Parasite Management Principles on Sheep Farms

Parasite Management Principles

During the annual cycle on a sheep farm, there are three uses of Cydectin Long Acting Injection for Sheep that may be beneficial to the farmer and his livestock.

These are:

- protection of stock against barber's pole worm *(Haemonchus contortus)*
- to minimise the frequency of drenching (and associated yarding and handling) of hoggets through the autumn period, and
- prelambing treatment of ewes.

The following notes have been prepared to provide an industry perspective on each of these potential product uses.
The role of the veterinarian or farm advisor is to provide their farmers with technically sound advice on the management of parasites to allow them to maximise their farm productivity in a sustainable way. This involves a "whole farm" approach, treating each farm as its own ecosystem.
As with all plans, parasite management programmes require regular and on-going monitoring including drench efficacy testing and livestock performance analysis.

1 Protection of Stock against *Haemonchosis* (Barber's pole) – Practical & Productivity Aspects

Barber's pole worm is a common, widespread and significant threat to NZ sheep farmers via the clinical syndrome Haemonchosis and also via subclinical effects.

Haemonchosis is a very visible and recognisable syndrome of particularly young sheep causing lethargy, anaemia and often sudden death. Death rates can be high (>10% of a mob) and ongoing over the period of risk (up to 4 months). The sub clinical effects are not always associated with the above but are unseen and usually not measured. These effects include suboptimal weight gain or even weight loss in lambs/hoggets/ewes and reduced ovulation rate in mating ewes resulting in decreased reproductive performance.

Some important facts about barber's pole:

- The female worm is a prolific egg layer/breeder (10,000 eggs/day/female)
- These worms cause abomasal (stomach wall) damage and blood loss (50-300 mL blood loss/day/lamb)
- Require very specific environmental conditions to flourish (warmth and moisture)
- Predictable "seasonality" to risk period (January - May)
- Explosive outbreaks possible and common
- Subclinical effects on ewe reproduction possible especially 2-tooths
- Relatively specific NZ geographical distribution due to epidemiological requirements
- Very little documented drench resistance to this worm i.e. "relatively" easy to kill

To NZ farmers the major questions regarding barber's pole outbreaks from a production basis are:

1. Are my sheep at risk?
2. Which ones?
3. What can I do?
4. When do I act?

"Best Practice" management of possible/predictable barber's pole outbreaks and associated subclinical effects, centres on:

- Ongoing "monitoring" of risk factors – temperature, rain, dew, FEC and larval culture, mob health, knowledge of L3 contamination of pastures
- Ability to control or alter these factors e.g. Shift to low contamination pasture or crops, utilise less susceptible stock on higher risk areas (MA ewes)
- Strategic use of the most appropriate drench incorporating drench efficacy, administration method, length of protection, production benefits, contribution to drench resistance and mitigating factors

Important factors in order of consideration are:

1. Animal welfare – the prevention of unnecessary animal loss and suffering
2. Farm production and profitability
3. Contribution to future drench resistance
4. Logistic issues – application methods

Summary

- Barber's pole outbreaks are widespread, significant, geographically and environmentally predictable
- Best practice barber's pole protection and control incorporates a mix of management practices – one of which is drenching
- Barber's pole is relatively (currently) easy to kill with available drenches
- Timing of drench input and length of action are critical criteria to consider
- Drench resistance issues arising from warranted strategic barber's pole control are not the number one issue to consider before drench choice is made

2 Protection of Hoggets through Autumn from Parasitism and Pneumonia-Pleurisy Complex

Lambs/hoggets born in the previous spring are widely recognised as the highest risk group of sheep on New Zealand farms likely to suffer from worm effects. These effects can be categorised as clinical or subclinical and have a predictable seasonality.

Current practice on many NZ farms incorporates:

- Drafts of killable or saleable lambs at weaning and at reasonably regular intervals through the summer and autumn
- Routine worm management of both these sale lambs and ewe lamb replacements (often at 4-6 weekly intervals from December - April)
- Selection and specific animal health interventions (vaccinations) of ewe lambs for their first mating as ewe hoggets (usually at about 1st May - 1st June)
- Purchase onto farms of tradable lambs for finishing and slaughter, (where policy and feed levels dictate/allow)

These practices can be complicated and compromised to a certain extent by market forces and environmental conditions in some areas (e.g. drought). The result is often a significant increase in the number of "young sheep days" (= no. lambs grazed x no. days grazed on farm). which adds to pasture worm burdens in late summer-autumn. Another trend over the last 6-10 years has been to increase the number of lambs born, by utilising more fertile & fecund breeds/strains and mating at younger ages (hoggets). This productivity increase coupled with the higher number of young sheep days on farm, exposes more animals to enzootic or hogget pneumonia-pleurisy complex. This disease complex is one of New Zealand's most significant and ubiquitous subclinical production limiting diseases. It is caused by viral +/- bacterial infection, and primarily affects hoggets throughout autumn.

Mob management and environmental/climatic conditions are major influences on the severity of an outbreak. The disease results in detectable pneumonia-pleurisy at slaughter, on farm deaths/losses and most importantly, subclinical disease resulting in compromised summer-autumn weight gains. Immunity to this infection is usually well established by 8-9 months of age in lambs.

Mustering, yarding and handling of susceptible lambs/hoggets during the risk period, increases the risk of primary infection and worsens the disease in infected lambs.

A good animal health and worm management plan should aim to maintain and enhance animal health and welfare, and maximise farm productivity and profitability, while addressing issues of farm sustainability such as drench resistance.

Therefore, any effective worm management solution that:

- reduces stock mustering, yarding and handling
- allows lambs/hoggets to spend more time grazing on pasture and
- reduces the risk or severity of pneumonia-pleurisy should be considered as part of an animal health and worm management plan.

CYDECTIN *Long Acting Injection for Sheep*

3 Prelamb Worm Management in Ewes

Much has been written on the topic of prelamb drenching in ewes. Risk management must be the foremost deciding principle in the application and appropriateness of prelamb ewe worm control measures in any individual farm.

Risks associated with prelamb ewe treatments vary enormously but in simple terms boil down to:

- Risks of treatment/drenching
- Risks of no treatment/drenching

New Zealand derived scientific data from experimental trials, computer modelling and the national survey shows that prelamb drenching of ewes, will accelerate the onset of drench resistance or exacerbate it if already present. However what is far less researched and documented or quantified is the question of how much do these treatments add to this risk and at what rate do they contribute or worsen resistance development.
At this stage the NZ scientific and worm advisory community cannot answer these questions and strongly advocate ongoing research. As an industry we must not only be aware of this but also keenly support research initiatives and seek their outcomes.

Research supported by industry benchmarking has found that a multiple (twin) bearing ewe that lambs:

- at her mated weight plus a minimum of 15 kg
- in a body condition score of >3 (scale 0-5)
- onto a winter/spring pasture mass of >1200 kg/ DM/ha
- at a stocking rate that maintains this pasture availability
- is highly unlikely to benefit from prelamb treatment for worms.

In this ewe the Post Parturient Rise in faecal egg contamination of pasture by worms, is minimal in size and duration.
The pasture contamination risk to her newborn lambs is low and infection of lambs with worms is lessened by her ability to provide adequate milk.
The risk of not treating in this scenario is low and commercially and sustainably acceptable.
Productivity is maintained, refugia levels are potentially high, commercial benchmarks are met.
But how realistic and common is this scenario? It is being achieved throughout New Zealand but, like all ideal scenarios, is very difficult to realise and can be impacted by both farming operations/ management factors and seasonal issues that are outside a farmer's control.

The converse to the above scenario is also relevant and present within the NZ industry. Ewe body weights and prelamb body condition scores are compromised (i.e. low) as are pre and post lambing feed levels.
Stocking rates give a predictable post lambing fall in pasture cover. Individual ewe relaxation of immunity to worms is significant as is the Post Parturient Rise.
Milk production is low and with associated declining feed covers and significant worm egg output by ewes, lambs are forced to graze heavily contaminated pastures. This is a set up scenario for low(er) lamb survivability, higher ewe losses over lambing and lactation, lower lactational and pre weaning lamb growth rates, more lambs held on farm longer, more summer and autumn parasite build up and a negative impact on subsequent year(s) production.
Somewhere between these two scenarios fall most NZ sheep farms and it is obvious that an "all-or-none" approach carries enormous risk of either overtreating or even worse, undertreating.

A best practice approach to prelamb worm management in ewes requires a clear understanding of:

- The different requirements for treatment within any given flock – candidates for drenching may include low body condition score or low body weight ewes, first lambers and multiple bearing ewes
- The maintenance of a high level of worms in refugia
- The varying attributes (such as efficacy and length of action) and cost effectiveness of drenches – their appropriateness and timing.

Once a decision is made to drench those ewes identified as requiring treatment then the final requirement is a planned approach to mitigate or lessen any resultant negative outcomes of that drench i.e. resistant worms.
This is achieved by overgrazing with other classes of livestock (deer or cattle), with untreated healthy ewes, by spelling pastures or alternate land use i.e. cropping/ hay.
It would be reasonable to state that in a flock where designated need has been established, the risk of resistance enhancement by drench usage can be foreseen and managed.
Currently drench resistance in the NZ sheep industry is not the issue – managing worms is.
They are not one and the same thing.

Cydectin Long Acting Injection – A Breakthrough for Sheep

Easy to use long acting broad spectrum drench with persistent activity against:

- *Teladorsagia (Ostertagia) circumcincta* for 112 days[1]
- *Haemonchus contortus* for 91 days[1]
- *Trichostrongylus colubriformis* for 42 days[1]

Itchmite and nasal bot control.

Most potent macrocyclic lactone (ML) available.

Has shown efficacy against a number of ivermectin[2] resistant strains.

Controls benzimidazole (BZ) and levamisole resistant worms.

1 The protection period may vary from the times stated. Where resistance exists, protection periods may be shorter than those stated. Some field studies have shown that a longer protection period may be achieved.

2 As moxidectin shares a similar mechanism of action to the avermectins, it should not be used where avermectin resistance is present, except where specially recommended by an advisor.

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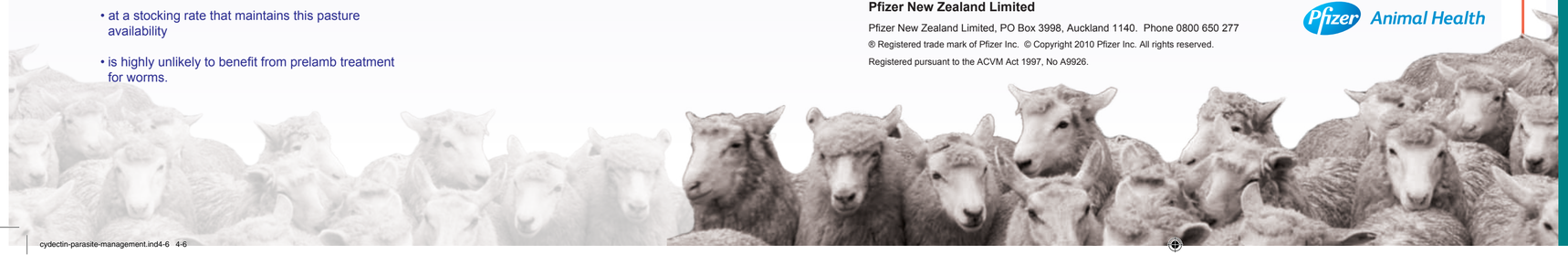

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