Managing worms and livestock: Wormwise in action

R Hilson
Vet Services (HB) Ltd, Waipukurau

How to implement the actions and advice of Wormwise and what is current best practice anthelmintic use? The theory is good, the science is sound but the message does not always get through.

Our practice enjoys a good rapport with our farming clients and we communicate current thinking on many aspects of farm, animal and parasite management on a regular basis. Farmer conferences, discussion groups, field days, newsletters, email newsletters, phone calls, farm visits and point of sale discussions all create opportunities for better understanding of parasite management and anthelmintic use.

In a nutshell, we...
• keep parasitism front-of-mind for sheep farmers.
• encourage appropriate feeding for all classes of livestock.
• encourage use of FECRT (Faecal Egg Count Reduction Test) and drench checks.
• have a growing number of clients who have now completed a second FECRT.
• make sure clients understand the concept of refugia and practical methods with which this can be achieved.
• encourage use of combination drenches.
• encourage use of effective quarantine drenches.
• encourage use of targeted selective treatments, mainly in adult stock, based on condition score and FEC (Faecal Egg Count).
• encourage use of “exit” drenches after use of injectable and capsule anthelmintics.
• encourage use of a “knock out” drenches in autumn.

In short, we do our best to encourage farmers to follow “best practice” and to adhere, where possible and practical, to the principles of Wormwise. The word “encourage” is significant as despite the best will in the world many messages do not get through and any production animal vet who has explained the refugia concept for hundreds of individual customers at point of sale will know how that feels.

Much of the hands-on experience I have in worm management comes directly from experience in farming and as a case study it would suit to show some Wormwise principles in action. Karen and I farm 220 hectares (208 effective) on the Takapau Plains, running 700 composite ewes and 180 hoggets, a breeding herd of 300 red hinds, 60 velvet stags and also finishing all offspring plus some trade cattle. A lot of thought has been applied to the breeding and feeding systems, which I will outline, and we try to utilise good parasite management techniques within our boundaries.

The farm system explained...

Our capital stock ewes and hinds are priority. The cattle are a release valve for times of pressure in late winter or during droughts- making a margin is enough even if it is not necessarily a big margin. Cross-bred heifer calves are purchased around the end of the year or rising two year cattle in late winter.
The aim with the sheep is to produce as many lambs from as few ewes as possible and to grow lambs fast and sell them quickly. The ewes are composites with a five year scanning average of 180% for the MA and 168% for the two teeths- overall lambing averages 146%. Only in-lamb hoggets are wintered and they scan 123% and lamb 96% to the ram. There is a six month shearing policy with shearing at weaning and immediately after ram removal.

The hinds are predominantly English red deer and are single sire mated and fully recorded. The breeding records allow selection for better weights and good velvet weights. Average weaning weight for the last five years is 53kg for stag fawns and 48kg for hind fawns. The velvet stags four year and older average 6.15kg first cut, being selected from two year olds that average 2.97kg before culling. Hinds are culled for temperament, poor growth rates of offspring, scanning empty at any age or for failing to rear a fawn.

The system focuses on feeding as well as breeding. Ewes are fed winter crops from scanning onwards, the sheep unit has 18% of its area in lucerne that is direct grazed and we utilise plantain for lambing ewes and finishing lambs and yearling deer. The hinds winter on kale crops for up to 100 days.

It may sound a little complicated but is likely to mirror production systems on many NZ farms and will therefore reflect some of the complexities of parasite management that need consideration if Wormwise principles are to be applied in a working situation. There is much scope for integration of different grazing species and opportunity to minimise drench use.

Cattle considerations

Cattle are quarantine drenched on with oral triple combinations (and tickicide, when appropriate), Refugia can be tricky but usually a small number of older cattle are still on the farm so they are used to graze paddocks near the yards before calves arrive, to provide contamination. They can also be joined with the young stock as they add further to refugia and act as good leaders for calves.

Most cattle in this system get only 1-3 drenches in their life. There is so much room for cattle to graze relatively clean pasture that there has not been any clinical reason to drench regularly.

We also reflect NZ-wide reality by never having done a cattle FECRT and rarely doing a FEC.

Sheep considerations

We have done two faecal egg count reduction tests (FECRT) with the most recent one in the summer of 2014. A FECRT done on this property in the early 1990s showed marked BZ resistance and the subsequent (over) use of ML drenches on the farm through a stud business means the 2014 FECRT showed early ML resistance issues (full ivomec at 91.3% and abamectin at 99.3%). BZ/levamisole combinations perform 100% and Levamisole at 99.7%.

The main issue within the FECRT results is Cooperia at -227% kill with ivermectin and 75% kill with abamectin, noting that this species only contributed 36 eggs per gram to the pre-test egg count of 1800epg this summer. Ostertagia was present at 252epg and showed early resistance to both levamisole and ivermectin (98%). Ivermectin was also only 97% effective against Trichostrongylus, which was present at 1080epg.

We are understandably wary of the implications of drench resistance.

Ewes are rarely drenched- two tooths have been pretup drenched once when they had clinical issues two years ago and a FEC was about 350epg. Grass-fed ewes are drenched at docking on condition score but with feed covers and lamb rearing status in mind. Some paddocks may have most ewes drenched but on average probably 20% of ewes are drenched at docking.

Most ewes winter on crops so an assumption is that they do not face any challenge in winter. They have always been set stocked in good condition (without drenching and without dags) but FEC often tell variable stories- in 2013 they set stocked undrenched at 800epg but the previous year at just 60epg. The ewes are not prelamb drenched and singles and twins, while lambing apart, are all set stocked at at least 10 ewes/ha. This does make for some potential feed pressure close to docking. This undrenched ewe story is a hard story for many farmers to
comprehend - the desire to prelamb treat ewes, especially with long acting products, has become deeply ingrained in sheep farming circles.

We have to accept that there will be a lot of dagging required at weaning but consider this is a good trade off with use of long acting anthelmintics in lambing ewes. Ewes are drafted dirty/clean at weaning and we expect to dag or crutch over half the ewes before shearing, despite the ewes nearly always being in excellent condition. A relatively early weaning date of 20-25 November means fly strike is rarely a problem.

Ewes lambing on plantain have never been drenched pre-lamb or at docking. The plantain has been grown only on the deer farm until this year and it is grazed in autumn and winter by young deer. Triplet and twin bearing ewes lamb on plantain at about 11-12 ewes/ha and pile on condition after settling into lactation. Lambs weaned at 95 days last year at 41kg average. This is a good example of integrated grazing with an opportunity within a small area of the farm to reduce inputs and reduce risk of resistance.

The lucerne is high enough to start a six week rotation by about 10 September. Ewes destined to graze the lucerne are usually not given a docking drench unless they are particularly light. They are highly stocked in 2-3ha breaks (120- 150 ewes with twin lambs at foot at 175- 185%) so they don’t have astonishing lamb growth rates. However the ewes do very well and wean in good condition, similar to the plantain ewes.

The direct grazing of the lucerne effectively contaminates the crop and headlands with the full mix of worms - presumably. We have extended drench intervals on lucerne (to be at only 70epg two and a half months after weaning in previous seasons) but after getting a significant clinical issue with nematodirus in weaned lambs that had just grazed the break with the biggest grassy headland (average 350 nematodirus epg) we now stick to a monthly oral drench for the lucerne lambs.

Unweaned lambs that are with ewes on grass are drenched a month before weaning but unweaned lambs with ewes on lucerne or plantain are left undrenched. This pre-wean drench is potentially a discussion point but we have seen remarkable drop off in lamb condition and considerable dag formation in lambs not drenched pre-weaning. This was most apparent in one mob last year that was accidentally missed due to a map being misread. This may fly in the face of some research but possible explanations include high pasture contamination from high ewes stocking rates of undrenched ewes and the fact that the synchrony effect of teasers has meant the lambs are probably considerably older at 95 days than most farms with a normal lambing spread. The teaser effect sees at least 90% of ewes lambed within 5-7 days of the planned start of lambing.

Lambs that get drenched at weaning (ewe hogget replacements and smaller finishing lambs) stay on “contaminated” grass areas for at least a week if they are heading onto new crops or if they are to go across to the deer block. Lambs going onto lucerne get a day or two to settle before going directly onto lucerne as this is already well contaminated by ewes and lambs.

We also provide refugia by adding about 8-10% ewes to each lamb mob after shearing, which occurs within a few days of weaning. All shorn ewes are given a Salvexin booster and light ewes drafted immediately after shearing join the two lamb mobs. This makes lamb mobs much easier to move, rapidly improves ewe condition and hopefully provides significant refugia. These ewes are removed in early to mid February before the ram lambs get too active.

The intention is to sell lambs fast and minimise numbers by autumn. The feeding regime allows up to 45% of lambs docked to be killed at weaning. The lucerne system then ensures good growth rates (about 260g/day in 2014) so by the end of April only selected ewe hoggets and about 5% of the original lamb crop (ewe hogget lambs included) remain on the farm.

All lambs still on the farm in late March are given Startect, unless they will be killed within the following few weeks. As this is mainly the ewe hoggets, this is an inexpensive procedure and presumably best practice.

The weakness in this system is the high contamination we are likely to achieve on the lambing areas but this is mitigated to a degree by use of crops and rapid sale of finishing stock.

We rarely buy trade lambs- partly due to a lack of time for the extra work required and partly due to an innate
concern about drench resistance. Any trade lambs are quarantine drenched on arrival with a triple drench or Startect (depends on what is available in the shed) on arrival or before trucking. We also moved to a self replacing ewe flock from a five year ewe policy, partly to reduce the risk of introducing resistant worms.

Deer considerations

We have scant information on drench resistance or otherwise with deer parasites- but maybe a bit more than most deer farmers. Faecal larval counts for lungworm are done every year and there has yet to be any sign of resistance. Early investigative work with abamectin oral on the property also showed no issues with strongyles but egg output was low and counts were never high enough pre-drench to be confident there is not a problem.

We have tried to “rotate” drenches by alternating between oxfendazole and abamectin on an annual basis. It may be prudent to use at least double combinations in future (with levamisole) but there is little information available.

I have been loath to suggest use of triple combination drenches in deer. Safety and residues are an issue but unless we change the manner in which we use products in deer it would seem likely triples will fail in no time at all too.

We use pour-ons rarely. They do suit at weaning if time pressure exists as one fawn movement through the race is avoided. A higher dose is used then, often 1.5-2 times recommended. Otherwise all animals are drenched orally from weaning until late winter then never again in their lifetime. This does presumably help with refugia as basically no adult stock, bar the odd high-value sire stag, will get drenched. Poor performers are culled.

Fawns may be drenched a few days before weaning but an early pre-wean drench is not done. It is accepted that fawns may have significant worm burdens pre-wean but this seems an unnecessary job with small animals if there is no apparent clinical effect of the early parasitism.

Refugia in fawn mobs is provided by some cull adult hinds remaining with the fawn mobs but at only 2-3% this is probably still too few. Fawns are weaned back into paddocks that had been grazed by the unweaned mobs before weaning, hopefully creating a degree of refugia. After mating is finished we remove the cull hinds that were acting as leaders and add more hinds in from the mated mobs. This means we can add more hinds than before and pick better leaders, making mustering easier.

Refugia is also achieved by ensuring undrenched adult stock follows the fawn rotation at some point over winter and that the adult hind mob cleans up most paddocks in spring. The yearling hinds are useful for the follow-up grazing in winter as they are a small mob of undrenched animals so do not graze paddocks out quickly. This allows them to be moved on fast and for the grass to recover and still be part of a fawn rotation.

What could be done differently?

Nothing is perfect but what could be done differently on this farm to be more thorough?

• If more time was available it would be prudent to monitor lamb FEC better on crops. The lucerne-fed lambs have had low counts for long periods but use of a preventative programme may be excessive.

• Likewise we could monitor ewes parasitism better with more FEC. However they are monitored closely through regular shifts and they are well fed all year.

• A FECRT could be done with cattle but this seems a costly procedure in a low-input system with small numbers of cattle.

• A FECRT or worm counts could be done for the deer to assess the effectiveness of the anthelmintics used. The stalling point is the cost to the farm and the time and organisation required. It would be foolhardy to think there was no issue.

• More hinds could be used for refugia in fawn mobs but this is not possible until after mating finishes. There are few cull hinds left by weaning as all hinds that fail to rear a fawn are culled in January. Adding in hinds that need to be mated would necessitate adding stags to those fawn mobs and this is too difficult from a management perspective.
In summary, this is not an overly complicated farming system and it is relatively simple to incorporate the Wormwise principles into the management systems. The use of crops and alternative forages as well as new grass is a challenge to consider good production without compromising drench efficacy. Not only do the crops ensure better feeding they also present the opportunity for specific parasite management techniques to be used for certain mobs but requires some thought beyond a “one size fits all” approach to drenching.

A key component of a parasite management strategy on any farm is that the advising veterinarian has a good understanding of the management goals of a farm and has been given the opportunity to provide measured and considered advice. While vets are undoubtedly best placed to ensure the principles of Wormwise are followed on an individual and national basis, they do require the opportunity to work closely with all farmers to be effective in delivering those messages.