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The Sheep

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BULLETIN No. 177

MARCH 1918

AGRICULTURAL EXPERIMENT STATION

SOUTH DAKOTA
STATE COLLEGE OF AGRICULTURE
AND MECHANIC ARTS

Animal Husbandry Department



THE SHEEP

BROOKINGS, SOUTH DAKOTA

BOWEN PUB. CO.



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THE SHEEP

By James W. Wilson and B. L. Thompson.

Introduction.

The sheep is one of the most profitable animals on the farm. Besides increasing the fertility of the land sheep furnish two incomes during the year, namely; from the sale of wool in the summer and from the sale of lambs in the fall or winter. Sheep are economical meat producers, requiring less than the average number of pounds of feed to produce a pound of gain. This gain usually brings as much in the market as gain made by any other meat-producing animal. The gain is oftentimes made under conditions where other animals would starve, and also from vegetation in fields which would probably otherwise be a waste. Sheep have no equal as a weed destroyer, eating nearly all the weeds and grasses found on the farm. I have seen sheep in the dry lot eat Canadian thistles given with green feed. By eating these weeds and weed seeds sheep aid in getting the farm into a better state of cultivation. Sheep need pasture up to the time grain is stacked, but from then on they will live and do well in the stubble field where rape has been sown with the small grain, until after corn is husked, then they do well in the stalk field. The lambs at weaning time can be turned into the cornfield and they will eat the corn leaves and husks, do well, and get in condition for the butcher before they learn to eat corn from the ear.

Object.

The object of this bulletin is to furnish information on the care of sheep for the production of mutton and wool. For convenience, we have treated the two sub-

jects separately. Since the editions of nearly all our bulletins at this Station on feeding sheep are exhausted, we also include herein some of the results of our former experiments.

Breeds.

With few exceptions our breeds have been imported. In fact, compared to swine improvement, little has been accomplished in this country toward the improvement of sheep. History shows that a wonderful work was done in developing the breeds of sheep in England and France and we have accepted these breeds to a large extent as being perfectly suited for our conditions.

Mr. N. E. Hansen, horticulturist of this Station and expert plant explorer for the United States Department of Agriculture, on four different occasions was sent to Siberia to secure a supply of the hardy alfalfa for Western South Dakota. In 1913, while on the fourth trip to Siberia, his attention was attracted to a breed of sheep that was living and doing well under adverse conditions. He purchased six head and brought them along with the new seed and presented them to the Station, thinking that some of the characters of this, the Fat-rump breed, would be of value to the sheep raisers of this State.

Since then we have been conducting an experiment that promises to be of great value to the sheepmen in this country. We believe the rump of the sheep can be squared up, the tail can be eliminated, fat can be stored in the body to use in case of deep snows, and the vitality of the sheep greatly improved by the use of this new breed. Shepherd's who have tried the cross-bred rams on their flock find that the lambs are unusually active and vigorous at birth.



The above cut shows a 1917 lamb with a tail **only** two inches long. He is a freak in this respect and we are anxious to determine whether he will get lambs with this feature; if so, we will endeavor to establish a new breed that will not require docking.

In South Dakota the Shropshire and Hampshire

breeds seem to be popular for domesticated conditions, and the Rambouillet for the range. Our experiment as noted in Bulletin No. 127, Six Breeds, Six Years, show very little difference in market value for the six different grades from purebred Cotswold, Hampshire, Oxford, Southdown, Shropshire, and Rambouillet rams on the Western bred ewe.

Summary.

Breed	No. lambs fed	Average gain per head daily	Av. lbs. concentrates for lbs. gain	Av. value of wool per head
Cotswolds	55	.36	5.24	\$1.63
Hampshires	55	.31	5.87	\$1.37
Oxfords	53	.34	5.43	\$1.36
Southdowns	53	.25	5.64	\$1.11
Shropshires	57	.31	5.75	\$1.36
Rambouillets	53	.31	5.63	\$1.24

From the above table it will be seen that the Cotswold lambs made the largest gain per head daily, required the least quantity of grain and produced a fleece that brought twenty-six cents more per head than any other breed. Of the Down breeds the Hampshire, Shropshire and the Oxford were about equal in value of fleece per head, but the Hampshires and Shropshires required 44 hundredths and 32 hundredths more grain for a pound of gain than did the Oxfords.

The lambs sired by the Southdown, Shropshire, Hampshire, and Rambouillet rams were rated higher than the Cotswold and Oxford lambs, by the experts in the market, yet the actual selling price was the same.

At the close of the experiment we had 35 ewes. We might state that the loss was unusual because of conditions over which we had no control. After using these ewes six years they were not old and emaciated but fattened easily and were soon in condition for the butcher.

In feeding sheep to fatten they should be given the quantity of feed they will clean up, and they should eat the entire grain ration before they leave the trough. The feeding trough should be so constructed so that it can be tipped over and back again before the next feed is given. When on full feed they will eat from two to three pounds of grain a day depending on the size and age of the sheep and also on the kind of grain. This should be divided into two feeds, morning and evening. Better to under-feed than over-feed. They will make a pound of gain from 4 to 6 pounds of grain and what hay they will eat. The best gains ever secured at this Station were made during a 60-days' feeding period with a ration consisting of a mixture of 100 pounds of oats, 100 pounds of shelled corn and 25 pounds of oil meal, with alfalfa hay as roughage. Only 3.08 pounds of grain and 3.95 pounds of hay were required for a pound of gain. While with another lot of lambs, same age and same breeding, receiving same kind of grain ration but prairie hay required 4.12 pounds of grain and 4.01 pounds of hay. During this period the average gains per head daily varied from 36 to 65 hundredths of a pound with the alfalfa lot, and from 14 to 57 hundredths for the prairie hay lot.

As reported in this same bulletin (S. D. No. 119) we stated that it did not pay to feed grain to lambs while on rape pasture, and that with all the experiments at this Station in feeding lambs on rape pasture, the loss has not been greater than it is under ordinary feeding operations. In fact, the gains made by lambs on rape pasture are comparatively large and every sheep raiser should sow rape with his small grain.

The results in Bulletin No. 86 show that lambs do well on any of the grains grown in South Dakota including millet and speltz; but lambs did better when the millet was ground coarsely than when fed in its natural state.

In Bulletins No. 143 and No. 156 the results show that corn silage as the sole ration, or corn silage as the

sole roughage ration with grain, is not satisfactory for lambs. Also that sweet clover hay and Siberian alfalfa hay are excellent as roughages with a grain ration for fattening lambs. The bred ewe does well on from one pound to one and one-half pounds of oats daily, what hay she will eat and plenty of exercise. Too much corn produces fat and often the fleece becomes loose and the loss in wool is sometimes great with a flock because of improper nourishment. Again, ewes kept in a warm barn, or sheep that have many ticks will lose part of their fleeces in winter.

Feeds.

Sheep prefer the very best quality of feed and are more particular about their eating than any other farm animal. Some people believe that any kind of coarse roughage is good enough for the sheep. The big weeds sometimes found in hay are often eaten greedily while green; but after the weeds are dried and in the form of hay, sheep will not eat them readily. The best hay for sheep is second cutting of alfalfa or red clover. A good roughage is corn, planted thick and cut for fodder before the frost and shocked, or fine upland prairie hay is acceptable.

General Care.

Sheep, like any other animal on the farm, require attention at the right time. We contend that the care a sheep receives is just as important as the feed it eats. Unless the sheep is healthy, feed is of little value. Sheep do not do well with wet feet at any time of the year. They prefer high land to low land for pasture. Pasturing too long on the same land is detrimental. Conditions which do not allow them shelter during a cold rain in fall or spring are not the best. Because of their timid nature, sheep do not do well with other farm animals. Their quarters should be free from drafts, but not warm as the fleece will protect them. In extremely cold

weather, lambs when dropped should be in a comparatively warm place so they will not chill. Tails should be docked when lambs are young, as there is less danger from loss than if allowed to run until a month or two old. To kill ticks the flock should be dipped after shearing in the spring and before cold weather in the fall. Dipping also improves the condition of the fleece by washing the dirt out. With the early lambs, before they are turned on the grass, it is a good practice to feed them a little grain, either ground oats or corn. This can be done by making a creep so the lambs can go thru and the ewes cannot. A flock of ewes is like a herd of cows, they do not all furnish enough milk for their young, and unlike cows, a ewe will not allow robbing. However, a ewe that has lost her lamb can be made to claim another ewe's lamb if the skin of the dead lamb is placed on the other lamb and the ewe is tied up and watched a few days while the new lamb nurses.

WOOL

The price of wool is such that every sheep breeder should make an extra effort to grow as much of it per sheep as possible and to see to it that its value is not lowered by improper handling in growing, shearing, and packing.

Much can be done toward improving the quality and amount of wool which the lambs will have by selecting a breeding ram with a fleece which for the breed is dense, of good length and which covers as uniformly as possible the entire body. The above is desirable not only from the standpoint of increasing the amount of wool, but also because lambs and sheep having a reasonably dense heavy fleece are better protected from rain, snow, and cold and are not so liable to colds; hence are in better condition to make good use of feed.

The amount of wool a sheep produces varies in the different breeds, but is also materially increased or decreased by kind and amount of feed which it receives.

The sheep which is so fed and cared for that it will be in good flesh at shearing time, produces more pounds of wool than it would have done had it been scantily fed and in thin condition. Sheep which are protected from snow and rain also shear a heavier fleece due to more of the yolk, or grease, being retained in the fleece. Not only is the weight of fleece increased by yolk, but the wool is softer and when scoured is better for spinning, as its felting qualities are better.

As the value of the wool to the manufacturer depends largely upon the condition it is in when sheared, it should be kept as free as possible from chaff, burrs and sand. Sheep should not be allowed to run under straw stacks or be fed hay from overhead racks where the seeds fall down into the wool about their necks. Burrs are especially hard to remove from wool, hence sheep should not be pastured where they grow. The condition of wool is also often lowered by the use of oil paints for marking, as such paints cannot be entirely removed when the wool is scoured.

It is often necessary to dip sheep to remove either ticks or scab, as both are injurious to both sheep and wool. Any of the standard coal tar dips may be safely used without injury to the wool when they are applied according to directions. If sheep are badly infected with either ticks or scab they should be dipped twice with an interval of about ten days between the first and second dipping. The second dipping destroys the insects which hatch from undestroyed eggs. It is advisable to dip as soon as the sheep are sheared and again as late in the fall as weather conditions will permit.

As black wool is not worth as much per pound as white wool, sheep which produce black fleeces should not be used for breeding purposes, neither should those animals which have black fibres scattered thru the fleece.

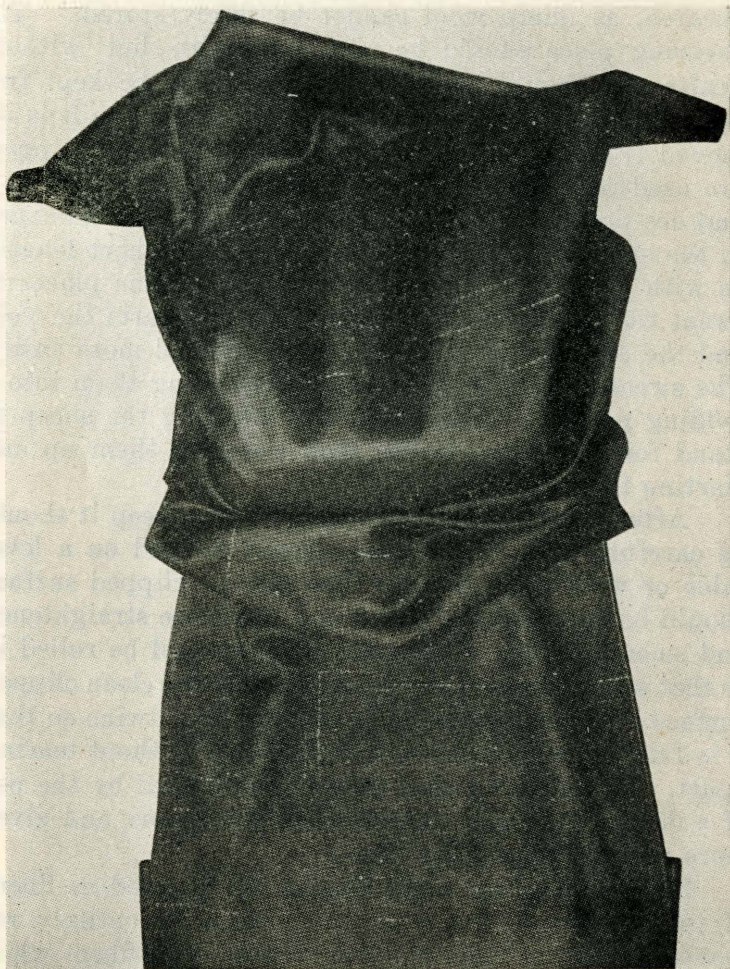
The time to shear the sheep will depend on weather conditions and housing facilities. It is best to shear before the weather gets too hot as sheep with heavy fleeces suffer from the heat and the growth of wool is retarded.

If warm sheds are available to house the sheep for a few days after shearing so that they are protected from cold winds and rain, shearing may be done quite early in the spring. Of course, the wool must be dry when sheared, as damp wool cannot be safely stored. The shearing place should be airy and light, but without drafts and should have a floor which can be kept free from dirt, so that the wool will not be soiled as it is removed from the sheep. Both hand-shears and clippers are used for shearing. The clippers are most used now and are preferable to shears as the wool is not damaged to the same extent by double cutting into short lengths as with the shears. It is the custom in some places to sweat the sheep before shearing as this starts the yolk and the clippers or shears go into the wool more easily. The sweating of sheep is done by crowding them into a holding pen in a warm place and allowing the sheep to stand for about two hours, thus warming them up and starting the yolk.

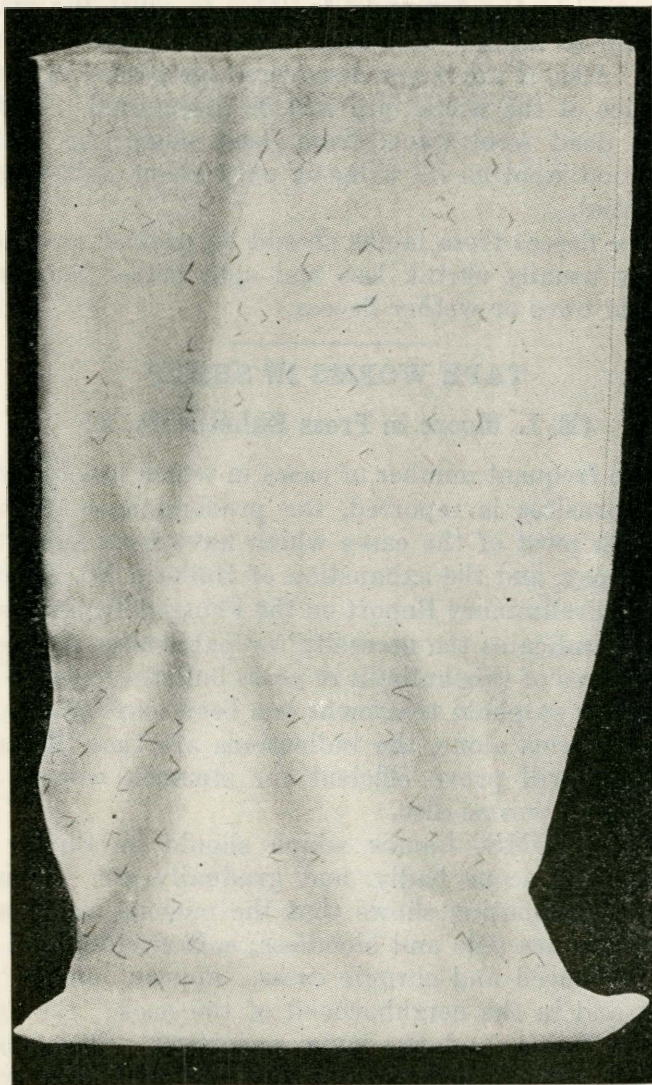
After the fleece is removed from the sheep it should be carefully tied. The fleece should be laid on a level table or wool tying board. The skin or clipped surface should be laid next the board and the fleece straightened and smoothed out. The outer edges should be rolled in so that when the fleece is tied, it presents the clean clipped surface. It should then be tied with paper twine so that it is fairly compact and may be handled without tearing apart. The tying of wool may be facilitated by the use of a fleece box which compacts the wool more and gives more uniform appearing fleeces.

Sisal or binding twine should not be used as fibers of twine cling to the wool and cannot be entirely removed except by hand-picking. These sisal fibers when woven into cloth do not take dye as does wool, thus damaging the goods. Below is a cut showing a piece of goods damaged by the wool from which it was made having been tied with sisal twine. The light stripes are defects due to particles of jute, hemp or sisal remaining in the wool. When the goods are dyed the defects ap-

pear, as the dye used for wool will not similarly affect vegetable fibers. Particles of paper twine dissolve in the scouring.



After the fleece is tied, it should be packed in wool sacks. When packing into sacks, black fleeces should not be placed with white ones as black fibers of wool will cling to the white fleeces thus making them unfit for use in white serge goods. Below is a cut showing the dam-



age done by packing white and black wool together. The defects do not show in the reproduction, but are located by the arrow heads.

As tags usually are damp, discolored, and of inferior quality of wool, they should never be packed with

other wool as the dampness is liable to cause the rest of the wool to mildew and thus lower the price it should bring. Also, if the buyer discovers tags placed in fleeces the price of the whole clip will be discounted. Neither should dead wool (wool from dead sheep) be packed with good wool as its value is only about half that of good wool.

The fleeces from lambs should be packed separately as they usually shrink less and spin better than wool from old ewes or wether fleeces.

TAPE WORMS IN SHEEP

(E. L. Moore in Press Bulletin No. 2.)

The frequent number of cases in which loss of lambs from parasites is reported, the predominance of tapeworms in most of the cases which have been submitted for autopsy, and the exhaustion of Bulletin No. 78, entitled "A Preliminary Report on the Fringed Tapeworm of Sheep," indicates the necessity for publishing the essential features of this bulletin in press bulletin form. While the copper sulphate treatment has been employed by us for tapeworms alone, the indications are that the same treatment will prove efficient for stomach worms and other round worms also.

SYMPTOMS—Lambs which should be thrifty do not do well, scour badly, and gradually die. A more careful examination shows that the mucous membranes of the eyes are pale and bloodless; soft swellings, in the more advanced and chronic cases, appear under the throat and in the neighborhood of the neck; the gait becomes feeble, and the body emaciated. Such symptoms are not characteristic of any one particular parasite, but may be found in any parasitic disease of sheep that is accompanied by mortality. If affected with tapeworms, however, segments of these worms will appear with more or less regularity in the droppings, as distinct whitish masses. Post mortem examinations should be made to verify the diagnosis.

TREATMENT—Treat each individual of the flock. It may not itself be seriously suffering from the worms, but it may aid in further infestation of the flock and occasion additional loss.

Keep the sheep shut up and away from food for twenty-four hours before treating.

Dissolve 1 ounce of copper sulphate (bluestone) to 2 quarts of water and give to each individual a dose as indicated in the following table:—

For a lamb 3 months old give two-thirds of a fluid ounce (20 cc.)

For a lamb 6 months old give $1\frac{1}{2}$ fluid ounces (40 cc.)

For a sheep 1 year old give $2\frac{1}{2}$ fluid ounces (60 cc.)

For a sheep 2 years old give $3\frac{1}{2}$ fluid ounces (90 cc.)

PRECAUTIONS—Use copper sulphate of a uniform blue color, without any whitish crusts, or in conglomerate lumps.

Do not guess at weights or measures. Have your druggist weigh the bluestone; and have him graduate your drenching bottle by making the appropriate doses with a file.

Do not allow the sheep to have access to water for several hours after dosing.

Should any of them receive an overdose, indicated by lying apart from the rest of the flock, purging, and showing symptoms of pain, place in a shady place and give a teaspoonful of laudanum in a tumbler full of milk.

Provide your sheep with a rotation of pasture. This does not mean that the sheep should be changed from one pasture to another every few weeks or months, but every year or so put them on a pasture on which no sheep have ranged for at least one year. While no one has as yet discovered the intermediate host or hosts of any of the tapeworms of the herbivora, yet they probably pass part of their life in some of the lower animals or insects. This is why a rotation of pasture is so strongly emphasized in trying to rid a flock of sheep from parasites.

LIST OF AVAILABLE BULLETINS.

105. Stock Food for Pigs.
106. Sugar Beets in South Dakota.
107. Sheep Scab.
111. A Study of South Dakota Butter with suggestions for improvement.
114. Digestion Coefficient of Grains and Fodders for South Dakota.
129. Growing Pedigreed Sugar Beet Seed in South Dakota.
130. Some New Fruits.
131. Scabies (Mange) in Cattle.
132. Effects of Alkali Water on Dairy Products.
134. More Winter Dairying in South Dakota.
136. Fattening Pigs.
142. Sugar Beets in South Dakota—Results to Date.
143. Roughage for Fattening Lambs.
144. Preliminary Report on the Milking Machine.
145. A Report of Progress in Soil Fertility Investigations.
146. Some varieties and Strains of Wheat and Their Yields in South Dakota.
147. Effect of Alkali Water on Dairy Cows.
148. Corn Silage and Mill Products for Steers.
149. Some Varieties and Strains of Oats and Their Yields in South Dakota.
151. Trials with Sweet Clover as a Field Crop in South Dakota.
152. Testing and Handling Dairy Products.
153. Selecting and Breeding Corn for Protein and Oil in South Dakota.
154. The Pit Silo.
155. Selection and Preparation of Seed Potatoes, Size of Seed Pieces, and Bud-Variation.
156. Kaoliang, A New Dry Land Crop.
157. Rape Pasture for Pigs in Corn Field. Kaoliang for Pigs.
158. Proso and Kaoliang for Table Foods.
159. Progress in Plant Breeding.
160. Silage and Grains for Steers.
161. Winter Grain in South Dakota.
162. First Annual Report of Vivian Experiment and Demonstration Farm.
163. Comparative Yields of Hay, from Several Varieties and Strains of Alfalfa, at Brookings, Higlmore, Cottonwood and Eureka.
164. Making Butter and Cheese on the Farm.
165. Corn Silage for Lambs.
166. Important Factors Affecting Machine Milking.
167. Transplanting Alfalfa.
168. Breakfast Foods and Their Relative Value.
169. Flax Culture.
170. Quack Grass Eradication.
171. Cream Pasteurization.
172. Grasshopper Control.
173. Sugar Beets in South Dakota.
174. Sorghums for Forage in South Dakota.
175. The Role of Water in a Dairy Cow's Ration.

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