Autumn Edition • 2023

ANIMAL HEALTH IRELAND

Beef HealthCheck Newsletter

NATIONAL BEEF HEALTH PROGRAMME
Animal Health Ireland, 2-5 The Archways, Carrick-on-Shannon, Co. Leitrim, N41 WN27
Beef HealthCheck
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Beef HealthCheck Programme Update

Dr Natascha Meunier, Beef HealthCheck Programme Manager

Autumn is the ideal time to review parasite control practices going into the housing period to ensure optimum performance while animals are in the shed. While liver fluke levels have generally remained low for the last few years, this is very farm specific depending on the history of fluke on farm, management practices and the number of wet, muddy areas in fields. The wet summer this year will also mean a higher fluke risk for some areas. Farmers and their veterinary practitioners can access and review their Beef HealthCheck slaughter data directly through **beefhealthcheck.icbf.com** which will have a record of health data for all animal slaughtered at participating meat factories since the start of the programme in 2016.

For 2023 the end of September, health information has been collected from 624,900 cattle. Of these 43% were steers, 30% were heifers, 7% young bulls, and the remainder were cows and bulls. Liver fluke damage has been seen in 6.5% of these animals and live liver fluke parasites in 1.2% of animals, which are slightly lower levels than last year. Pneumonia was seen in 1.7% of cattle and liver abscesses in 3.7%. In steers, liver abscess levels were 3.9% and this was lower in heifers at 2.8%. Autumn usually sees a slight increase in the number of animals presenting with liver abscesses at slaughter. These are often related to animals on high concentrate feeding and if a large number of animals in the herd are presenting with this at slaughter, it should be investigated to prevent performance losses on finishing cattle.

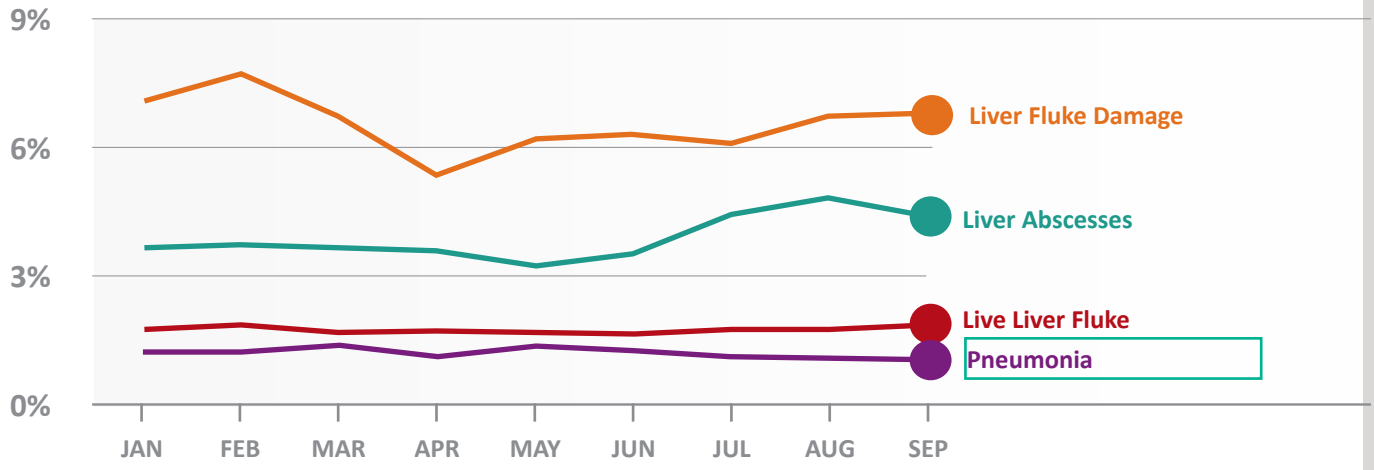


Figure 1. Percentage of animals captured as part of the Beef HealthCheck programme with slaughter lesions.

Beef HealthCheck Programme Update

In 2023 so far, 22,020 herds have been recorded as part of the Beef HealthCheck programme. This year, 41% of these herds had at least one animal showing signs of liver fluke damage when sent to slaughter, with 12% of herds having one or more animals with an active infection seen. Nationally, the north-west counties have the highest numbers of herds affected by liver fluke, where between 62% and 78% of herds had signs of liver fluke at slaughter (Figure 2). On the other hand, there are 19% of herds that have not shown any evidence of liver fluke in animals that are presented for slaughter in the last three years. It is possible that these farms are currently free of liver fluke and may not need flukicide treatment but this should be discussed with your veterinary practitioner.

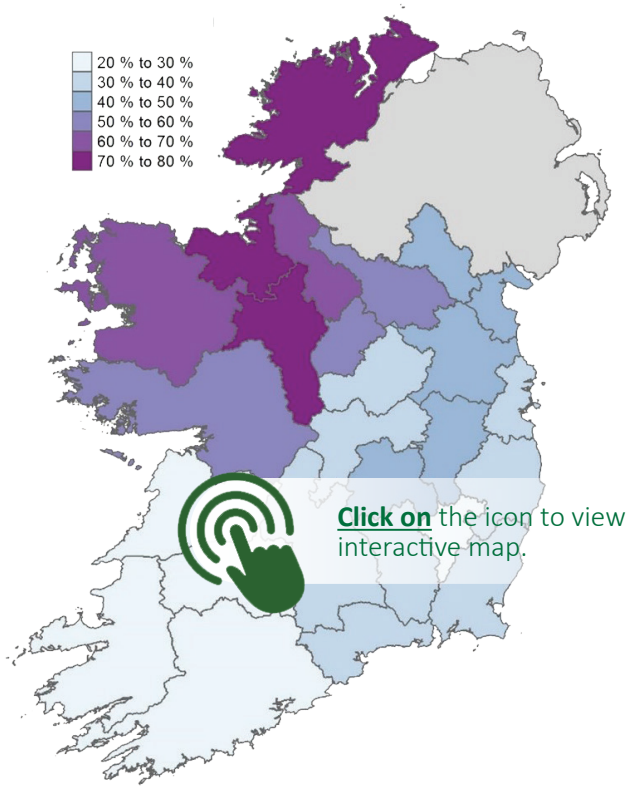


Figure 2. Percentage of herds with at least one animal showing signs of liver fluke at slaughter in 2023 to date.

Poor health in animals is stressful on the system and makes growth and production less efficient. Analysis of the Beef HealthCheck data has shown that when other factors are accounted for, heifers and steers without evidence of liver fluke infection were on average 38 days younger at slaughter. Similarly, heifers and steers without evidence of liver abscesses or pneumonia were, respectively, at least 8 and 11 days younger at slaughter. Recent figures from Teagasc suggest that each day reduced from slaughter age of these animals reduces emissions of greenhouse gases by 5.6kg CO2e and contributes at least 70c to net margin- important gains given the current industry focus on sustainability.

For the period 2016-2022, the potential margins lost nationally associated with liver fluke in heifers and steers due to older finishing ages was €24.3 million. However, for the same period, due to the decreasing prevalence of liver fluke, €17.75 million euro has been potentially cumulatively saved as an improvement in farm margins compared to the baseline 2016 year. Likewise, 192.8 ktCO2 was associated with the increased age at slaughter due to liver fluke for the period 2016-2022, of which 140.7 ktCO2 were abated during this period due to the recorded decrease in prevalence in heifers and steers.

Weanling Pneumonia
A Significant Cost to Farmers

Michelle McGrath, Assistant CellCheck Programme Manager

Respiratory disease, or pneumonia, as it is more commonly known, can be a significant cost to farmers. Weaning in particular, usually around 5 to 9 months of age in spring born sucklers, can be a stressful time when the immune system is suppressed and calves are more susceptible to disease. Calves that suffer repeated and/or severe bouts of pneumonia may end up stunted for life. Such calves may appear healthy after the signs resolve but do not achieve the same growth rates as their healthy comrades. The cause of this poor performance is permanent lung damage and pleurisy from pneumonia.

Pneumonia is a complex problem and is often referred to as being a 'multifactorial disease'. This means that besides infectious agents, a number of environmental and management factors and their interactions will determine the occurrence and severity of disease (Figure 3). Cattle succumb when the disease pressure overcomes their immune system. There is no single factor that will control pneumonia and an appreciation of the animal-pathogen-environmental interactions is key to understanding the success or failure of control strategies. Managing just one of these issues will not prevent or control pneumonia – they must be tackled together.

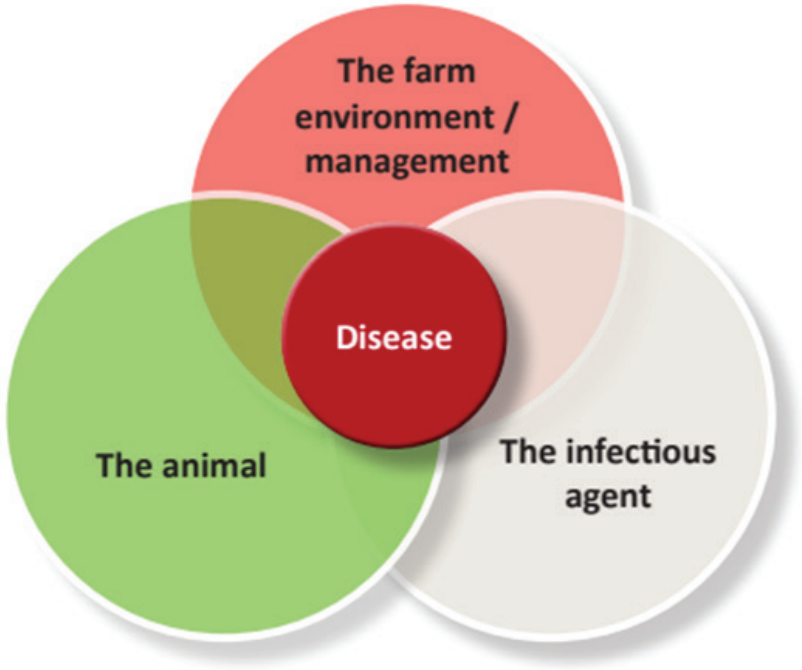


Figure 3. The most important influences on infectious diseases.

1. Infectious agents are the small organisms (mainly bacteria, viruses and parasites) that are capable of causing an animal to become sick. However, exposure to infectious agents doesn't necessarily cause an animal to become obviously ill, and they can often be found in and around healthy animals.
2. Not all animals will get sick when exposed to an infectious agent. The outcome will depend on the balance between the severity of the challenge by the infectious agent and the status of the animal's immune system.
3. The environment influences both the animal and the infectious agents. For example, damp conditions can favour survival of some infectious agents as well as affecting animal behaviour and forage quality, which all contribute to the risk of pneumonia. In some situations, infectious agents can build up in the farm environment to such high levels that the immune system can be overwhelmed (even when it is not compromised). Environmental factors that affect incidence of pneumonia include poor air quality, draughts, humidity and high population density, with the risk of respiratory disease increasing with crowding and mixing of age groups. Any building that contains animals of significantly different ages or that is continuously stocked creates a significant increase in the risk of an outbreak of pneumonia within that building.

Infectious agents and clinical signs

Initial signs of pneumonia can be non-specific and include being off form, dullness, reduced feed intake and lack of gut fill. Other signs may include fever (over 39.5°C), increased respiratory rate, coughing, watery nasal discharge and severe breathing difficulties. Early diagnosis is crucial as by the time these later signs are noted the disease is advanced and treatment is less likely to be successful as damage to the lungs may be irreversible. If you suspect pneumonia, consult your veterinary practitioner for advice on diagnosis and treatment.

The viruses that most commonly cause pneumonia are bovine respiratory syncytial virus, (BRSV), parainfluenza virus 3 (PI3V), bovine herpesvirus 1 (BoHV-1; the virus that causes infectious bovine rhinotracheitis [IBR]) and bovine coronavirus (BoCV). BRSV and PI3V are more commonly a problem in calves and young stock. Not all infected animals show obvious signs of disease (sub-clinical infection), but may still experience reduced growth and production.

IBR is a particular challenge because once an animal becomes infected, it becomes a carrier for life despite developing immunity. The virus establishes a lifelong latent infection in the nerve cells within the animal's brain. At times of stress such as transport, calving, nutritional stress, mixing stock etc, the virus may be reactivated and can be re-excreted leading to new infection in other susceptible cattle, which in turn will also become latent carriers. In breeding herds, the source of infection for young stock is typically adult carriers and for this reason whole herd vaccination is required for long term control, rather than just vaccinating young stock.

The bacteria involved in pneumonia include *Mycoplasma bovis*, *Pasteurella multocida*, *Mannheimia haemolytica* and *Histophilus somni*. Bacterial infection often follows a viral infection, and can cause severe damage to the lung tissue if left untreated or if treatment is started too late. *Mycoplasma bovis* can cause pneumonia in both adult cows and in calves from a young age to older weaned calves. Diagnosis is difficult without lung samples, taken from either a lung wash or post-mortem.

Mycoplasma bovis is most likely to be introduced by an infected, carrier animal, so good biosecurity is essential to protect your herd. Where *Mycoplasma bovis* is already present in a herd, many of the general principles of infectious disease control apply. Ensuring adequate ventilation of sheds where animals are housed, cleaning

and disinfection of the sheds and feeding equipment, not feeding colostrum from affected cows, and regularly observing animals, with emphasis on early detection of infection will help control spread of infection. Reducing concurrent stressors e.g. overcrowding, mixing animals of different age groups, addressing other potential causes of immunosuppression e.g. presence of concurrent disease, is also important. Isolation of infected animals (housing them away from the rest of the herd, in a separate airspace), will help break the infection cycle.

The role of vaccination

Currently vaccines are available to protect against many infectious causes including, BoHV-1, BRSV, PI3V, BoCV, *Mannheimia haemolytica* and *Histophilus somni*. Unfortunately, there are no vaccines available for other bacteria such as *Pasteurella multocida* or *Mycoplasma bovis*. Vaccines are an extremely useful tool to ensure that the majority of animals become immune to the infectious agent before the risk of a disease outbreak, thereby avoiding the losses associated with animals becoming sick and unproductive. Vaccines take time to provide sufficient protection so ideally farmers should plan to use them well in advance of when their animals need protection. In some instances, vaccination does not prevent infection but decreases the severity of clinical disease if an animal becomes infected and/or decreases shedding of infectious organisms. Vaccination protocols are an essential part of herd health planning and should be developed by the farmer and veterinary practitioner together. The exact programme will differ for each farm, depending on which infectious agents you want to protect against. It is important to remember that vaccination is only one part of disease prevention and cannot compensate for poor management or insufficient attention to biosecurity.

The importance of good Biosecurity

Biosecurity is simply a technical term for preventing and controlling diseases. Since many respiratory diseases are spread through the movement and mixing of infected animals, you can reduce their spread and impacts by curtailing the inward movement of animals. Biosecurity has become an essential aspect of farming. With the diversity of management practices and disease profiles found on farms, it is crucial to develop a biosecurity plan that suits your system. This should involve veterinary advice and active participation from farm staff to address the particular risks your herd may face. One of the greatest threats to the health status of an established herd is the introduction of new animals. Additionally, newly introduced susceptible animals can also face potential disease risks when integrated into an existing herd. If you do need to purchase, buy in as few animals, and from as few herds, as possible. The risk of disease being introduced increases with more animals, and from multiple sources.

IBR - the disease and its control

Dr Maria Guelbenzu, Programme Manager for BVD and IBR, Animal Health Ireland

What is IBR?

IBR (Infectious bovine rhinotracheitis) is a highly infectious respiratory disease caused by a virus called bovine herpes virus-1 (BoHV-1). IBR has worldwide distribution, except for a few European countries which have successfully eradicated it, and in addition to the impact on health and productivity also affects the trade of animals, semen and embryos.

In Ireland, IBR is mostly involved in respiratory infections, being one of the viral agents involved in the bovine respiratory disease (BRD) complex. Infection with this virus is widespread, with an estimated 75-80% of both beef and dairy herds containing animals that have been infected.

Clinical signs

Cattle with IBR typically have a watery discharge from the nose and eyes and may present with red noses and eyes. In severe cases, ulcers develop on the muzzle and lining of the nasal passages, which can develop scabs as they heal. These changes may extend into the windpipe, leading to coughing and noisy breathing if severe enough. Affected animals may be dull, off their feed and have a high temperature (107-108°F/41.7-42.5°C).

The severity of the clinical signs is influenced by a number of factors, including the husbandry system, secondary infections, degree of stress and age. Disease is typically milder in dairy herds and more severe in beef units in the absence of immunity. Bacterial infections of the airways and lungs alongside IBR also results in more severe disease. While most affected cattle will recover, a low percentage will die. While infection is relatively uncommon in very young calves, infection may spread beyond the airways to the gut (producing scour), brain (producing nervous signs) and other internal organs and as a result death rates in this age group are often higher than in older cattle.

Infection with BoHV-1 has also been associated with abortions, although available evidence from the regional veterinary laboratories (RVLs) suggests that this is a sporadic event in Ireland.

IBR, the disease and its control

How does the virus spread between animals and herds?

The virus is mainly spread directly by close contact between animals. The nasal discharge from infected animals can contain very high levels of virus and as a result infection can spread rapidly through a herd when susceptible cattle come in contact with infectious cattle or items contaminated by them, such as feeders and drinkers. It can also be shed from the reproductive tract, including semen, resulting in venereal transmission. Airborne spread may also occur over distances of up to 5m. Indirect transmission within or between herds can also occur through movement or sharing of contaminated facilities, equipment or personnel. The introduction of latently infected carriers (see below) is a particular risk for introduction of infection into herds.

Latently infected carriers

Recovery following initial infection is associated with the development of immunity, but this does not eliminate the virus. Instead, the virus establishes lifelong latent infection in the nerve cells within the animal's brain. During this period the latent carrier is not shedding virus. However, at times of stress such as transport, calving, nutritional stress, mixing stock etc, the virus may be reactivated and can begin to multiply and be re-excreted, generally from the nose and eyes. This leads to new infection in other susceptible cattle, which in turn will also become latent carriers (Figure 4). In breeding herds this can result in transmission of the virus from cows to calves. In drystock units it can result in outbreaks where animals are brought together, often from different sources, with some being carriers and others susceptible to infection.

These latently infected carriers play a central role in maintaining IBR in infected herds, where they act as a reservoir of infection.

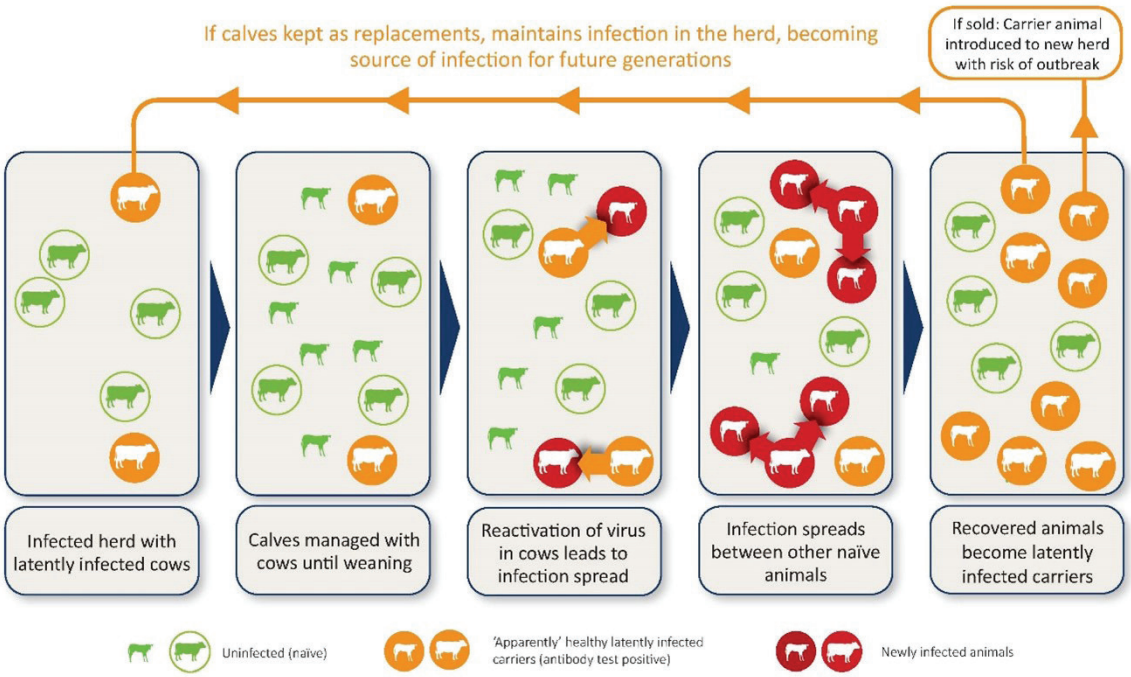


Figure 4. Spread of BoHV-1 in non-vaccinating suckler herd following reactivation and shedding of virus from carrier to naïve (susceptible) animals

IBR: the Disease and its Control

Vaccines

There are several IBR vaccines containing either live or inactivated virus licenced for use in Ireland, all of them 'marker' gE-deleted vaccines. This means that, when used with an appropriate test, it is possible to distinguish between animals positive due to vaccination and animals positive due to having been infected with IBR.

IBR vaccines are very good at preventing clinical signs and reducing the amount of virus shed following infection and reactivation, but they do not prevent field viruses from causing a limited infection.

Vaccination makes it less likely that a latent carrier will reactivate and shed the virus, and less likely that a non-immune animal will become ill and spread the virus after exposure (Figure 5). Vaccination of negative herds can also be done as a way to reduce the impact of virus introduction, should this occur.

Since animals remain infected for life, older animals in a herd are more likely to be latently infected. Therefore, if we want to prevent those animals being the source of infection for other, typically younger stock in the herd, we must include them in our vaccination plan.

Regular whole herd vaccination (including all breeding animals and according to manufacturers' recommendations and with the herd's veterinary practitioner's advice), will lead to a decrease in the percentage of infected cattle in a herd over a period of time as older, positive cattle are displaced by younger, uninfected stock. This way, we reduce the risk of re-activation of the virus by positive, typically older cattle and over time, in conjunction with appropriate measures to prevent introduction of infection, herds can become free.

Decisions on which product and vaccination strategy to use in a particular situation should be made in consultation with your veterinary practitioner. Always read the datasheet provided with the vaccine to make sure that it is stored and used correctly, including being given by the correct route (which may be up the nose, into the muscle or under the skin).

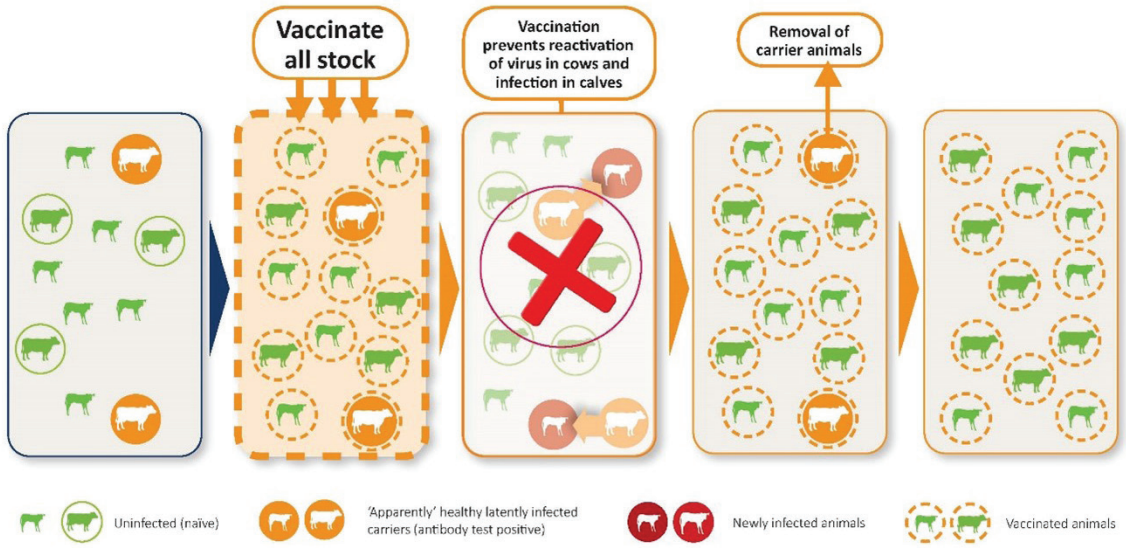


Figure 5. IBR control in a herd vaccinating all stock.

IBR: the Disease and its Control

Purchasing for store, finishing or export markets

IBR is a recognised part of the 'respiratory disease complex' in herds where animals are purchased from multiple sources and mixed after purchase. Transport and mixing can result in outbreaks of IBR following reactivation of latent infection and spread to susceptible animals. Vaccination, (ideally in advance of movement or on arrival on farm), along with measures to reduce stress during transport and following arrival can help can help control these outbreaks.

IBR in herds that breed bulls for A.I.

Animals that have antibodies to IBR (even if as a result of vaccination) are legally prohibited from entering semen collection centres. These herds are recommended to have eradication programmes in place (if not already IBR-free). Potential AI sires should not be included in vaccination programmes and where these are in place, careful planning to prevent accidental exposure to vaccine virus is required.

Further information

Detailed information leaflets on IBR and herd biosecurity, along with answers to frequently asked questions on IBR and specific guidance for herds with bull calves that are potential AI sires, are available **here**.

https://animalhealthireland.ie/programmes/ibr/

Parasite Control at Housing 2023

Dr Natascha Meunier, Beef HealthCheck Programme Manager

The housing period is an ideal time to treat cattle for parasites. Cattle are infected with internal parasites such as lungworm, stomach or gut worm, and liver fluke while on pasture. As they are not grazing for a few months over the winter, they will not be reinfected by any new worm or fluke parasites. Effective treatment at housing can therefore keep animals virtually free of worms and liver fluke until they are back on pasture. Killing adult worms at housing will also reduce pasture contamination with worm eggs in the following spring. Lice and mite issues can surface at housing and these should also be considered in the treatment plan.

Parasite burdens can be associated with economic losses even if there are no obvious clinical signs. For example, after analysing the Beef HealthCheck health data from slaughter, it was found that animals that had livers damaged from liver fluke were on average 38 days older at slaughter compared to animals with healthy livers. This points to an association between the efficiency of production and disease. It is good practice to measure the performance of your animals using growth rates, fertility, body condition scores or milk yield. If animals are meeting their targets, then your parasite control plan is likely to be effective, but a review may identify areas for improvement or cost savings. Always consult with your veterinary practitioner for an effective parasite control plan.

Liver fluke

Liver fluke can take 8-12 weeks to develop into adults once cattle are infected, so at the time of housing immature liver fluke may be present. Not all flukicides are effective against immature liver fluke and the flukicides can be grouped into three main types:

- Flukicides that kill adult liver fluke only (e.g. albendazole, clorsulon or oxyclozanide). If only one treatment is given, this should be 10-12 weeks after housing. It might be preferable to treat earlier at housing and then follow up with a second treatment if the liver fluke burden is expected to be high to prevent production losses.
- Flukicides that kill juvenile fluke from six to eight weeks of age and adults (e.g. closantel, nitroxynil or rafoxanide). If only a single treatment is given, this should be delayed until at least 6-8 week after housing.
- Flukicides that kill all stages including early-immature fluke (triclabendazole). These can be given from 2 weeks after housing.

Each farm has a different risk for liver fluke so discuss any treatment plan with your veterinary practitioner, taking the farm history into account. Previous liver fluke reports from the Beef HealthCheck programme for reviewing animals sent to slaughter from your farm are available online on the ICBF website. Information on how to access these is available **here**.

Parasite Control at Housing

Roundworms

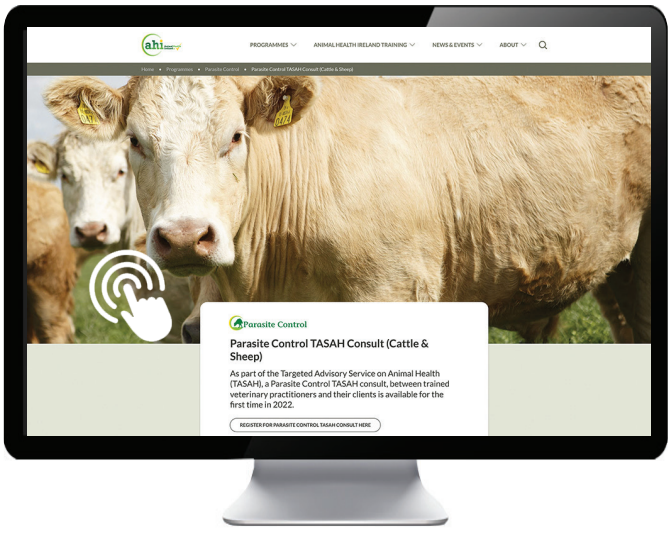
Stomach and gut worms, as well as lungworms (collectively known as roundworms) can usually be controlled by any of the three main anthelmintic (wormer) groups. The exception to this are the larvae of the stomach worm Ostertagia, which become dormant in the stomach wall over the winter period and can cause scours in the later winter/ early spring when they continue their development. Products containing levamisole (yellow drench) are not effective against these inhibited larvae; instead, use a product from the clear drenches (macrocyclic lactones) or certain white drenches (benzimidazoles).

Rumen fluke

Infection with rumen fluke does not usually cause clinical disease. If rumen fluke eggs are detected on a faecal egg sample and the animals are healthy, they do not usually require treatment. As there is only one product available in Ireland for treatment for rumen fluke, always discuss whether treatment is necessary with your veterinary practitioner.

Lice and mites

Closer contact between animals at housing allow lice and mites to spread easily between animals. The longer hair coats and lack of UV light create a good environment for them to thrive. Lice and mites are normally treated with either an avermectin (clear drench) injection or pour-on product, or a topical pyrethroid. These medicines have no effect against lice eggs and once these hatch, an animal may become re-infected. A re-treatment later in the season may also be needed if the burden of infection is very high. All animals in a group should be treated at the same time to prevent reinfection from untreated animals. If a treatment does not seem to be effective, consult with a veterinary practitioner to identify the parasite involved and develop a tailored treatment plan.



https://animalhealthireland.ie/programmes/parasite-control/

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Animal Health Ireland, 2-5 The Archways, Carrick-on-Shannon, Co. Leitrim, N41 WN27

Phone: 071 9671928 | Email: ahi@animalhealthireland.ie | Website: www.animalhealthireland.ie