



Didling Farms – Case Study

Didling, Midhurst W. Sussex

Owned by Mr S. Grimshaw

Managed by: Matthew Blyth



Didling Farms have 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. In particular, Didling farms have been able to progress the use of targeted treatments based on performance through the application of eid and Autodraft facilities. Not only has this allowed for better, more targeted parasite control, but there have also been significant 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.

Farm Details

The cropped area of the farm is 310Ha (767 acres) plus woodland and scrub on the side of the Downs. The grassland totals 180 Ha (460 acres) of which about 20% is on the top of the Downs; 30% is permanent pasture (with improvement to nutrient status where possible) and the remaining 50% has either been improved (re-seeded) or is in the process of being improved. Additional land is also let out on contract for arable cropping which is to be worked in rotation with the re-seeding programme. Didling farms are also in the newly designated South Downs National Park.

Sheep

The flock of 1300 currently comprises of a nucleus flock of Lleyne ewes (250 ewes) and a further 1050 ewes that are Lleyne, Lleyne crosses and others that are part of the original flock and being phased out. The plan is to retain the Lleyne nucleus and apply strict selection criteria; then cross all non nucleus Lleyne with an Aberfield (Blue Faced Leicester x Texel) to produce a first cross hybrid that will then go to a terminal sire. Numbers are set to increase to 1800 + in the next 2-3 years; this being done in conjunction with significant improvements to grazing and grassland management. Winter feeding is based on high quality silage fed indoors as a TMR.

History

In the 2 years before the project the farm has been struggling with high losses and low performance levels. In the autumn/winter of 2006/7 the ewes were in poor condition but there was no clear diagnosis (although some bottle jaw was recorded). The advice given was to feed more! An LV (yellow) drench given at housing but at lambing there were serious issues due mainly to poor ewes and this continued throughout the season with lamb losses and generally poor growth rates and ewe condition.

At the start of the SCOPS project in spring 2007, a pasture larval count showed that there was a significant burden on the pasture and 100% was *Haemonchus contortus* surviving over the winter. 2007 then went on to be a year with very high levels of *Haemonchus* and the extent of the AR problem on the farm began to become apparent. Since then the strategy to control *Haemonchus* has included the use of closantel in ewes and very careful monitoring and risk assessment together with the recognition that ewes need to maintain their immunity to *Haemonchus*, so avoiding unnecessary treatments of mature animals

Internal parasites – Challenges and Solutions

Parasite	Challenge	Solutions adopted
NEMATODIRUS	Has been a problem historically – risk assessment to pre-empt a high challenge. When this coincides with 4-6 week old lambs there is a need to treat particularly if coccidiosis is also a risk.	Grazing plans to avoid highest risk areas when possible. BZ + diclazuril if required – but if a late challenge then BZ not used because Teladorsagia is resistant
COCCIDIOSIS	As above – reduced risk now with better turnout conditions etc.	Treatment of groups at first sign of disease.
TELADORSAGIA (Ostertagia)	Highly resistant to BZ and significant evidence of AR to LV; ML to be investigated further. That said, this is not a major problem on the farm.	Use of FECs to monitor the need to treat + move to low challenge grazing post-weaning reduces the need for treatments.
HAEMONCHUS CONTORTUS	A major problem but intermittent problem that has to be monitored and risk assessed carefully.	Closantel has been used as a narrow spectrum treatment in years when Haemonchus has been a problem.
TRICHOSTRONGYLUS	Not a major problem – only if lambs are on heavily contaminated pasture in the autumn / early winter	FEC monitoring continued late season
FLUKE	Not seen as an issue	
SCAB	Not a problem on the farm, though strays from neighbours have been a problem in the past.	Quarantine treatment of all sheep on arrival. Zolvix + 1% moxidectin injection to cover scab.
Challenges:		Positives:
No cattle + significant proportion is permanent pasture	Re-seeding programme in place for some grazing + forage crops / turnips / silage aftermaths	
Nematodirus / coccidiosis can be late on this farm	Better planning of turnout fields and less stress on ewes and lambs is reducing the risk	
Stocking rates are set to increase	Improvement to the quality of grazing	
Haemonchus which can cause significant problems and very quickly.	FEC monitoring in place + risk assessment. Aware of ewe immunity and the need to keep this high	
AR status a concern	Resistance present to all 3 groups but so far no evidence of AR to Mox. 4-Ad (monepantel) being actively integrated into the drenching programme.	

SCOPS Project Data

The farm has been part of the SCOPS project since 2007 with data available for 3 full seasons. At the start, the farm was going through organic conversion which added additional pressures to the parasite control; however, the decision was made to pull out of the organic scheme which has meant that the options are greater. There are still some lasting benefits however in the form of a commitment to pasture improvements; forage crops etc. utilising some of the organic principles.

Resistance Status – summary of results

BZ (white) group

- Teladorsagia would seem to have very significant levels of resistance to BZ
- Haemonchus – is resistant to BZ
- Trichostrongylus is also showing evidence of resistance to BZ but not consistent
- BZ group can only be used for an early Nematodirus risk in future – and then needs to be checked for efficacy.

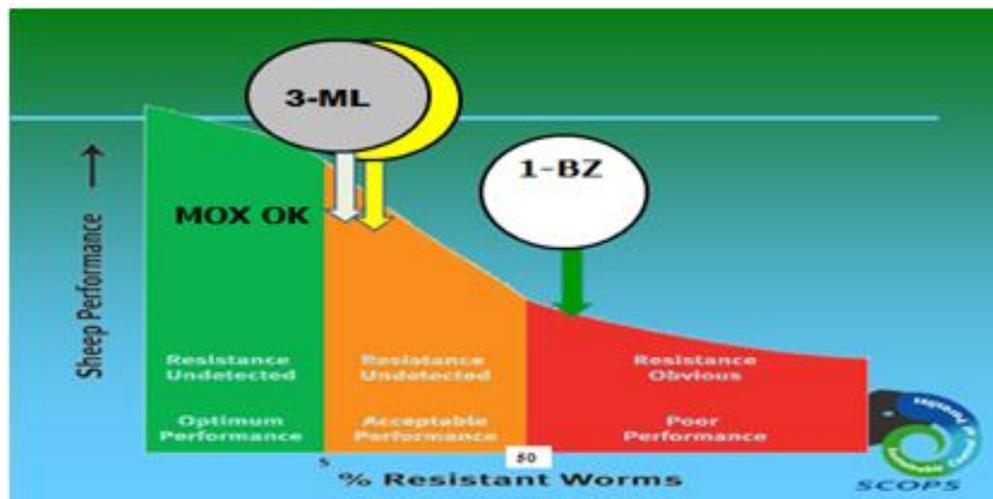
LV (yellow) group

- Trichostrongylus and Teladorsagia both show evidence of resistance to LV.
- Haemonchus has not shown any resistance to LV
- This group can probably still be used at certain times of year to spare the ML group
- To check this a drench test was done in early June 2011 and the efficacy was 92% - the scope for it's use is therefore going to be limited and further selection pressure must be minimised.

ML (clear) group

- There is no in vitro test so in 2008 an FECRT was carried out to see what the situation was with ML – this followed drench tests which indicated that efficacy was less than 100%. This has indicated that the ML group was working to full efficacy though larval differentiation showed that Haemonchus was not present in the trial lambs at the time. MOX also appears still to be OK.
- **A further FECRT is needed to check this status (currently in progress in August 2011)**

Graphic representation of AR status at Didling Farms:



The project has highlighted the problems this farm has with *Haemonchus contortus* and provided the explanation for the issues in 2006/7 with ewe body condition and performance. Together with the AR data gathered it has been possible to put together a strategy that is effective, producing improved results while using a lot less anthelmintic and paying particular attention to minimising further selection pressure on the worm population through safeguarding the *in refugia* proportion at all times.

Treatments

The number of drenches used on the farm has dropped significantly in that time. For example, by the end of June 2011 only 1700 lamb doses had been administered in to the current lamb crop (less than one dose per lamb overall). Ewes treatments are also much reduced, They are not routinely drenched pre-tupping (only shearlings and lean ewes) and while they are still treated around lambing this is on a 90% basis. If further treatment is required for *Haemonchus* then closantel is used to avoid unnecessary use of the broad spectrum groups.

The use of targeted treatments based on DLWG and utilising the eid / auto-draft facility available has been a major part of the strategy under development over the last 2 years. Once the early season *Nematodirus* risk is over, then growth rates (in conjunction with a group FEC) are used to determines the need to treat. The level of DLWG used varies according to the animals, pasture type etc, which in itself is being refined using eid and feedback on performance on various pasture types but a recent example is a cut off of 150g/day. Below that level lambs were dosed; above it they were not. Performance measured over the next 2-3 weeks showed no adverse effects on the untreated lambs while those that were treated responded and increased their DLWGs.

Discussion Session – Open Day 28th June 2011

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?

- BZ for Nematodirus (if required) but a drench efficacy to be done to check for resistance. Care required if the challenge is late when Teladorsagia and/or Haemonchus may have started to come into play.
- Possibly use LV for early season treatments if for example Nematodirus risk is quite late and a BZ would be risky. Late season not a sensible option.
- ML group to be used carefully (see below) and further FECRTs done to keep a careful eye on the situation

How quickly would you integrate a new group(s) into the programme?

- Integrate monepantel (4-AD) now. Quarantine treatment + use in lambs mid/late season but must be on the basis of FEC count and after ML / LV use early season.
- *In view of the situation with AR in the other groups, delegates were informed that this process had already started. 4-AD was used on ewes at lambing (90% only) in 2011 to avoid reliance on MOX again at this time. In 2012 MOX will probably be used again at lambing with 4-AD in lambs mid season.*

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

- Extra care on dose accuracy given AR status
- Increased use of FECs on the farm - invest in a FECPAK for monitoring and drench tests more regularly
- Extend work with partial and targeted flock treatments and use of lower risk grazing e.g. silage aftermaths
- Nutritional effects – improved grazing to help lambs growth rates + ewe nutrition around lambing High protein levels in the TMR
- Use of dry ewes to reduce contamination levels in late season
- Breeding? This farm is breeding it's own females so it should be possible use of FEC EBVs in the nucleus Lleyns and also the crossing (Aberfield) rams used for the crossbred ewe production.

General Conclusion

- This farm represents a major challenge with triple resistance present. However, with good knowledge of the worm species involved and positive actions to minimise future selection for AR this does not mean that they cannot control worms well and produce high levels of performance. It is a very good example of how information can be used to protect the future.
- Barriers to success identified were access to larval differentiation, assessing DLWGs for targeting treatments.

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. Eid and auto-draft/weigh facility greatly enhances ability to dose to weight.
Quarantine treatments for all in-coming sheep	✓	SCOPS recommendations fully adopted for in-coming rams	Updated as SCOPS recommendations were updated when the new group became available in 2010
Test for anthelmintic resistance	✓	AR status investigated over the last 4 years and taken into account within the strategy	An FECRT is urgently required to confirm the situation with the ML (clear) group (in progress August 2011).
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	Further increase the use of selected treatments ewe and lambs moving away from whole flock treatments. Now drenching to weight gains in the latter part of the season.
Select the most appropriate product	✓	Different products now used within the season according – carefully increase use of the MLs. Use of narrow spectrum products whenever possible (not combinations)	Continue this move to using various products at different times Integration of monepantel underway but must be done carefully with goof monitoring. Use of closantel for Haemonchus control
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.	As above - continue to develop this part of the strategy reducing the proportion of sheep treated at any one time.
Reduce Dependence on anthelmintics	✓	Use Of FECs / grazing improvement; reduced challenges / rating of challenge for different pastures; avoidance strategies	Grassland improvement / nutrition Use of dry sheep and grazing strategy of silage aftermaths etc. to try and reduce pasture contamination levels. Possibly look at resistance/resilience in breeding policy in the future.

Summary

- The combination of the need to increase levels of performance and stock numbers with the anthelmintic resistance status on this farm mean it is extremely challenging. However, in conjunction with improvements to the grazing, system and breed selection, 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 anthelmintics available through careful, judicious use and choices.
- SCOPS principles have been fully implemented and this includes the use of eid and auto-drafting facilities to allow for targeted treatment of lambs based on performance. Results from 2011 show that this has worked well and we are able to show that drenching on the basis of DLWG has not reduced the performance of the faster growing lambs; but has boosted the DLWG of those treated.
- This farm demonstrates the value of FECs in monitoring the year to year fluctuations in worm activity, in particular Haemonchus and the need for a farm strategy + the need for flexible strategies to cope with this variation + forward planning based on information gathered.
- Levels of performance have been significantly improved whilst the SCOPS principles have been implemented. Previously, very few (if any) lambs were finished off grass; in 2012 approaching 50% will be finished by the end of August.
- Future options include further reducing dependence on anthelmintics through breeding and nutrition together with even more emphasis on partial and targeted treatments to maintain a worm population *in refugia*.

Lesley Stubbings

June 2011

