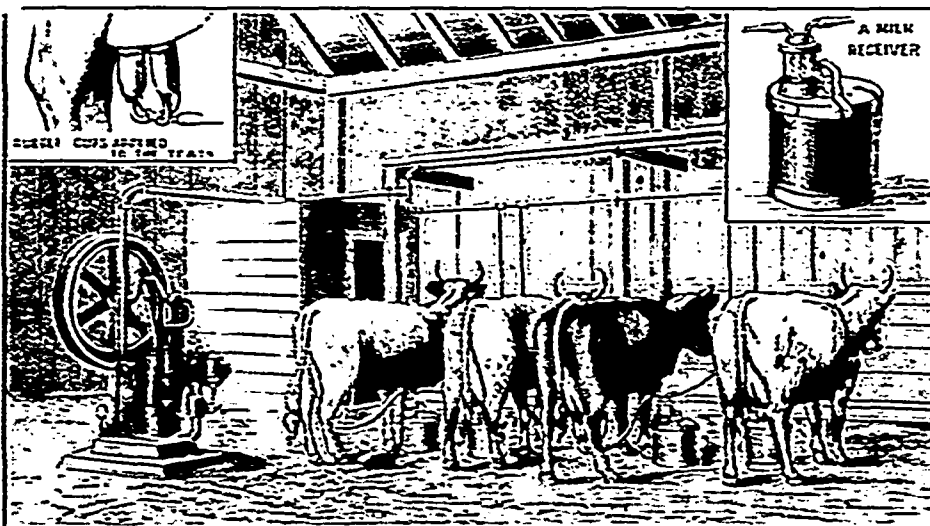
building in which the sheep are housed.

In a practical way, the shepherd should regulate the quantity of food according to the condition of the ewes. If they have gone into winter quarters in thin condition, they should be fed more heavily than if they were fat at that time. Handling the ewes at intervals furnishes the best indication

large weak lambs, while under-feeding is equally favorable for disease and the birth of undersized lambs. Overfeeding may produce sterility, while under-feeding delays the breeding season. The vigorous, firm-fleshed condition which results from liberal feeding and unlimited exercise is the aim of the experienced flock master.

at the beginning and 196.2 pounds at the end of the experiment.

The ewes on the cut corn fodder (ears removed) ate 1.75 pounds of corn fodder, 3.1 pounds of sugar beets, and 0.5 pound of oats or bran daily, costing 1 cent. Their weight at the beginning averaged 152.4 pounds and at the end 163 pounds. The refuse, consist-



THISTLE MILKING MACHINE IN OPERATION.

We printed last week an elaborated article on recent progress in milking by machinery. The article described the English machine above illustrated. Tubes run from the rubber teat cups to the receivers. Another set go from receivers to pipes in front of cows. These pipes are connected directly with the vacuum pump at the left. A set of cups enclosing the teats appears in the upper left hand corner, and in the same position on the right is a receiver.

as to their condition, and this will indicate the quantity of food that should be fed. In the author's experience the aim has always been to keep the breeding flocks in a condition which the general farmer would term "fat," and only good results in lambs have come from this management. When ewes are firm-fleshed, through abundant feed and exercise, they are vigorous, and a healthy flock of lambs is likely to be the outcome. In general, a breeding ewe weighing 150 pounds requires fully about one-half pound of such grain as bran and oats, 2 pounds of suc-

COARSE FODDERS. Among the fodders for winter feeding may be mentioned clover hay, pea straw, corn fodder, oat hay, oat straw, and millet. As to their relative merits, based on cost, the nourishment in them for sheep and more especially the preference of the sheep for them are about in the order given.

At the Wisconsin Station 6 lots of Shropshires breeding ewes, with 4 ewes in each lot, were fed one-half pound of bran or oats and from 2.5 to 3.1 pounds of succulent food per head daily. In addition to this each lot re-

ing mostly of the thick parts of the stalks, was 20 per cent. We have fed corn fodder extensively, and the sheep seem to like it and thrive well on it.

The ewes on uncut oat hay ate 2.1 pounds of the hay, 2.5 pounds of corn silage, and 0.5 pound oats or bran, costing 1.2 cents. They averaged 175.6 pounds in weight at the beginning and 191.7 pounds at the end. The refuse was 32 per cent. The lot receiving the cut oat hay ate 1.5 pounds cut oat hay, 2.4 pounds of corn silage, and 0.5 pound oats or bran, costing 1.2 cents. They averaged 177.3 pounds at the