The Role of the Farm Vet in Promoting Responsible Anthelmintic Use to Reduce Gastrointestinal Nematodes in Livestock

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What is the Issue?

Anthelmintic resistance is currently a **major issue** in regard to the control of parasites, in particular, gastrointestinal nematodes, and resistance has been found in **most classes** of anthelmintics[1] (Figure 1). Many grazing livestock, including cattle and sheep, will be exposed to GINs and if infected, can subsequently be affected by **parasitic gastroenteritis**, this parasitic infection can negatively **impact economic output** by reduced milk and beef yield, and even cause death in young calves[8].

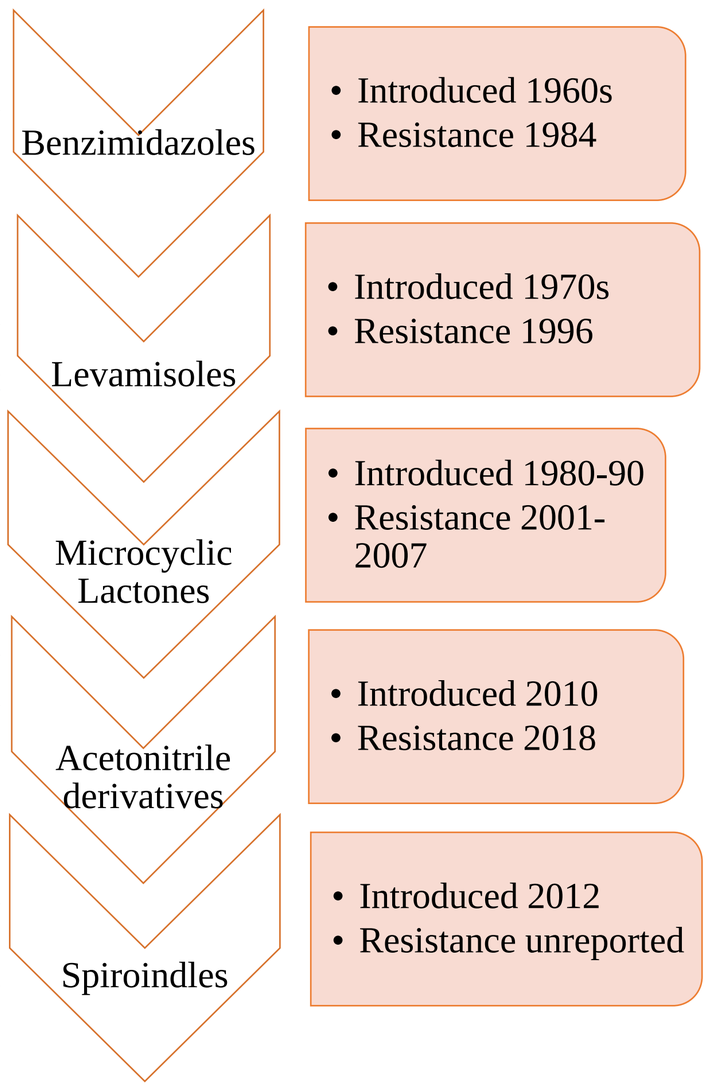
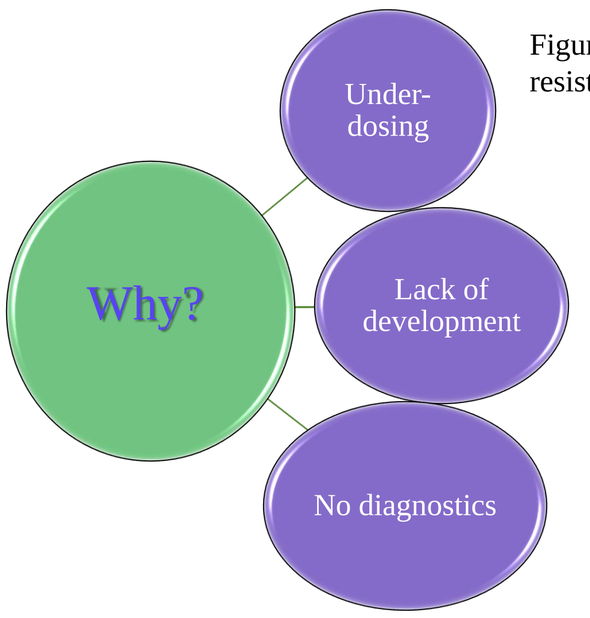


Figure 1. Timeline of anthelmintic introduction and resistance in the UK[1].



Subsequently, the vet is involved in trying to rectify this situation by means such as diagnostics, education and prevention strategies to ensure anthelmintics are used responsibly and future resistance is prevented.

Education

Often farm vets can build up a rapport with farmers enabling them to educate on ways to prevent anthelmintic resistance and **on-farm strategies** that can be implemented in the future. However, due to most anthelmintics being POM-VPS, farmers will often get anthelmintics from agricultural merchants. This can increase the risk of ineffective and unnecessary use, bypassing advice from vets and the potential for parasite control strategies to be applied rather than anthelmintic control being viewed as routine procedure[3]. Additionally, **vets** are more likely to **suggest fecal egg counts** than suitably qualified persons (**SQPs**), therefore education of SQPs should be improved in regard to the advantages of diagnostic procedures (Figure 2). Furthermore, a crucial role of the vet regarding responsible anthelmintic use is their **own continuing education** on parasite control; it has been shown that other topics are prioritised over parasitology, in comparison to SQPs where parasitology is a required continuing professional development module[4].

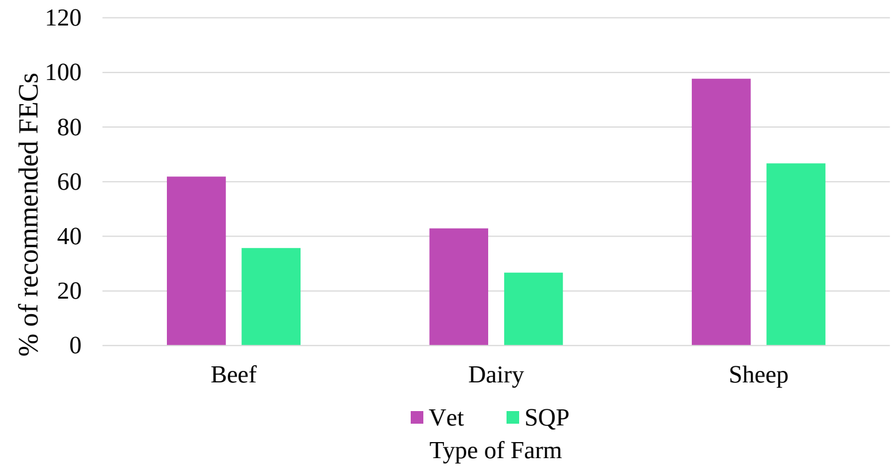


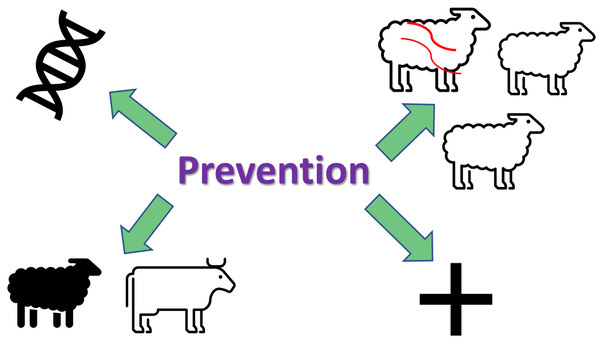
Figure 2. The % of vets and SQPs that always, or likely, recommend a FEC for livestock[3].

Diagnostics

Fecal egg counts (FEC) and FEC reduction tests are an essential diagnostic tool in evaluating the efficiency of anthelmintics and for allowing targeted treatment to occur, however, it is the role of the vet to choose the right test with a **high sensitivity and accuracy**[7,9]. The favoured test at the moment is the Mini-Flotac, similar to the McMaster, as it provides a higher sensitivity and greater precision[6]. However, currently there is a **lack of uptake** for diagnostic tests to identify parasitic burdens or to test for anthelmintic resistance, which could potentially be down to the additional cost this might incur or the mindset towards traditional parasite control[5].

Prevention

The vet is involved in advising on prevention strategies, this can include only treating young animals with reduced immunity as well as **leaving part of the group untreated**, often the heaviest 10%, to dilute the resistant population with susceptible worms[6]. Yet, it is important to ensure there is an equal balance between slowing anthelmintic resistance and ensuring animal health and production is not overly compromised. Using **two or more anthelmintics** together can slow down resistance due to the additive effect of the drugs resulting in broad spectrum efficacy enabling a wider variety of parasites to be affected[10]. Alternative methods of parasite control that do not require anthelmintic drugs include **genetic selection** for animals with lower susceptibility of parasites, **vaccinations**, and **pasture management** including field rotations, mixed grazing with other species, and bioactive forages[2,8].



References: