

Prevention of Anthelmintic Resistance

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Anthelmintics used to prevent or treat worm infections in domestic animals fall into 3 major groups depending on their chemical structure and mode of action:

- **Group 1 (BZ)** - benzimidazoles or “white drenches”
- **Group 2 (LM)** - includes levamisole and morantel
- **Group 3 (ML)** - the macrocyclic lactones, which include doramectin, ivermectin and moxidectin

Anthelmintic resistance is now of major concern to the UK sheep industry, where resistance to Group 1 BZ anthelmintics is believed to be widespread. There is growing concern that resistance to the other two groups of anthelmintics may also be spreading rapidly.

Although anthelmintic resistance in cattle is much less prevalent it would also appear to be on the increase.

In March 2003 the Department for the Environment, Food and Rural Affairs (DEFRA) organised a workshop where leading authorities from the sheep industry were asked to discuss the current

anthelmintic resistance problems and come up with short-term strategies to slow the development of anthelmintic resistance in internal parasites of sheep. Recommendations of this workshop can now be accessed through the DEFRA website at; http://www.defra.gov.uk/animalh/diseases/control/parasite_control.htm and include;

- **Quarantine treatment** for bought-in animals with both an ML and a levamisole product sequentially.
- **Good drenching technique** to ensure correct dose volumes are used and that oral drenches are fully swallowed. Withhold feed for 12-24 hours prior to drenching, where practical, to improve efficacy.
- **Rotate chemical groups** used for routine anthelmintic dosing. (This does not apply to “quarantine treatments”).
- **Monitor parasite levels on farms** by using faecal egg counting (FEC) and check for anthelmintic resistance using post-drenching FEC
- **Use safe pastures correctly.** In particular, sheep must not be drenched directly on to “safe” pasture as this practice is highly

selective for anthelmintic resistance!

- **Eliminate unnecessary dosing**, particularly of ewes. Fit ewes should not be dosed pre-tupping and ewes do not always need to be treated around lambing time

The extent of resistance to flukicides is unknown but a few cases of suspect resistance to triclabendazole have been recorded. Workshop recommendations for liver fluke treatment are similar to above and include quarantine treatment with triclabendazole and closantel (or nitroxylnil) sequentially, strategic use of flukicides and monitoring control strategies using FEC.