

Scours

in OREGON CALVES

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Illustration on cover—

Yearling beef calves infested with worms.

Scours in Oregon Calves

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DISEASES of calves accompanied by scours are responsible for the greatest losses among these animals. These losses are frequently accepted with less objection on the part of the owner than in the case of losses of mature animals since the financial investment is less. When maximum production is considered, however, loss of calves becomes just as serious as the loss of older stock. Losses of calves in most cases are actually equivalent to losses in mature animals since plenty of feed usually is available and the care that would be required to raise a full crop is little more than is required to raise those surviving.

The term scours in calves usually is applied to the dairy calf but experience indicates that scouring is very common in range calves and calves from so-called stock cattle. The term stock cattle means cattle of mixed breeding such as are commonly used for beef cattle on our Coast hills.

Scours or dysentery is merely a symptom of a disease involving the digestive tract. The damage of the intestinal lining may be slight, in which case the discharges will be quite normal except for being somewhat more fluid, or the damage may be severe to the extent that blood will be mixed with the discharges. Digested, or decomposed blood, imparts a dark color to the droppings. When movement of feed through the digestive tract is rapid and it does not remain in the intestines sufficiently long to be mixed with a normal amount of bile the discharges may be lighter in color than normal. In this condition if milk is the chief feed, the discharges may be almost white, accounting for the so-called "white scours." In some bacterial infections a considerable amount of gas is formed in the intestines, giving a frothy consistency to the discharges. Thus it is evident that noting the character of the discharge is helpful in determining the cause of the trouble.

The principal causes of scours in Oregon calves are diseases due to bacteria or parasites. As these diseases are quite well understood and as prophylactic and curative treatments are practical and successful, many calves can be saved if a correct diagnosis is made and proper treatment instituted.

WHITE SCOURS

White scours is primarily a disease of baby calves, animals from 12 hours to 1 month of age being affected. In rare instances a calf may be born with the disease. While most losses are experienced during the winter months, some herds have had losses throughout the entire year.

Cause

Bacterial infection of the intestines is the cause of this disease. While the common *colon bacillus* is considered the greatest offender, other bacteria may at times be involved. *Improper feeding*, unsanitary surroundings, and exposure undoubtedly contribute to the disease but it sometimes will persist under the best of management. Many calves suffering from this form of scours develop symptoms as the result of digestive upsets in shipping and handling in preparation for auction sales. Ten-day-old calves taken from their mothers, placed in crates and shipped for several days in an express car or truck, have often developed this type of scours.

Symptoms

The most constant symptom is a severe diarrhea. The discharge is slate or dirty-white colored, very fluid and frequently frothy, having an extremely offensive odor. Straining is common in most cases and the tail and hind parts soon become soiled. The animals show a loss of appetite, dehydration with rapid loss of flesh, weakness, and inactivity. Calves appear thin and the coats lack the luster usually present in the newborn animal. In some cases in which the disease appears in a very severe form, calves die so quickly that dysentery does not have time to develop.

Prevention

Calves should be raised under the most sanitary conditions possible. When kept indoors they should be provided well-lighted quarters cleaned frequently. If hand fed, utensils should be kept clean and the amount of milk carefully weighed. The amount fed should not exceed 1 pound of milk per day for each 10 pounds of body weight. Before attempting to raise calves on other things than milk it is advisable to obtain the best possible information on the subject. For such information see Extension Bulletin 620, Oregon State College.

Treatment

Acidophilus milk. The use of acidophilus milk as a treatment for white scours in calves originated at the Oregon Experiment Sta-

tion in 1935. Since that time reports of its use from this and other states indicate the saving of the lives of a large number of calves. This product consists of culture of *Lactobacillus acidophilus* in sterilized, skimmed cow's milk incubated until a lactic acid content of approximately 1 per cent and a bacterial content of approximately 400,000,000 organisms per cubic centimeter is reached. The consistency is similar to cultured buttermilk.

For administration the milk should be well shaken to break up the soft curd. The dose recommended is $\frac{1}{2}$ pint given as a drench. Most animals take the milk readily. It is sometimes convenient to use a rubber nipple with an enlarged hole and let the calf nurse the bottle. If the calf has been sick for some time and shows the effects of dehydration, the dose may be diluted with three parts of salt water (1 teaspoon of common salt per pint of water), in order to supply additional water that would be beneficial. Although one dose usually is sufficient, it is sometimes necessary to give additional doses.

When the disease has been severe in the herd it is advisable to treat calves as soon as possible after they have received colostrum, and before symptoms have appeared.

The milk may be obtained from the Department of Dairy Husbandry at Oregon State College. Directions for administering the milk to calves and lambs are given on the label used on each container.

The cost of the milk is \$1.50 per gallon can f.o.b. Corvallis. If purchased in 1-pint cans (approximately 15 oz. net) the charge f.o.b. Corvallis is: 1 can, 25¢; 2 cans, 45¢; 3 cans, 65¢; 4 cans, 80¢; 5 cans, \$1.00; 6 cans, \$1.20; 7 cans, \$1.35; 8 cans, \$1.50. The milk can be sent by mail or express, c.o.d., or if the payment for the milk accompanies the order, it can be sent by express with the express charge to be paid on receipt of the milk (express collect).

When sent by mail prepaid the cost of the milk is as follows to all points in Oregon: 1 can, 36¢; 2 cans, 58¢; 3 cans, 82¢; 4 cans, \$1.04; 5 cans, \$1.23; 6 cans, \$1.45; 7 cans, \$1.62; 8 cans, \$1.80.

Biologics. The use of bacterins and antisera has not proved very satisfactory in treatment or control of this disease.

Intestinal antiseptics. In the past many drugs have been used without success in controlling intestinal bacteria. More recently some of the sulfa drugs have been reported as useful. They have not been sufficiently tried, however, to warrant general use.

COCCIDIOSIS OR BLOODY SCOURS

Coccidiosis is a disease of relatively young animals occurring most frequently in calves from 1 to 3 months of age. Older animals are sometimes affected. Most calves harbor a few coccidia and it is only when the infestation becomes great that trouble is experienced. The disease is spread from one animal to another by eating or drinking feed or water contaminated with feces. Losses may occur at any season of the year. Reports of losses in range cattle fed on the ground during the winter months are common.

Cause

The cause of coccidiosis in calves is the microscopic parasite, the coccidium. These parasites develop and multiply in the delicate lining of the intestine where they cause inflammation and destruction in the intestinal wall. This damage permits the escape of blood that is discharged with the feces. The species of parasite in calves will not cause disease in any other kind of animal.

Symptoms

Affected calves have a severe diarrhea accompanied by straining. Blood may be visible in the feces if damage is sufficiently severe. There is rapid loss of condition and the hind parts of the animal become smeared with the discharges. Symptoms appear from 2 to 4 weeks after calves pick up the infestation and in severe cases death occurs as early as 3 days following the development of symptoms. There is usually some elevation of body temperature. In severe cases pneumonia may occur.

Prevention

Since coccidiosis is spread by calves eating feed contaminated with infested droppings, anything that will prevent this will control spread of the disease. The parasites discharged with droppings must undergo a development known as sporulation before they become infective. This sporulation process requires *2 to 6 days* under favorable conditions outside the animal body. Thus if droppings are removed daily, there is little opportunity for further spread. In some cases it was thought calves became infected by licking droppings that had been smeared on the walls of the pen.

When calves are raised out-of-doors, feed racks and a clean watering place should be provided. Having the feed racks on a platform that can be cleaned regularly will also help to prevent animals from consuming soiled feed. Crowding naturally favors infestation and should be avoided as should confinement of young and older

calves in the same lot. Coccidia in droppings can remain alive for months, increasing the difficulty of raising calves on badly infested premises. The use of strong lye solutions for cleaning the floors and walls of pens will destroy coccidia. Plowing of infested lots and pastures also would be effective.

The following system of handling calves has proved successful in the hands of workers in Alabama :

Group 1, calves up to 3 weeks old. The pen assigned to this group should be used *exclusively* for the youngest calves. Calves under 3 weeks of age rarely discharge oocytes. Therefore, the pen is automatically kept free of large numbers of coccidia, and newborn calves are spared heavy exposure. Upon reaching the 3-week age limit, each calf is removed promptly and placed in another pen that has been assigned to group 2.

Group 2, calves 3 to 6 weeks old. Mild, nonclinical infections will likely develop in this group, but ordinarily they will cause the calves little inconvenience. The short stay in this pen is designed to prevent excessive accumulation of infective oocytes which might otherwise take place. Upon becoming 6 weeks old each calf is advanced to group 3.

Group 3, calves 6 weeks to 3 months old. This group is provided with plenty of space, including preferably both a pasture and a feeding barn. These calves, unhampered by early heavy coccidial infections, are now able to withstand the mild infections ordinarily experienced at this age.

Treatment

There is no known satisfactory treatment for coccidiosis. Affected animals should be kept in warm quarters and fed soft nutritious feeds. Sulphaguanidine gave some results in experimental animals but has not had trials at this station. Sulphaguanidine is fairly expensive and difficult to obtain but its use might be practicable for high-priced animals.

WORMS OR BLACK SCOURS

Scours caused by worms is apparently becoming more serious than formerly. This is especially true where irrigated pastures are used and most frequently occurs during the first year of the animal's life. Older animals are sometimes affected. As in the case of coccidiosis, many calves harbor a considerable number of worms and show no particular symptoms. If this worm load increases to a certain point or if the ration is insufficient, trouble results.

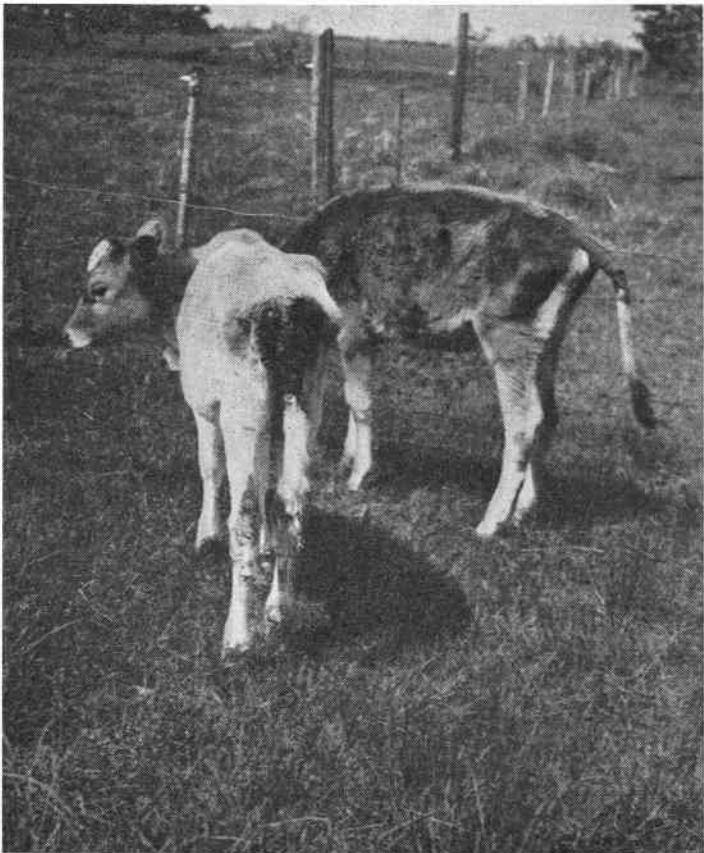
Cause

The cause of black scours is the presence of one or several kinds of small stomach or intestinal worms in those organs. Most of these worms are so small that they are difficult to see without the

aid of a magnifying glass although they may be present by the thousands. Most of these parasites are able to attach themselves to the wall of the stomach or intestine where they suck blood for nourishment. The resulting irritation produces scours. The digested blood that escapes from the walls of the digestive organs imparts a dark color to the feces; hence the expression "black scours." On reaching maturity in the stomach or intestines these parasites produce enormous numbers of eggs that pass out with the manure.

Symptoms

The symptoms of stomach- and intestinal-worm infestation are loss of condition and a more or less dark-colored diarrhea. Loss of condition is extreme. The extent of the diarrhea varies considerably,



Six-months old dairy calves infested with worms.

some calves being affected more than others. The hind parts and tail usually are soiled. There is no loss of appetite but weakness is pronounced. Animals are listless with a tendency to stand with drooping ears and head. An increased thirst is noted. Microscopic examination of the manure reveals the presence of parasite eggs.

Prevention

Prevention of severe parasite infestation is primarily a sanitary and nutritional problem. After being discharged with the manure from an infested animal, worm eggs undergo development and hatch into small worms that crawl up on grass blades and other vegetation and are eaten along with the feed. A considerable amount of moisture is necessary for this development. Thus rains, irrigation, and naturally moist areas favor worm development and crowding or overgrazing increases the chance that worms will be picked up by a susceptible animal. Management that will help to prevent these conditions will help to prevent severe infestations. Avoidance of overcrowding and overgrazing is most important. If not on pasture, calves should be fed from racks that are built on a platform or on a well-drained dry location.

Proper nutrition is important since well-fed calves do not show the effects of worms as much as those that are ill-fed. One can readily understand why this would be the case. All the worms in a live calf will take their nourishment from the calf's blood regardless of whether or not the calf is getting enough feed to grow. Recent experimental evidence also indicates that when young calves receive an adequate milk diet worms do not develop in them as they do in those receiving an inadequate amount of milk. Since milk is the natural diet for young calves this emphasizes the importance of proper nutrition in the prevention of severe worm infestation.

Treatment

Of the various drugs that have been used to treat calves infested with stomach-worms, tetrachlorethylene seems to give the best results under conditions found in this state. This drug can be purchased from most drugstores in soft gelatine capsules with directions for administration.

Phenothiazine has been used with very satisfactory results in this type of scours. The work carried on in the South was with calves that were infested mostly with eastern stomach-worms. Since phenothiazine is not very toxic it should be given trials against our western stomach-worm. One field trial indicated that it would stop

losses but treated animals did not improve very rapidly, possibly because of a low worm kill.

The phenothiazine dose recommended by the Bureau of Animal Industry, U. S. Department of Agriculture, is 20 grams per 100 pounds of live weight with a maximum dose of not more than 60 grams. This new drug can now be bought at most drug and feed stores; the price is about ten times higher than the dose of tetrachlorethylene.