Parasitic gastroenteritis (PGE) in beef cattle

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 are 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.

In spring-calving beef herds, early season pasture contamination of developing larvae is ingested by immune adult cows (Fig 1) 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 (Fig 2) if they have not gained sufficient immunity as young calves during the previous autumn.

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. These weather conditions would have applied in 2006 but not 2007. There is loss of appetite with sudden and profuse green diarrhoea (Fig 3) 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 £50 per head.

**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.

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.

**Treatment**

Prompt anthelmintic treatment is essential for both types of disease. While type I disease is susceptible to all anthelmintics, a group 3 (avermectin/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.

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.

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 PGE during their second season (Fig 4) at pasture especially if weaned beef calves graze the same fields every year (for example rented ground away from the main steading etc).

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

Health planning by the farmer’s veterinary surgeon is very important to prevent PGE and lungworm disease (Fig 4) 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 (Fig 5).