Parasites can cause over 50% of animal disease problems, which can lead to serious illness and even death which consequently costs the farmer. Thus controlling parasites should form an integral part of a herd health plan. There are four key areas to target:

1. Parasitic gastroenteritis
2. Lungworm
3. Fluke
4. Ectoparasites

This article aims to provide a brief overview into the main methods of controlling these bovine parasites. The aim of effective nematode parasite control is to limit exposure of susceptible cattle to significant burdens of ineffective larvae on pasture. Some exposure is desirable as it creates innate immunity and reduces the dependence upon anthelmintics. Vets and farmers should be aware of the COWS principles.

1. Parasitic gastroenteritis

The most important nematode in cattle is Ostertagia ostertagi. Type I is a disease seen in late summer and autumn of their first grazing season. Type II disease is occasionally seen in yearling cattle in the late winter or spring following their first grazing season. Adult cattle will not normally require treatment, as there is a strong age-related immunity. Adult cattle therefore have a cleansing effect on worm-infested pasture as a limited number of worm eggs will be produced.

**Beef Cattle**

Spring born calves at foot generally do not require preventative treatment strategies for worms as long as they are with their mothers (due to the cleansing effect the mother has on the pasture). Once the calves are weaned, worm control will be required. Weaned autumn born calves and spring born calves in their second season are susceptible to worms and a control programme should be put in place.

**Dairy Cattle**

In a dairy system, cows do not graze alongside their calves which obviously effects the epidemiology of PGE. Therefore a control programme needs to be set in place for the first grazing season.

Calves grazing on clean pasture do not develop sufficient immunity and they remain susceptible to disease, therefore the best policy is to permit sufficient exposure to larval infection to stimulate immunity (without causing loss of production). **When safe pasture is not available**, then worming should be given 3 weeks prior to turnout. In the case of non-persistent wormers, 3 weekly-interval dosing is recommended. The choice of anthelmintic depends on labour, handling facilities, weight of cattle, proposed cattle sale dates, availability of safe pasture and price.

**When safe grazing is available**, PGE can be controlled by a single worming treatment immediately before turnout.

**Types of Wormer**

- Benzimidazoles (white drench)
- Macrocyclic lactones (clear drench)
- Levamisoles (yellow drench); not effective against dormant larvae, so not used to prevent type II disease
2. Lungworm

Caused by *Dictyocaulus viviparous* and leads to parasitic bronchitis. It can be treated using broad spectrum anthelmintics (and antibiotics for secondary infection). Prevention relies on one of two strategies;

1) Suppression of infection – anthelmintic treatment used throughout the grazing season, however cattle are susceptible to disease.

2) Induction of immunity – oral vaccination with gamma irradiated L3. Calves over 2 months old are given 2 doses, 4 weeks apart (second dose before turnout). This tends to be a more reliable control programme as the dose and movement programmes used to control PGE may not prevent lungworm because of its unpredictable nature.

3. Fluke

Fasciolosis is a parasitic disease commonly seen in beef cows grazing wet pasture (though can affect dairy cattle). *Fasciola hepatica* can cause poor milk yields, infertility, excessive weight loss, anaemia and chronic diarrhoea; it is estimated to cost the cattle industry £23 million annually.

**Control**

Control is founded upon strategic flukicide treatments. Epidemiological data indicates how much of a risk fluke will be that year in a certain area. During low risk seasons, treatment can be used in January to kill mature flukes in at risk cattle. When it’s a high risk year, additional treatments may be necessary in October/November (plus January treatment with a different drug).

Fencing off snail habitats is rarely practicable and is cost prohibitive in many cases.

- Triclabendazole is effective at killing all stages of fluke from several days.
- Closantel is effective against immature flukes from four weeks old.
- Nitroxynil and oxyclosanide are less effective against immature flukes and should be used in the treatment of adult flukes in January.
- Clorsulon is effective against mature flukes only, should be used in January.

The response to flukicide treatment is slow and treated cattle should be moved to clean pastures wherever possible.

4. Ectoparasites

**Flies**

Heavy burdens can cause superficial skin damage and irritation as well as transmitting disease such as infectious bovine keratoconjunctivitis and summer mastitis. Insecticide treatments such as synthetic pyrethroid ear tags and pour on pyrethroid products should prevent infestations seen commonly in the summer months.

**Lice**

Biting lice such as *Bovicola bovis* and sucking lice such as *Linognathus vituli* spend the entirety of their life on the host, causing pruritis, coat damage and anaemia. Treatment can’t be using endectocides or pyrethroid pour ones.

**Mange**

Less common than lice but is normally seen in late winter/spring when cattle in poorer condition. It is caused by mites such as *Chorioptes bovis* (surface mite) and *sarcoptes scabei* (burrowing mite causing scabies). Control is similar to that of lice in that it can be treated using endectocides or permethrin pour on.