

PUBLICATION 588
FARMERS' BULLETIN No. 42

ISSUED AUGUST, 1937
FIRST PRINTING

DOMINION OF CANADA—DEPARTMENT OF AGRICULTURE

BULLDOG-JAW AND PARROT-MOUTH DEFECTS OF SHEEP

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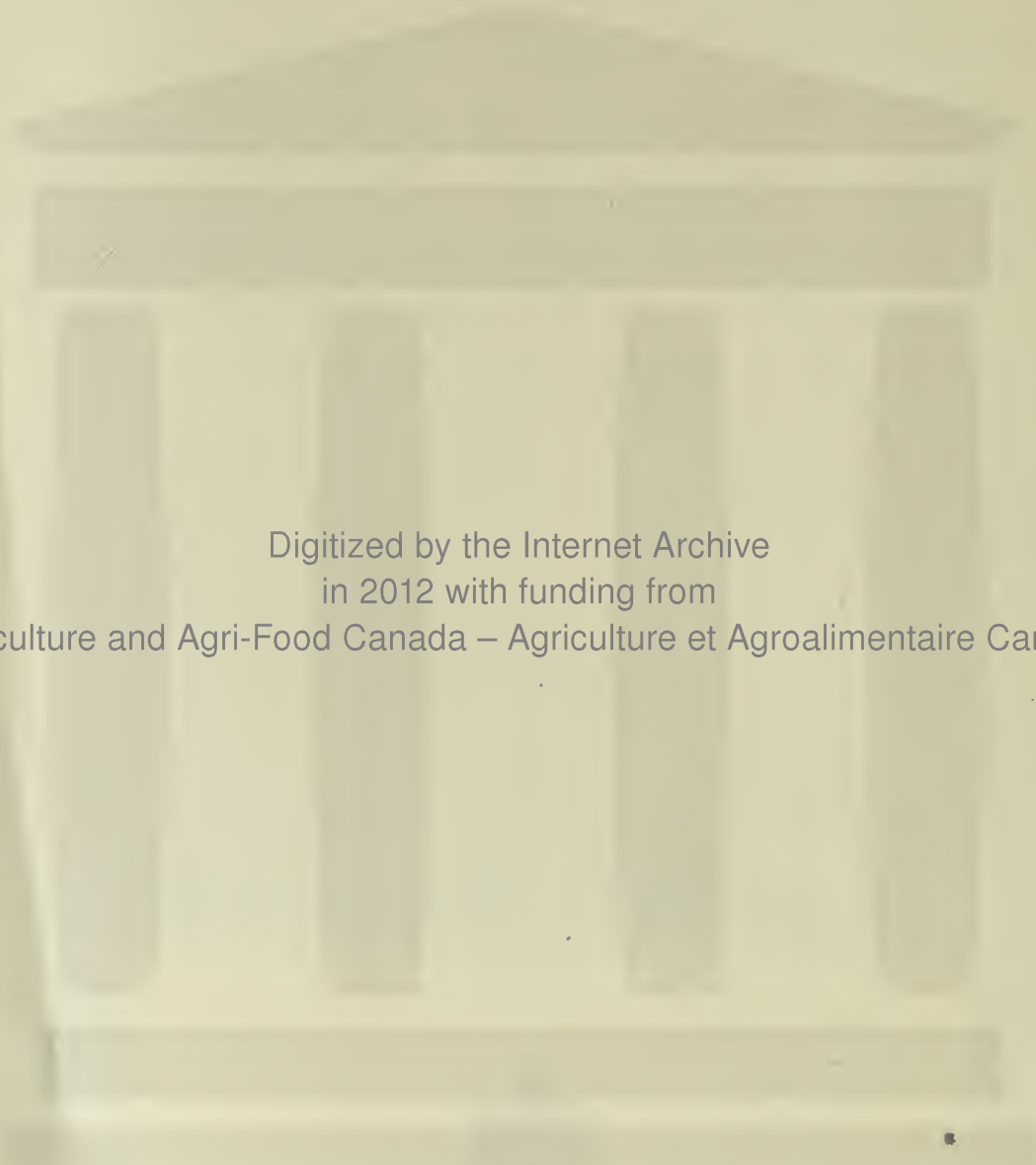


Published by authority of the Hon. JAMES G. GARDINER, Minister of Agriculture
Ottawa, Canada

630.4

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P 5880 2



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Bulldog-Jaw and Parrot-Mouth Defects of Sheep

INTRODUCTION

The defects known as "bulldog jaw" and "parrot mouth" appear occasionally as hereditary abnormalities in many breeds of live stock. Breeders of the larger animals usually recognize these defects and rigorously cull all animals possessing them, in most cases disposing of the entire strain from which the abnormal animals came. In the case of sheep, since the ram-grading policy has been applied, the graders of the Dominion Department of Agriculture report that quite a large number of animals in some flocks are affected with one or the other type of defective mouth. These men are also of the opinion that failure on the part of certain breeders to recognize the hereditary transmission of such defects has tended to increase the number of breeding animals that carry them in their blood lines.



FIGURE 1.—Illustrations showing normal and defective jaws of sheep. Within each small circle the dotted lines represent the contour of the lips and the solid lines, the mouth, incisor teeth, and dental pad. Figure A is a normal jaw, the incisor teeth (I) registering at the front angle of the dental pad (D.P.). Figure B is a parrot mouth or overshoot jaw, the incisor teeth registering almost in the centre of the dental pad. Figure C is a bulldog or undershoot jaw, the incisor teeth being in front of the dental pad.

Furthermore, failure of certain sheep breeders to cull out abnormal animals has had a tendency to increase the number of defective rams offered for grading. For instance, one purebred breeder sent two ewe lambs to a large sale, each of which had a bulldog jaw. The breeder had not noticed that the lambs had this defect, and when it was pointed out to him he sold both of them to a butcher. On returning home he took the trouble to inspect the jaws of his entire flock, and found several sheep with bulldog jaws. He discovered that all the defective-jawed sheep came from one ewe that he had purchased several years previously. He then culled all the descendants of this ewe and has had no trouble with bulldog-jawed sheep since that time.

It is the purpose of this publication to draw the attention of sheep breeders to these undesirable traits, pointing out the nature of the defects, the handicap to sheep possessing them, their occurrence and mode of inheritance, and to describe selection methods for ridding the flock of these defects.

NATURE OF THE DEFECTS

The bulldog jaw, also called undershot jaw, is caused by the lower jaw growing longer than the upper jaw. In bad cases, a finger, and sometimes two, can be placed between the incisor teeth and the dental pad. However, there are a good many degrees of this condition, ranging from a mildly undershot jaw to very bad cases, as described above. In parrot mouth or overshot jaw, it is the lower jaw which is short, thus causing the incisor teeth to register either on the roof of the mouth or on the back portion of the dental pad.

HANDICAP TO SHEEP

In sheep with normal mouths the incisor teeth (see illustration) register at the front angle of the dental pad, thus enabling them to graze efficiently. Sheep with either overshot or undershot jaws have difficulty in grazing on short grass and therefore become unthrifty, especially during dry spells. When grazing, sheep with one or the other of these defects tend to hold their heads at an unnatural angle in order to bite more closely to the ground. Moreover, they cannot bite properly, since the incisor teeth either do not register with the dental pad, or do so in the wrong place. Moreover, the incisor teeth of sheep with parrot or overshot jaws have a tendency to wear down more quickly, especially on sandy pasture. In addition to grazing being difficult, the teeth of overshot- and undershot-jawed sheep are likely to be of poor quality, and it is possible also that the molars of the upper and lower jaws in many cases do not register properly with one another, thus interfering with mastication.

OCCURRENCE

Overshot or undershot jaws have been occurring in sheep throughout Canada and the number of affected sheep is increasing more rapidly in Western Canada. In some areas of the West, defective sheep are more common than in others, thus indicating that breeders in the affected areas are not fully aware of this hereditary condition and its undesirable effect upon the thrift of sheep during dry spells. Too large a proportion of rams offered for grading are found to have either overshot or undershot jaws. The defects occur in all breeds of sheep. They are especially common in some of the Down breeds, as well as in the Rambouillet and Corriedale breeds. The sale of purebred rams either showing or carrying the defect has been the cause of defective-mouthed sheep appearing in farm flocks and in some range bands. The defect is particularly undesirable in the case of range lambs put into the feed lot to fatten, as such lambs make little use of fattening grains. Of the two defects, bulldog-jaw or undershot jaw seems to be the more common, and is probably a greater handicap to sheep than parrot-mouth or overshot jaw.



FIGURE 2.—Photographs of two sheep's mouths with the lips propped open, showing, left, a bulldog jaw, the incisor teeth being in front of the dental pad, and right, a parrot mouth, the incisor teeth registering towards the back of the dental pad.

INHERITANCE

Experiments have proved that overshot and undershot jaws in sheep are definitely inherited traits. That they are not caused by the absence of some essential food factor, such as vitamins or minerals, is apparent, because normal and defective sheep appear in the same flock raised under identical conditions; nor are the defects due, as some breeders suppose, to trough feeding. However, some sheep may have jaws slightly overshot or undershot, due to slightly disproportionate growth of the jaws rather than to hereditary factors. Should such sheep throw lambs, however, with medium or badly defective mouths, they ought then to be culled, together with their progeny.

These defects are known to the student of heredity as "recessive characters," which means that both rams and ewes may have normal mouths and yet throw some lambs with either overshot or undershot jaws. The defects can thus be carried as hidden traits, and when lambs appear possessing one or the other of these defects, it signifies that *both* ram and ewe, and not just one of the parents, are carrying the defects as a hidden trait. The question may be asked then, "How can I distinguish rams or ewes which have normal mouths but are carrying one or the other of the defects, from those which are free from them?" The answer is that there are only two ways to tell: first, through the progeny, that is, whether any of the lambs have overshot or undershot jaws; and second, if their sires or dams or other ancestors had defective mouths. A few examples of how bulldog or undershot jaw is inherited are given as follows (based upon a simple recessive).

Examples

1. Rams with bulldog jaws crossed with ewes with the same defect would throw lambs all, or mostly all, of which would have bulldog jaws.

2. A normal-mouthed ram, but either sired by a ram or out of a ewe with bulldog jaw and crossed with bulldog-jawed ewes, would throw lambs about 50 per cent of which would have normal mouths and about 50 per cent of which would have the defect.

3. A normal-mouthed ram bred from normal-mouthed ancestors and crossed with bulldog-jawed ewes would throw normal-mouthed lambs, but all the lambs would be carrying the defect as a recessive character, which would crop out in later generations unless rams entirely free from the defect were used. The difficulty, however, is in securing rams that are known not to have the defects in their ancestry. It is, therefore, advisable to cull the entire strain in which defective animals occur.

The above examples of the inheritance of bulldog jaw would also apply to parrot mouth.

The crossing of a parrot-mouthed ram that had no bulldog-jawed animals in its ancestry with bulldog-jawed ewes that had no parrot-mouthed animals in their ancestry, would likely throw normal lambs, but all the lambs would be carriers of both defects, one or the other of which would crop out in later generations unless rams absolutely free from both defects were used.

METHODS OF ERADICATION

In order to reduce the number of sheep affected with either overshot or undershot jaws, it is absolutely necessary that breeders recognize these defects and cull their sheep accordingly. For purebred breeders the most effective method of ridding the flock of the defects is to cull the entire strain from which the defective animals came. When sheep are sold or offered for sale and purchased for breeding purposes with either one or the other of these defects, it indicates that breeders as a whole are not fully aware of these undesirable traits. Breeders are warned that the defects are not very noticeable in lambs until their jaws are so developed that the difference in length of the upper and lower jaws becomes pronounced. The magnitude of defective jaws, however, varies considerably from mild to bad cases. It is necessary, therefore, that breeders should distinguish between mild cases of overshot and undershot jaw and normal animals that have jaws slightly disproportionate in lengths. Thus, the setting of the milk teeth might indicate a slightly undershot jaw, but the permanent teeth might come in at a more normal position and thus give the mouth a normal appearance. In some cases, too, the jaws tend to become more even with increasing age, but in others they get worse.

It may happen, too, that occasional rams with either a bulldog jaw or a parrot mouth may be otherwise good individuals, having good fleeces and of the best conformation, especially if they have had good grazing or were given supplemental feeds. It would, of course, be shortsighted economy to use such rams, since the defects would be bred into the flock and, therefore, cause losses sooner or later due to unthriftiness in dry spells, poor teeth, and poor sales for breeding stock. In the following passages a few important steps are given as a guide to rid the flock of these undesirable traits.

Rams

1. Use only rams that are not only free from bulldog jaw or parrot mouth themselves, but are from ancestors none of which have one or the other of the defects.

2. Select carefully the ewe flock from which ram lambs are to be saved.

3. Do not use a ram a second year if he throws lambs with defective jaws.



Ewes

1. Cull out all ewes that have one or the other of the defects and sell such ewes for slaughter.
2. Ear mark or otherwise identify all normal-mouthed ewes that throw lambs with the defect and cull such ewes for slaughter.
3. Market all lambs, or at least all ram lambs, from ewes or rams known to throw the defect to their progeny.

With the practice of a rigid policy of culling, the percentage of sheep having defective jaws should soon be reduced to small proportions. Moreover, a knowledge of the nature of these defects and their handicap to sheep on the part of breeders and ranchers, will fully justify the course taken by departmental ram graders and sheep judges in disqualifying animals with defective jaws.

TABLE SHOWING THE AVERAGE AGES AT WHICH THE MILK OR TEMPORARY TEETH, AND PERMANENT TEETH APPEAR IN SHEEP

Teeth	Milk or Temporary	Permanent
Incisors, 1st pair (centre).....	Birth, or 1st week.....	1 to 1½ years
Incisors, 2nd pair.....	1st or 2nd week.....	1½ to 2 years
Incisors, 3rd pair.....	2nd or 3rd week.....	2½ to 3 years
Incisors, 4th pair (corner).....	3rd or 4th week.....	3½ to 4 years
Molars, 1st pair)		
Molars, 2nd pair).....	2 to 6 weeks	1½ to 2 years
Molars, 3rd pair)		
Molars, 4th pair.....		3 months (lower)
		5 months (upper)
Molars, 5th pair.....		9 to 12 months
Molars, 6th pair.....		1½ to 2 years

