Worms – the looming crisis?

Dr Mark Elliott BVSc VetFFHom MRCVS warns of resistance to worming drugs, and the inefficacy of 'traditional' worming programmes.

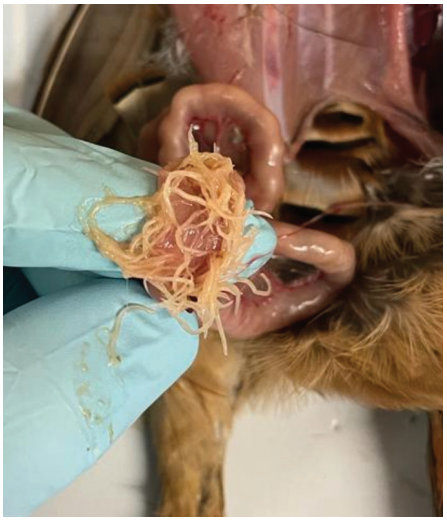
When I first wrote a piece on worming (in *KtB* Autumn 2018, *The worm turns*), it was in part hoping that broader discussion of the problems worms create for gamebirds and shoots, as well as possible solutions, would follow. Unfortunately, that has never happened, yet the evidence is that worm problems are getting worse. Traditional approaches are clearly not working, and we may be seeing resistance to some wormers developing.

What do I mean by traditional approaches? For many years the practice has been that shoots worm their poults after they have been in the pen for a week to 10 days for 'gapes' and often again a couple of weeks later, and then that's it. The keeper can relax, job done… But today, nothing could be further from the truth.

Gapes

Looking first at gapes (*Syngamus trachea*) as a widely known and easy-to-spot concern, long hot summers have left the ground rock hard for months, and so the vectors (such as slugs and earthworms) for spreading and infecting birds appear later, often after the traditional worming programme has finished. The birds are then immunologically naïve to the worms*, and with no wormer to help them through by controlling the levels of infestation, the classic snicking and gaping appears when they have already started leaving, or have left, the pens. At that stage they are harder to treat, even if still on pellets, because wild food dilutes the impact of any in-feed wormer. If already transitioned onto wheat, it can be harder still.

Ascarid worm species in a partridge on delivery!



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Clearly, shoots need to work with their vet and adopt management practices that compensate for and adapt to the weather, time of poult delivery and the history of disease on the estate. It may be that feeding pellets for a bit longer will allow for later worming in-feed; medication may have to be run through the water if controllable at point of release; and doses may need adjustment outside norms to allow for the wild feed being consumed by the birds. Wormer types may need rotation to adapt to, or prevent, perceived resistance of some worms as well. All this can be calculated, and pragmatic solutions are perfectly possible. But do speak to your vet regarding your specific situation as "off label" use of most wormers automatically leads to increased withdrawal times to be considered; especially so if early partridges that can access feed, are put down as well as pheasants (more on partridges specifically later).

The most effective wormer is the one that is used at the right dose, at the right time, for the right length of time and no more. Anything else can lead to build up of resistance on estates and worms could eventually become untreatable.

Gapeworms are not the only worms we have to consider in gamebirds, it just seems that way as the signs are so obvious, as is the usual good response to treatment. There are other very important worms that can build up infestations unseen, leading to loss of body condition, ill thrift, poor flying and more, and these can occur at the same, but also at different timings from the gapeworms.

Other worms

These include *Heterakis gallinarum*, aka 'the caecal worm', which in itself rarely causes significant issues unless present in large quantities, but is involved in the transmission of *Histomonas meleagridis* (Blackhead) through its lifecycle. Blackhead was previously a major issue in gamebirds and there has been some resurgence of the disease these last few years, especially in partridges. Once your ground is infected it is almost impossible to get rid of. Shoots have closed, or permanently shut down pens once infected. For game farms the only solution is to move site, if that is possible. There is no really effective treatment available for blackhead since the withdrawal of Emtryl, so this has to be taken seriously. Research by gamebird vets in collaboration with Surrey University found *Heterakis* DNA in most samples from three out of five sites post release to 12 weeks (the last point of sampling) in one study. This is well after the 'traditional' worming for gapes and suggests some resistance by this worm to the worming medications being used and/or a lifecycle beating the programme.

Hairworms of the *Capillaria* species are more commonly seen in older birds post release I find. These are long thin worms, but so small they are barely visible to the naked eye. They tend to show on post-mortem examinations in the small intestine. Infestation can cause weakness, weight loss (mostly younger birds), general ill-thrift,

**It is worth noting we do need some exposure to worms when the poults are young, to allow the birds to develop immunity as an adult – it's* levels *that overwhelm, not infection* per se.

Images: Mark Elliott

sometimes difficulty swallowing and can be a cause of diarrhoea. Some shoots experience this worm mid-season, which complicates control and makes treatment impractical considering the long required withdrawal periods for the effective medications when off pellet.

Roundworms (*Ascaridia* species) in heavy numbers can lead to loss of condition, ill-thrift and susceptibility to other diseases as a consequence, and in huge quantities can lead to obstructions of the gut.

Tapeworm in a partridge ruptured through the intestines on post mortem.

Partridges specifically

The levels of roundworms in birds sent out to some clients these last few years has been quite a problem. Where encountered on game farms, worming must be done regularly, especially in the latter part of rearing. Anecdotally, there may be some resistance patterns developing, so working closely with your vet to ensure effective programmes, rotating wormer types, and in ways that consider the demands and needs of the recipient clients is a must.

With the requirements of the *Codes of Practice* sensibly demanding a month between release and shooting, that is still not enough to allow 28-day withdrawal period from time of medication to shooting unless birds are diagnosed immediately on or before arrival. As a reminder, the withdrawal period is calculated from the last day of medication, and commonly treatments used are for between five and seven days. Some shoots have had to cancel early days to allow for this and that has economic consequences if days cannot be rebooked.

This year we have seen more cases of tapeworm in imported partridges than ever before. Although birds can cope with a low level, we have seen such large numbers in some birds that the gut is distended and even blocked. The wormers for other worm types mentioned are not effective against tapeworm; instead, we have to use a commonly available, effective, but off-licence product for this infestation, and to get it into the birds at correct dosages. To achieve this, they cannot have been released, so there is an immediate practical consideration. This should be resolved by suppliers before delivery when there is a known or flagged-up concern.

Pheasants again

Although we see tapeworm rarely in pheasants, in my experience when we do see it, it has coincided with chicken manure spread on the ground, or contact with infected guineafowl or turkeys.

All gut worm infestations can, through causing inflammation and in some cases direct damage to the gut (and lungs in the case of gapes), exacerbate the risk of developing other infections common to the post release period, such as Hexamita, Trichomonas and Brachyspira, with the well-known consequences of those on mortality, recovery risk period and antibiotic use.

So worms are important economically, as a welfare issue, and as a factor that can lead to increased antibiotic use, as well as for their impact on bird performance in the field.

Although I haven't covered worms in laying stock, they are an important on-going consideration here as well, as the stress of lay can weaken the immune response and worms can recur as a consequence and cause problems. Your vet will be able to advise you on specifics.

Worthy of note is that vets are now subject to newly defined 'duty of care' rules, recently set out by their governing body the Royal College of Veterinary Surgeons. One particular area of concern is regarding the use of anthelmintics (wormers) and other anti-parasitic medications (some of which may be used as wormers) and their impact on the environment. Responsible use is paramount in that thinking. Expect more engagement with vets on this issue moving forward as the 'traditional' approach can only be justified in the absence of other concerns, and even then may need modifying season to season as explained.

Going forward

In my opinion the shooting sector needs to respond, not only by developing shoot-specific programmes of worming, but in doing more testing and establishing the risks for each estate of the different worm types. This will provide an evidence base moving forward. Game farmers need to know if they have an issue and adopt policies to deal with any concerns, liaising with the shoots to ensure that effective medication systems are in place.

In summary, we all need to take ownership of worms as a growing problem, and work together to create effective programmes in rear and release, working also to keep our medications free from resistance issues. •

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