

Waterend Farm – Case Study

Waterend Farm, Coaley, Dursley, Glos.

Farmed by Richard and Hilary Mann.

Vet: Katie Essex



Waterend Farm has been involved in a project looking at the implementation of SCOPS principles since 2007. Over the last 4 years all of the SCOPS recommendations have been successfully put into practice. Not only has this allowed for better, more targeted parasite control, but there have also been improvements in flock performance, part of which can be attributed to the worm control strategy which is based on monitoring and better knowledge of the parasites on the farm.

1. Background and Farm Facts

Waterend has been farmed by Richard and Hilary Mann since taking it over in 2004. The previous tenant was a dairy farmer who took some sheep in on tack. The basic facts are:

- 33Ha (82 acres) permanent pasture, prone to drought.
- All sheep – 230 commercial ewes + a small flock of Blue Texels
- They also run a very successful B & B business together with a meeting room with catering which the sheep must fit around.

Flock Details:

- Lambing in late March for 3 weeks – returns then lamb in May because of the demands of the B&B in late April
- Ewes are housed pre-lambing on hay and concentrates with rations based on hay analysis
- The grazing is prone to drought so lambs are creep fed to make sure they get away – the target is to get as many away as possible by the end of July (see sales pattern graph below)
- Physical performance of the flock is high with 170% or more reared based on ewes tugged. Empty ewe rate and lambs losses are low.
- The flock is now closed with the exception of rams. Ewes were originally Suffolk and Texel cross Mules but to maintain hybrid vigour and add maternal traits, Dorset rams selected on EBVs have been introduced.
- Texel rams are bought on EBVs as terminal sires.
- Stocking rate per ewe is not high but with such a high lambing % it is significant in terms of lambs/acre on permanent pasture without inorganics fertiliser use.

2. Internal parasites – Challenges and Solutions

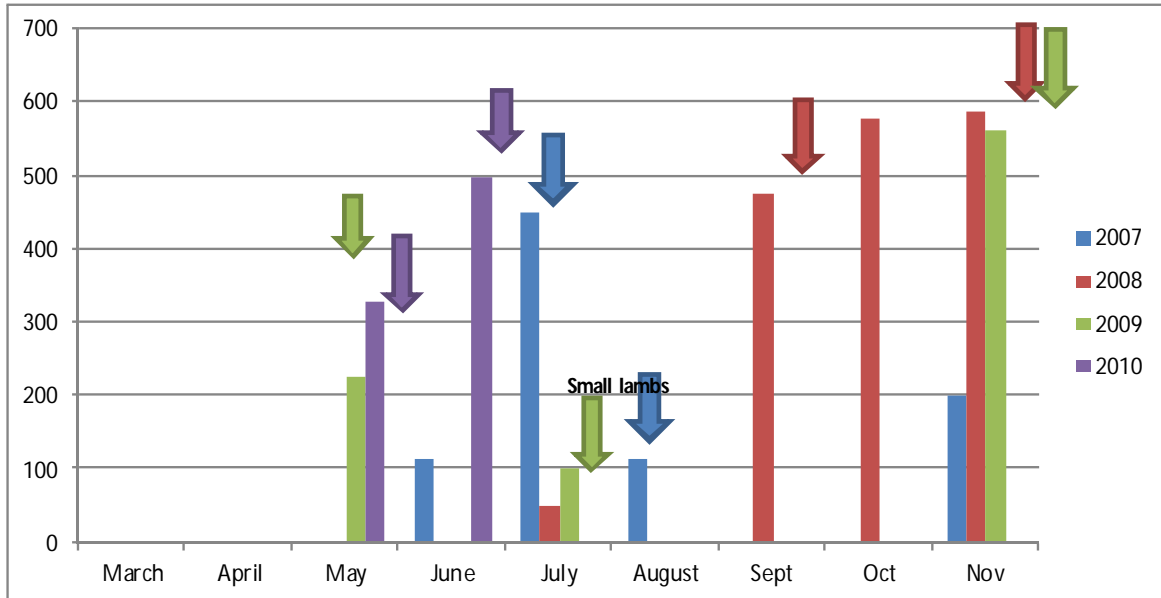
Parasite	Challenge	Solutions adopted
NEMATODIRUS	Rarely a problem but where a high challenge coincides with 4-6 weeks old lambs there is a need to treat particularly if coccidiosis is also a risk.	BZ + diclazuril if required.
COCCIDIOSIS	AS above	Treatment of groups at first sign of disease.
TELADORSAGIA (Ostertagia)	This has been the major worm species on the farm over the period of the project. Levels have varied tremendously as has the timing.	FEC monitoring has proved to be a very successful way of determining the need to treat lambs in all 4 years.
HAEMONCHUS CONTORTUS	Known to be present on the farm but as yet has not caused any issues	Awareness and monitoring of risk factors / FECs.
TRICHOSTRONGYLUS	The challenge builds up towards the autumn and it is clear that the threat is normally at it's peak in the late autumn (Oct/Nov) so monitoring must continue	Very few lambs are left by the time this species builds up. Leaner ewes are also included in any drenching at this stage, particularly younger ones
FLUKE / SCAB	Not a problem on the farm	Quarantine treatment of rams on arrival. Zolvix + 1% moxidectin injection to cover scab.

Challenges:	Positives:
Continuous sheep	No fluke or indigenous scab
Permanent pasture	Haemonchus and Nematodirus present but not major problems
Relative high lamb stocking rate	Early season challenge low – lambs sold quickly
High levels of performance required	High management standards
AR status high	Good monitoring

3. SCOPS Project Data

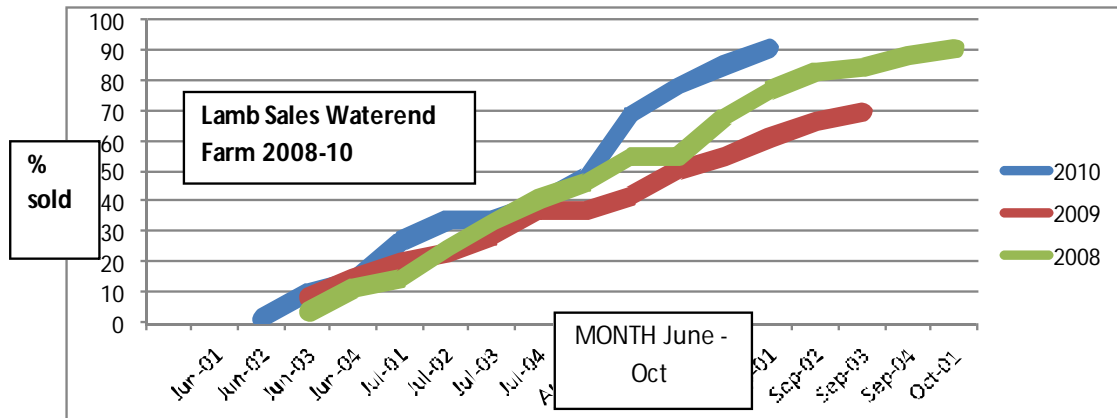
The farm has been part of the SCOPS project since 2007 with data available for 3 full and one (2010) part seasons. The graph below illustrates the variation between the years in terms of the extent of the challenge (epgs), treatments required and the species of worm involved:

FEC Counts (epg) for lambs



Lamb Treatments

The graph above illustrates the results for FEC counts in the 4 years they were monitored ↓ denotes when they were drenched in each of the years. They were only drenched twice in 3 of the four years; in 2009 when they were drenched 3 times, the second and third drenches were partial flock treatments for small lambs (July) and a few stores / retained ewe lambs in November. The total number of lamb treatments was therefore relatively low in all years. Despite this small number of treatments, lamb performance continues to improve as shown in the marketing pattern graph below:

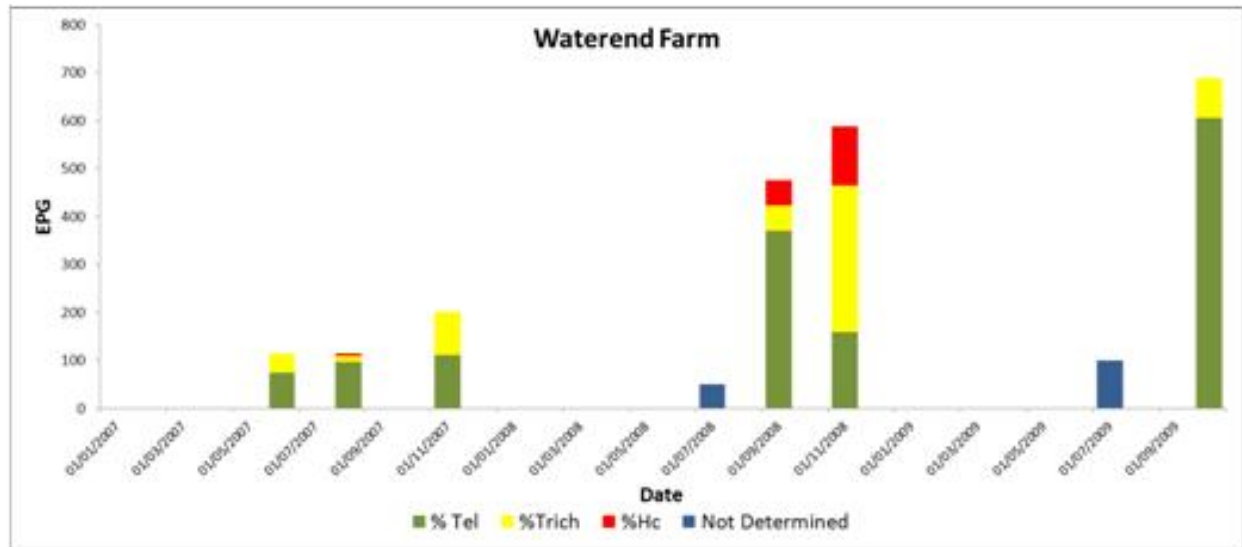


Ewe Treatments

Ewes are not drenched pre-tupping, except if they are leaner than ideal, which is not common. Historically all ewes have been drenched at housing but in 2010/11 this was changed in the light of the concern about ML resistance and 90% of ewes were given moxidectin (1% oral) at turnout. Moxidectin had never been used before therefore should remain potent and the partial flock treatment (fit twins and singles left undrenched) will maintain a worm population *in refugia*.

Worm Species

The graph below shows the results for the larval differentiation undertaken at Fera, York over the first 3 seasons. It is clear from this that *Teladorsagia* is the main species, but as the season progresses to the autumn *Trichostrongylus* becomes more prevalent as we might expect. There is also evidence of the presence of *Haemonchus Contortus* and while this has not caused any tangible problems so far, it is important to be aware of it and watch out for risk factors (such as the weather conditions in the spring of 2011) which may lead to a rapid increase in the number of this troublesome species.



ND = *Nematodirus* HC = *Haemonchus contortus* (Barbers Pole) Trich = *Trichostrongylus* (Black scour worm) Tel = *Teladorsagia* (*Ostertagia*)

Resistance Status – summary of results:

	2007	2008	2009	2010
BZ	Teladorsagia both spring and autumn	Teladorsagia spring and autumn. Haemonchus showing signs of resistance and Trichostrongylus	Teladorsagia both spring and autumn	Teladorsagia (FECRT)
LV	Inconclusive but a suggestion of AR in Teladorsagia and Trichostrongylus	Inconclusive but a suggestion of AR in Trichostrongylus		Teladorsagia (FECRT)
ML	N/A	N/A	N/A	FECRT suggests this may not be fully effective

BZ (white) group

- Teladorsagia would seem to have significant levels of resistance to BZ
- Trichostrongylus is also showing evidence of resistance to BZ as is Haemonchus
- BZ group can only be used for an early Nematodirus risk in future

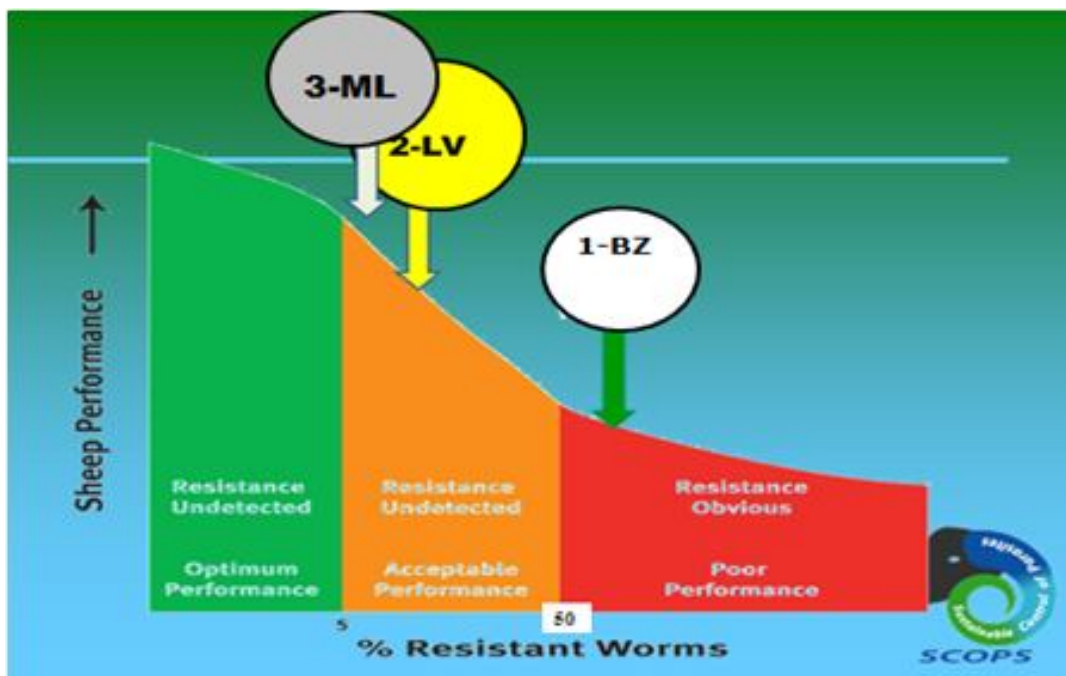
LV (yellow) group

- LV looks as though resistance is starting to build but as yet inconclusive.
- This group can probably still be used at certain times of year to spare the ML group – the 2011 FECRT will help make decisions on this.

ML (clear) group

- There is no in vitro test so it was not possible to look at this group until last year
- This group has been relied on heavily in recent years so the results of the FECRT are a concern
- A second FECRT is to be carried out in 2011.
- Mox used for the first time in 2011.
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Graphic Representation of AR Status at Waterend Farm:



1. Discussion Session:

During the course of the meeting, Vet and SQP delegates were split into groups and were asked to discuss the following questions. The resultant feedback is summarised below:

How would you suggest the existing anthelmintic groups are used in future on the farm and how would you integrate a new group(s) into the programme?

- BZ for Nematodirus (if required) but a drench efficacy to be done to check for resistance
- Use LV for early season treatments – later season not sensible given the AR status in Trichostrongylus
- Careful use of Mox but unlikely to be used in lambs on this farm and not to be used for ewes in spring every year. Partial treatments
- Integrate monepantel sooner rather than later. Treatment of lambs mid/late season but on the basis of FEC count

What actions should you actively implement to reduce the selection pressure on nematodes in the future?

- Extra care on dose accuracy given AR status
- Partial flock treatments and targeted treatments to maintain refugia
- Long term use of rams with low FEC EBVs may help reduce contamination by ewes
- Nutritional effects – improved grazing to help lambs growth rates + ewe nutrition around lambing
- Use of dry ewes to reduce contamination levels in late season

What would be your priorities and can you identify any barriers to success?

- FECRT in 2011 and continued surveillance of drench efficacies in the future.
- Integrate monepantel – and any other new active as/when available.
- Barriers identified included access to FECs; larval diffs (ability to monitor Haemonchus for example); indicators for targeted treatments (DLWG / body condition etc.).

General Conclusion

- This farm is probably not that different from many others – just aware. With careful use of anthelmintics and monitoring it should be able to continue to control worms effectively for many years to come.

Implementation of SCOPS principles and Future Options

PRINCIPLE		ADOPTION	FUTURE OPTIONS / IMPROVEMENTS?
Have a strategy	✓	Adopted for the last 4 seasons. Takes full account of high level of performance required.	Continued updating - annual and on going review of policy with Vet / advisers
Drench Correctly	✓	Equipment checked and calibrated. Dosing to the heaviest and good technique.	Keep this as a priority.
Quarantine treatments for all in-coming sheep	✓	SCOPS recommendations fully adopted for in-coming rams	Update as SCOPS recommendations are updated when new group(s) are available
Test for anthelmintic resistance	✓	AR status investigated over the last 4 years and taken into account within the strategy	Second FECRT in 2011 to confirm the situation with the ML (clear) group.
Use anthelmintics only when necessary	✓	FEC monitoring used to determine the need to treat lambs. Routine pre-tupping drench removed Consideration of the need for whole flock treatments	Increase the use of selected treatments ewe and lambs moving away from whole flock treatments
Select the most appropriate product	✓	Different products now used within the season according to the target compared to heavy reliance on the MLs previously	Continue this move to using various products – a challenge in a relatively small flock. Integration of monepantel mid/ late season but dependent on FEC results
Maintain a susceptible population of worms in refugia	✓	Partial flock treatments a vital part of this objective. Moving away for whole flock treatment at housing a major step.	Continue to develop this part of the strategy
Reduce Dependence on anthelmintics	✓	Use Of FECs Rams with low FEC EBVs to breed female replacements	Breeding a long term strategy and not a high priority Grassland improvement / nutrition Use of dry sheep and grazing strategy to try and reduce pasture contamination levels.

Summary

- The combination of high levels of performance and the anthelmintic resistance status on this farm mean it is a challenging situation. However, the fact that we have so much knowledge of the worm species and resistance status means that we can plan forward and maintain good worm control while preserving the activity of anthelmintics available through careful, judicious use and choices.
- SCOPS principles have been fully implemented but there are still additional refinements to be adopted over the coming seasons.
- High levels of performance have been maintained (even improved) while SCOPS principles have been implemented.
- Future options include reducing dependence on anthelmintics through breeding and nutrition together with implementation of partial and targeted treatments to maintain a worm population *in refugia*.
- Demonstrates the value of FECs from year to year fluctuations and the need for a farm strategy

Lesley Stubbings

May 2011

