KNOTTY GUT

KEY MESSAGES

1. Knotty gut is caused by the nodule worm (*Oesphagostomum columbianum*) and affects the intestines (runners).
2. It can cause serious production loss and disease on farm.
3. In some regions, abattoirs report up to 9% of runners are unusable due to knotty gut.

What is knotty gut?

Knotty gut (also called pimply gut) is a condition of the intestines caused by the larval stage of the nodule worm (*Oesphagostomum columbianum*). These lesions can range from small gritty lesions 2-3mm in diameter to pea sized cysts, rendering the affected intestines unusable as sausage casings.

Nodule worm was once widespread in summer rainfall regions, but with the advent of modern drenches and improved pastures, it is now largely confined to areas west of the dividing range in northern New South Wales and Queensland.

Nodule worms present no risk to human health, and only occasionally cause clinical disease in sheep on-farm.

Disease on farm

Nodule worm eggs and larvae are particularly sensitive to cold weather and drying out, so tend to only exist in areas with predominately summer rainfall. The adult worm lives in the large bowel and is a prolific egg layer, with each female worm producing 5,000-10,000 eggs per day. If conditions are favourable (i.e. warm and wet), then the larvae quickly develop to the infective third stage larvae on pasture. Once ingested these infective larvae burrow into the lining of the intestines where they may either remerge after 5-7 days causing little damage or enter more deeply into the lining of the gut wall and cause an intense immune reaction, resulting in the classic nodule seen at the abattoir. After the larvae re-enters the gut it travels to the large intestine where it develops into an adult. The adult worm begins to produce eggs around 42 days after ingestion of the larvae, which is longer than other worms like barber's pole worm, which can begin egg laying within 21 days.

Image provided by Gerald Marcus from the OLIVER database of the Faculty of Veterinary Science, University of Sydney

Lightly infected sheep may show no signs of disease. Heavy infections, are mostly seen in weaners, resulting in diarrhoea, sometimes containing mucous and blood. Some badly affected sheep may have a humped appearance, wasting and a stiff gait.

How is it spread?

Nodule worm is usually confined to the summer rainfall regions of northern New South Wales and Queensland. In the higher summer rainfall regions where barber's pole worm is a problem, the drenching required to control barber's pole worm usually means that nodule worm is not a problem. The worm tends to be problematic where drenching is less frequent west of the Dividing Range, but can be an issue in areas with unseasonal wet summers. In the winter rainfall areas of southern Australia, the large bowel worm (*Oesphagostomum venulosum*) is more common, however this worm does not cause cysts, like nodule worm and is much less harmful.

Disease picture at the abattoir

Nodule worm causes losses at the abattoir through the damage caused to the runners making them unusable for sausage manufacture. Abattoirs which source sheep from the northern NSW regions, have seen condemnation levels as high as 9% of runners.

Treatment

In heavy, nodule worm infections, worm egg counts may be 500-1000 eggs per gram (epg). Sheep showing clinical signs of nodule worm infection or which have egg counts greater than 100 epg in weaners or 200-300 in adults should be drenched with a broad spectrum anthelmintic. Resistance of nodule worms to drenches is not thought to be common but all drenches should be checked 10-14 days after use (through faecal egg counts), to ensure that they have been effective.

The larval stage of nodule worm appears to cause the most damage to the gut. This means sheep may show signs of clinical disease before they are passing large numbers of eggs.

Treatment with an effective drench will eliminate larval and adult stages of nodule worm, but damage in the form of cysts is permanent.

Prevention

Prevention is achieved by a seasonal drench in late winter as there will be a lower chance of reinfection and the majority of larvae ingested in autumn will have emerged from their nodules.

Drenching then will assist in preventing build-up of infective larvae on pasture over spring and summer.

What to expect from prevention program

The damage to the intestine by larvae is permanent so an effective drench program may take some years to reduce the condemnation level at abattoirs.

For more information about worm control in your region visit: ***www.wormboss.com.au***