

# Worm infections: more important than ever before

Even in well managed poultry farms, worm infections still contribute worldwide to significant production losses. Recent changes in European regulations for the housing of laying hens and consumer demands for better animal welfare have led to the switch from traditional cages to inside floor husbandry like aviary systems and barn egg production sites. Sometimes, chickens are also reared free range (outside).

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Unfortunately, these housing systems benefit the spread of parasitic infections with their typical faecal-oral infection route and hereby increase the prevalence of worm infections enormously. The subsequent losses constitute mainly impaired technical performances due to damage to the intestinal mucosa and competition for feed ingredients.

As a result, worm infections have a negative effect on egg production, hatchability, feed conversion rate and average daily weight gain. In some cases, poor general condition and diarrhoea is observed. Finally, a lower immune response after bacterial and viral infections or vaccination leads to animals that are more susceptible to infections. In poultry, nematodes



A. galli adult worms.



H. gallinarum adult worms.

are the most important group of worms and include *Ascaridia galli*, *Heterakis gallinarum* and *Capillaria* spp.

Nematodes have a direct life cycle without an obligatory intermediate host. The worm eggs are rapidly and massively spread in the surroundings and can survive for many years. Shed eggs first need to embryonate in the litter or soil to become infectious. Earthworms may serve as paratenic hosts for worm eggs without further development of the infectious larvae.

## Prevalence

*A. galli* and *H. gallinarum* have by far the highest prevalence rates in all housing systems. Infections with *A. galli* worms (large roundworm: 50-116mm) in the small intestines are associated with higher feed conversion rates and a decrease in

body weight gain and egg production. Severe infections may also result in an increased mortality rate and occasionally in the migration of the parasite into the eggs of laying hens. Birds infected with *H. gallinarum* (small roundworm: 7-15mm) show inflammation and thickening of the caecal wall.

The main economic importance of *H. gallinarum* in the caeca is linked to its role as a potential carrier of *Histomonas meleagridis*, a protozoan parasite which induces blackhead disease. Furthermore, *Salmonella* spp and viruses can also be transmitted via worm infections.

The prevalence of worm infections was examined in 48 Belgian farms in which laying hens were housed cage free (aviary systems, barns or free range). Of the 284 faecal samples that were analysed, 56% were infected with worms and 81.3% of the screened farms were found positive.

*A. galli* and *H. gallinarum* represented in total 75.2%

(respectively 41.9 and 33.3%) of all worm species found. *Capillaria* (caecal worm or hairworm) was much less present and only found in free range sites. Tapeworms, also called cestodes, like *Raillietina* are mainly encountered in poultry from free range or backyard flocks because their presence is closely related to the presence of obligatory intermediate hosts, such as flies, ants, beetles, earthworms or slugs. These cestodes are more present in tropical countries, where poultry is mostly reared outside.

## Deworming strategy

Worms have an enormous impact on productivity. However, the prevalence and economic impact is frequently underestimated as most infections are subclinical and the current diagnostic tools have many restrictions (Table 1).

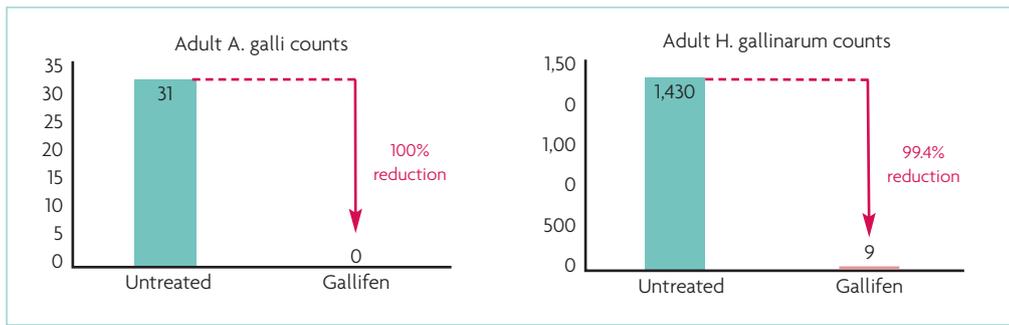
Consequently, poultry are often  
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Table 1. Restrictions of diagnostic tools.

Necropsy
Sufficient number of chickens needed
Recently euthanised chickens
Coprological examination for the typical egg forms and egg counting per gram of faeces (EPG)
Proper faecal sampling (type of faeces, time of sampling & analysis, quantity)
Proper temperature control of the faecal samples sent to the laboratory
Variable shedding
Immature stadia do not excrete eggs yet

## Visual difference between Gallifen nanosuspension (left) and another benzimidazole suspension (right).





**Fig. 1. Efficacy of a treatment with Gallifen 200mg/ml oral suspension against natural co-infections of *A. galli* (left) and *H. gallinarum* (right) in layer chickens. Gallifen was administered at 1mg fenbendazole/kg body-weight/day for five consecutive days. Five days after treatment, the total number of adult worms in treated layers were compared to an untreated control group (both groups: n=30).**

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not treated correctly and, in turn, this results in a higher and more dramatic infection pressure.

Management measures, such as good sanitation, all in-all out, cleaning and disinfection and reducing contact with wild birds may help to reduce the infection pressure but are certainly not sufficient for complete and successful worm control.

Worm infections can only be monitored by a simultaneous implementation of management practices and a well-considered deworming strategy. In the case of a high infection pressure, a single

random treatment will never be sufficient for adequate control.

A deworming strategy should be based upon the prepatent period (the interval between the uptake of infectious eggs and re-excretion of new eggs) and therefore consecutive treatments every six weeks are advised. This strategy prevents the development of a persistently high infection pressure in the surroundings and ensures optimal animal welfare and performance.

Benzimidazoles are still the most efficacious and safe anthelmintic molecules and can be administered in feed as well as via the drinking water.

In general, benzimidazoles show a low solubility profile. To overcome this, Huvepharma recently launched Gallifen 200mg fenbendazole/ml oral nanosuspension for use in drinking water.

The unique milling technology reduces the fenbendazole crystals to the nanometer level.

Together with the applied excipients, the very small particle size contributes to a superb homogeneity in stock solutions and bulk tanks. Compared to other benzimidazole based anthelmintics for use in drinking water, this liquid formulation offers optimal ease of use, efficacy and safety.

- **Ease of use:** Time consuming pre-dilution steps and additional stirring is no longer needed. Easy application of a liquid formulation without any loss of product in the packaging.
- **Efficacy:** Homogeneity results in the correct dosing in each individual chicken.
- **Safety:** Sedimentation and obstruction of the filter on the tubes of the proportioners, pipelines or nipples is no longer observed. Maximal safety is ensured for breeders as well as for layers with a zero day withdrawal time for eggs.

Gallifen Oral suspension is licensed for the treatment of the most prevalent nematodes *A. galli* and *H. gallinarum*. The administration of a total dose of 5mg fenbendazole/kg bodyweight, divided over five consecutive days (1mg/kg body-weight/day), demonstrates a 100% and 99.4% reduction of adult worm counts for *A. galli* and *H. gallinarum* respectively (Fig. 1). This corresponds to 5ml/ 1000kg bodyweight/day for five days (25ml in total).

A deworming strategy with this innovative formulation can improve the health status of chickens significantly. ■

References are available from the author on request