

The use of medicated grit on Scottish shooting estates

Briefing from League Against Cruel Sports Scotland and Wild Justice

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Introduction

This briefing discusses one of the lesser-known aspects of intensive grouse moor management – the widespread distribution of mineral grit covered with anthelmintic medication, in order to control parasites in red grouse. Previously, this control was undertaken by catching up grouse and dosing them individually, or by reducing the density of grouse in a given area. The use of this medicated grit is associated with disease spread, unknown effects on aquatic creatures in nearby watercourses, and potential residues in human food. All of these issues should be addressed by additional monitoring and regulation.

Medicated Grit

Red grouse can only be available for the sport of ‘driven’ grouse shooting each year if they are managed in such a way as to produce unnaturally high population levels. One threat to their numbers is strongyle worms (*Trichostrongylus tenuis*), a naturally occurring parasite. Shooting estates’ response is to medicate grouse with a veterinary worming drug called Flubendazole which is coated onto grit that the birds ingest to aid food digestion.

The European Medicines Agency has concluded that, “*taking into account abnormalities or foetal malformations*” reported due to other similar medications, Flubendazole should not be used by humans during pregnancy (European Medicines Agency, 2017) ¹.

According to a Scottish Government report (Scottish Government, 2020) “*Information on the environmental exposure [of Flubendazole] on and near moorlands is uncertain.*”

The Veterinary Medicines Regulations 2013 require that normal doses of medicated grit should be withdrawn from use 28 days before shooting to prevent this toxic chemical from entering the human food chain. Higher doses of Flubendazole are recommended by the Veterinary Medicines Directorate (VMD) to have longer withdrawal periods although no

¹ The EMA advice on revising EU marketing authorisations (EMA, 2017) states: “*In view of the reviewed data on the use of flubendazole use on pregnancy and lactation, and also taking into account that abnormalities or foetal malformation cases have also been reported for other benzimidazole antihelmintic products such as alebendazole, which is contraindicated in pregnancy, and mebendazole, the PRAC considered that the risk of abnormalities or foetal malformations cannot be excluded and concluded that this information should be included in section 4.6 of the Summary of Product Characteristics (SmPC) of flubendazole containing products.*”

precise time frame is given (Veterinary Medicines Directorate, 2015)². The Game and Wildlife Conservation Trust (GWCT) recommends that no more than 500g of medicated grit should be used per pair of grouse, the grit should be in trays and not placed directly on the ground, and that grit trays should be located no closer than 5m to running or standing water (GWCT(n.d.) a). This is because it is known that Flubendazole is harmful to aquatic organisms such as the small water flea, *Daphnia magna* (Puckowski et al., 2017).

However, the use of communal grit trays has been linked to the rapid spread of a highly contagious disease, Respiratory Cryptosporidiosis ('Bulgy Eye'), which from 2010 to 2015 had been recorded in red grouse on over half of the 150 grouse moors in Northern England (Baines et al., 2017). It has also been recorded in Scotland although information on the extent of its spread is lacking. There are serious welfare and conservation concerns, especially the threat of cross-contamination to other species inhabiting the same moors.

Prescribing process

The Scottish Government report on Flubendazole notes that *"Flubendazole is not licensed for use in grouse in the UK"* but *"prescribing products containing it is achieved through application of the cascade mechanism"*, which, according to VMD Guidance, allows the prescription of unauthorised medicines, *"In particular to avoid causing unacceptable suffering"* (Veterinary Medicines Directorate, 2021).

Furthermore, the VMD Guidance is very clear that, *"Prescribing decisions in accordance with the cascade should be made on a case-by-case basis. For example, if a suspected adverse event occurred when using a medicine in an animal, this does not mean that the cascade should be routinely used when treating other animals."*¹

According to the GWCT, prescriptions for medicated grit are obtained by an estate providing evidence of strongyle worms in their grouse to a veterinarian. The GWCT also notes that, *"Virtually all grouse managers"* use medicated grit, albeit not necessarily every year (GWCT (n.d) b). It is not known how the estates demonstrate to veterinarians that the use of Flubendazole will *"avoid causing unacceptable suffering"*, *"on a case-by-case basis"*, for each bird that is destined to be shot. The GWCT also highlights the importance of using the drug only when justified: *"In reality, grouse moor managers sometimes request, and vets sometimes provide, grit when it is unnecessary, and this inappropriate use escalates the likelihood of worms becoming resistant to the drug and the medication no longer working. Targeted usage helps reduce the risk of resistance developing within the worm population, thus allowing the drug to remain effective."*

Industry guidance issued in line with Scotland's Moorland Forum Principles of Moorland Management advises that grit should only be used if worm burdens are at a level that is likely to affect grouse health and breeding success. To establish if medicated grit is required,

² The VMD advises: *"Where the product is not used as authorised, for example, when a higher dose or longer duration of treatment is used, or a species for which the product is not indicated is treated, care needs to be taken to ensure that a suitable withdrawal period is set. This ensures that no residues of veterinary medicines above the MRL remain at the time of slaughter or when produce is taken."* And *"If a higher dose is given, a longer withdrawal period may be necessary."*

practitioners should conduct annual strongyle worm counts in autumn, and/or worm egg counts in spring. (Scotland's Moorland Forum, 2019)

The Werritty Report

In 2017 the Scottish Government established the Grouse Moor Management Group to examine the environmental impact of grouse moor management practices. In November 2019 the group submitted its final report ("The Werritty Report") to the Cabinet Secretary for Environment, Climate Change and Land Reform (Scottish Government, 2019). The report included an investigation into the use of medicated grit for the treatment and prevention of the strongyle worm in the gut of red grouse. It concluded that *"there is some evidence that prescription levels are too high, that gritting holidays are not always observed, and that grit may not always be withdrawn from grouse at least 28 days before Red Grouse enter the food chain. At present there is little evidence of a resistance problem with the use of medicated grit, but there is some evidence that Flubendazole is toxic to aquatic organisms"*.

Survey of the use of medicated grit in Scotland

Over 14 months in 2018/19 the League Against Cruel Sports commissioned a survey of seven shooting estates in Scotland (Harris and Thain, 2020). Two of these estates were not managed for grouse, three had moderate levels of management and two were intensively managed to produce high numbers of grouse for driven sport shooting. One surveyor walked over more than 400sq kilometres of land noting and photographing every trap, snare, tracks, muirburn and grit station.

The surveyor found 7,283 grit stations. Contrary to GWCT recommendations that medicated grit should only be used in trays, around a half were simply deposited on the ground and the rest were in trays with drainage holes. If this number of grit stations are to be found on seven estates, a reasonable extrapolation to all the shooting estates would suggest that there may (at present) be more than 200,000 piles of grit medicated with Flubendazole in Scotland³.

Analysis of medicated grit

The League Against Cruel Sports Scotland and Wild Justice agree with the Scottish Government that *"Information on the environmental exposure [of Flubendazole] on and near moorlands is uncertain."* The League Against Cruel Sports therefore decided to obtain samples of grit at periods when Flubendazole would be expected to be present and not present. Six estates were selected as a representative sample since, as in the previous survey, they represented a cross-section of low to intensive management. The League Against Cruel Sports commissioned a field surveyor to collect samples from separate grit stations on each of the six estates. Financial assistance was provided by Wild Justice to develop the laboratory test for Flubendazole.

³ 7,283 documented in 40,419 ha. Estimates of grouse moors in Scotland are from 800,000 ha to 1.5m ha. Mid-point = 1,150,000 ha. Divide 1,150,000 by 40,419 = 28.4. Multiply 28.4 by 7,283 = 206,836

The grouse shooting season commences on 12 August and ends on 10 December. However, there can be no guarantee that sport shooting began on “the glorious 12th” of August on each estate, or indeed if grouse shooting took place later that season, so we cannot comment on whether medicated grit was withdrawn/not withdrawn within the statutory requirements on these estates. What we do know is that it was present in certain locations on the dates shown in the analysis (see Annex A).

According to a Scottish Government report (Scottish Government, 2020) a normal dose is around 50mg present in a 500g grit tray, or 100mg of Flubendazole per kg of grit.

The data in the analysis indicate that:

- Grit sampled from three sites with low levels of management had undetectable or lower levels (25mg/kg maximum) of Flubendazole (sites 1-3).
- Grit sampled from one site (site 4) had up to 1.6 times the normal dose although some samples had low levels.
- Grit samples from two sites (sites 5 and 6) had 0.6 to 2.65 times the normal dose.

Recommendations

Flubendazole is a toxic chemical which is apparently being strewn across Scotland’s shooting estates with little or no oversight. The VMD, with responsibility for monitoring Flubendazole levels in game bird meat, has only tested 23 samples from red grouse since 2015 (Scottish Government, 2020b) which is a small sample size when an estimated 700,000 red grouse are shot each year (Rayment, 2023). No information is available about the VMD’s sampling protocol, including the number of estates from which red grouse were sampled. We recommend that:

1. The prescribing process for Flubendazole should be made transparent and questioned. Particularly, why is this medication, which is not licensed for use on Red Grouse in the UK, used by “*virtually all grouse managers in the UK*” on the grounds that it will “*avoid causing unacceptable suffering.*”
2. Scottish Ministers should ensure that the use of medicated grit is included in the Code of Practice being drawn up by NatureScot in relation to the Wildlife Management & Muirburn (Scotland) Bill.
3. The data in the lab report shown at Annex A should be used by the Scottish Government to form the basis of a robust investigation into the prescribing, levels of use and disposal of used medicated grit in Scotland.
4. The Scottish Government should place a moratorium on the use of medicated grit until the above robust investigation is concluded.

Similar recommendations are applicable to England and Wales as the GWCT say that “*virtually all grouse managers*” use medicated grit.

References

- Baines, D., Giles, M. & Richardson, M. (2017). Microscopic and Molecular Tracing of *Cryptosporidium* Oocysts: Identifying a Possible Reservoir of Infection in Red Grouse. *Pathogens* 6: 57 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5750581/>
- Grouse Moor Management Review Group, 2019. Report to the Scottish Government, November 2019. <https://www.gov.scot/publications/grouse-moor-management-group-report-scottish-government/>
- Harris, S and Thain, B (2020). Hanged by the feet until dead: An analysis of snaring and trapping on Scottish grouse moors. <https://revive.scot/wp-content/uploads/Hanged-by-the-feet-until-dead.pdf>
- Puckowski A, Stolte S, Wagil M, Markiewicz M, Łukaszewicz P, Stepnowski P, Białk-Bielińska A. Mixture toxicity of flubendazole and fenbendazole to *Daphnia magna*. *Int J Hyg Environ Health*. 2017 May;220(3):575-582. doi: 10.1016/j.ijheh.2017.01.011. Epub 2017 Feb 3. PMID: 28214179. <https://pubmed.ncbi.nlm.nih.gov/28214179/>
- Rayment, M, 2023. Driven Grouse Shooting – Assessing the economic and social impacts of future options for grouse moor management. https://community.rspb.org.uk/cfs-file/_key/communityserver-blogs-components-weblogfiles/00-00-24-83-96/2425.3480.2308.1856.5811.Economics-of-driven-grouse-shooting-2D00-Report.pdf
- Scottish Government, 2019. Grouse Moor Management Review Group – Report to the Scottish Government. <https://www.gov.scot/publications/grouse-moor-management-group-report-scottish-government/>
- Scottish Government, 2020a. Moorland Grouse – Flubendazole use for parasitic worm control: preliminary environmental assessment. <https://www.gov.scot/publications/preliminary-environmental-assessment-flubendazole-use-scotland-parasitic-worm-control-moorland-grouse/>
- Scottish Government, 2020b. Scottish Government response to the report from the Grouse Moor Management Group. <https://www.gov.scot/publications/scottish-government-response-grouse-moor-management-group-recommendations/>
- Scotland's Moorland Forum, 2019. Principles of Moorland Management - Worm Control in Red Grouse Guidance. <https://moorlandmanagement.org/wp-content/uploads/2019/12/190119-PoMM-Worm-Control-Guidance.pdf>
- Veterinary Medicines Directorate, 2021. The cascade: prescribing unauthorised medicines - Guidance for prescribing vets on the use of the cascade. <https://www.gov.uk/guidance/the-cascade-prescribing-unauthorised-medicines#full-publication-update-history>

ANNEX A**LABORATORY TEST REPORT**

CUSTOMER LEAGUE AGAINST CRUEL SPORTS
ANALYSIS FLUBENDAZOLE IN GRIT BY LC-MS/MS
DATE OF ANALYSIS 04/12/2023 – 06/12/2023

QUALITY CONTROL

Calibration LEVELS	5	RETENTION TIME – deviation within limits	Yes
SLOPE	191327		
INTERCEPT	0	Linear calibration R ²	0.9999
RANGE	0 - 10 µg/L (in extract)	CORRECTION FACTOR	1.20
LOD/LOQ (WW)	0.04/0.13 µg/kg WW	S/N at 0.1 µg/L calibration concentration	188
Spikes in batch (n)	5	Blanks in batch (n value; sand used)	5
Mass extracted	1g per sample	Blank correction required	Yes

DATE	SITE	FLUBENDAZOLE (mg/kg WW)
10 Nov 21	Site 1	<0.1
10 Nov 21	Site 1	<0.1
23 Jul 22	Site 1	<0.1
23 Jul 22	Site 1	<0.1
23 Jul 22	Site 1	<0.1
11 Nov 21	Site 2	25.0
24 Jul 22	Site 2	<0.1
24 Jul 22	Site 2	17.3

24 Jul 22	Site 2	9.8
11 Nov 21	Site 3	0.2
25 Jul 22	Site 3	1.2
25 Jul 22	Site 3	<0.1
25 Jul 22	Site 3	<0.1
25 Jul 22	Site 3	0.2
16 Nov 21	Site 4	159.0
18 Jul 22	Site 4	0.2
18 Jul 22	Site 4	2.5
18 Nov 21	Site 5	265.5
14 Jul 22	Site 5	60.9
14 Jul 22	Site 5	115.4
18 Nov 21	Site 6	181.0
19 Jul 22	Site 6	149.7
19 Jul 22	Site 6	166.4
