

Parasitic Gastroenteritis (PGE) and Lungworm in Cattle

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Parasitic gastroenteritis (PGE; gut worms) usually affects growing cattle grazing contaminated pasture during their first summer at grass, typically dairy calves where the same pastures are used for this class of stock every year. Typically these fields too small, or are away from the home farm and not suitable for the main dairy herd. This pasture has been grazed by young cattle during the previous season with build up of infection.

Parasitic gastroenteritis (PGE; gut worms) - key points for dairy herds:

- growing cattle
- first summer at grass
- contaminated pastures
- same pastures are used for this class of stock every year



Fig 1: Parasitic gastroenteritis is more often encountered in dairy calves grazing contaminated pasture during their first season.



Fig 2: Parasitic gastroenteritis affecting a growing dairy heifer grazing contaminated pasture during its first summer at grass

In spring-calving beef herds, early season pasture contamination of developing larvae is ingested by immune adult cows which results in restricted egg output and subsequent low larval challenge to the calves later in the grazing season. Autumn-born beef calves graze little before housing and are generally weaned at turnout before larval challenge occurs during the next summer. Problems could arise when these weaned beef calves graze contaminated pasture during their second season if they have not gained sufficient immunity as young calves during the previous autumn.

PGE - key points for beef herds:

- weaned autumn-born beef calves
- contaminated pasture during their second season
- insufficient immunity as young calves



Fig 3: Parasitic gastroenteritis is more often encountered in weaned autumn-born beef calves grazing contaminated pasture during their second season.



Fig 4: Parasitic gastroenteritis in a weaned autumn-born beef yearling grazing contaminated pasture during its second season.

OSTERTAGIOSIS

Disease is caused by maturation of *Ostertagia ostertagi* larvae (Ostertagiosis) in the abomasum (fourth stomach). Unlike disease caused by lungworm and liver fluke, PGE does not usually cause clinical disease in adult cattle.

Disease caused by *O. ostertagi* is divided into two forms, type I and type II.

Type I

Type I Ostertagiosis is typically seen during late summer/early autumn caused by the ingestion and immediate maturation of very large numbers of infective larvae by susceptible calves or yearlings. Disease is more severe after dry early summer months followed by wet weather during August/September because of mass emergence of larvae and ingestion by grazing cattle. There is loss of appetite with sudden and profuse green diarrhoea which affects most animals within the group within several days. In growing cattle economic losses result from a marked loss of body condition (up to 10 per cent bodyweight; 20 to 40 kgs in growing cattle) and convalescence is protracted with extended periods to slaughter weights (up to three months). Sudden death caused by PGE is rare. Losses in a severe outbreak of PGE in growing cattle could reach £100 per head.

- during late summer/early autumn
- very large numbers of infective larvae
- loss of appetite
- sudden and profuse green diarrhoea
- most animals within the group affected

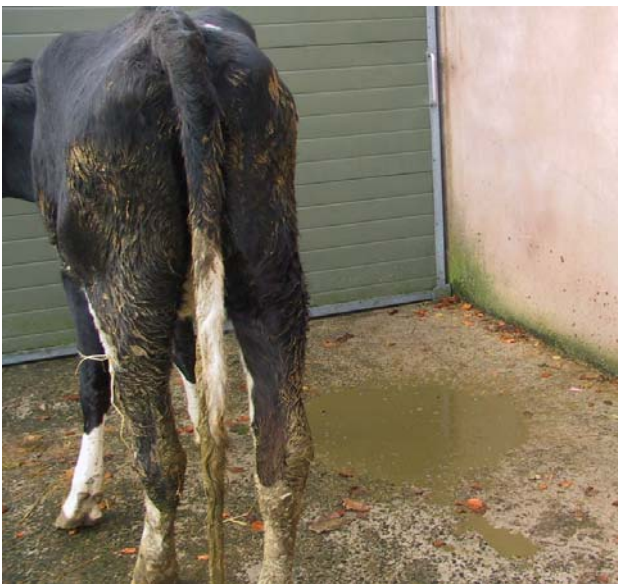


Fig 5: There is loss of appetite with sudden and profuse green diarrhoea which affects most animals within the group

Type II

Infective larvae ingested from pasture from autumn onwards do not mature to adult worms immediately but undergo a period of delayed development within

the stomach wall and then emerge together during the late winter months to cause disease. The treatment response in type II disease is poor. This form of the disease is prevented by routine anthelmintic treatment at housing during late autumn/early winter.

- Infective larvae undergo a period of delayed development within the stomach wall
- emerge together during the late winter months
- profuse unresponsive diarrhoea



Fig 6: Profuse unresponsive diarrhoea in February caused by type II ostertagiosis.

Diagnosis

Diagnosis is based upon the grazing pattern and history of previous anthelmintic treatments. Faecal egg counts are generally high in type I but can be absent in type II disease. Blood tests can be used to determine whether there is significant parasitic damage to the abomasal lining.

- Grazing pattern
- Previous anthelmintic treatments
- Faecal egg counts
- Blood tests

Treatment

Prompt anthelmintic treatment is essential for both types of disease. While type I disease is susceptible to all anthelmintics, a group 3 (ivermectin/milbemycin group) should be used for type II disease.

Disease prevention

Parasitic gastroenteritis disease control must be carefully considered in the herd health plan alongside lungworm prevention. An annual rotational pattern (cattle/sheep/crops) can rarely be achieved on livestock farms.

- Treatments detailed in herd health plan alongside lungworm prevention
- Annual rotational pattern can rarely be achieved on livestock farms

Clinical disease can be a major welfare concern in type II disease especially because there are proven cheap preventative programmes.

LUNGWORM

Clinical signs

Early clinical signs in growing cattle (and dry dairy cows) include an increased respiratory rate at rest, but more noticeable, frequent coughing especially after short periods of exercise. Severely affected cattle may be reluctant to move, stand with their head down, neck extended, and cough frequently.



Fig 7: Cattle severely affected by lungworm may be reluctant to move, hold their head down, neck extended, and cough frequently.



Fig 8: In the dairy herd, a reduction in bulk tank is noted along with frequent coughing when cows are walking to and from the milking parlour.

In the dairy herd, a reduction in bulk tank is noted along with frequent coughing when cows are walking to and from the milking parlour. Infection of susceptible cattle can result in a dramatic reduction

in milk yields of up to 50 per cent, with possible deaths. With very large larval numbers on pasture, disease can occur in adult cattle vaccinated as calves but not subsequently challenged for several years. Lost milk production could reach £1.50 to £3 per head per day with recovery taking 10 to 20 days after treatment.

- Frequent coughing especially after short periods of exercise
- Increased respiratory rate at rest

Diagnosis

Diagnosis of patent lungworm infestation is based upon the demonstration of lungworm larvae in the faeces.



Fig 9: Lungworm larvae in the faeces of an affected calf

Prevention

Lungworm prevention is based upon development of immunity and is best achieved by vaccination. Periods of natural exposure to lungworm (and other parasites) during the grazing season to allow for immunity to develop, then infection controlled by strategic anthelmintic treatments, is a very risky strategy for lungworm prevention but would control PGE in most situations. Therefore, PGE is often a secondary consideration to the more important lungworm disease.

- Vaccination
- Strategic anthelmintic treatments is a very risky strategy

Where vaccination of cattle for lungworm is undertaken planned anthelmintic treatments during late summer (July to September) can work to control PGE but mistakes can happen and failure to treat at the scheduled time may result in disease and costly weight loss in the cattle. No real challenge during their first grazing season at pasture, and failure to develop immunity, renders cattle susceptible to lungworm during their second season at pasture especially if weaned beef calves graze the same

fields every year (for example rented ground away from the main farm etc).

Health planning by the farmer's veterinary surgeon is very important to prevent PGE and lungworm disease and may include both strategic anthelmintic

treatment and lungworm vaccination. A detailed knowledge of the individual farm set-up is essential to tailor the best control programme for PGE and lungworm especially involving beef calves during their second grazing season.

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