

INFO SHEET

REARING HEIFERS WITHOUT DRENCHING



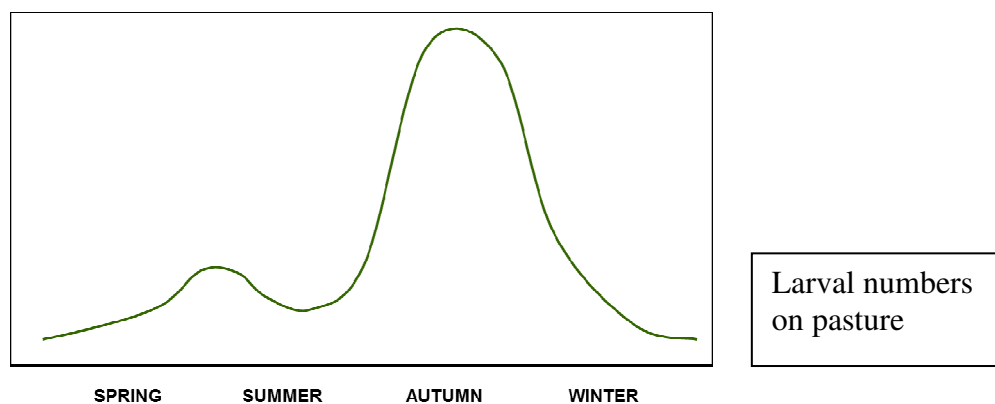
Summary

- It is quite possible to rear good quality young stock without resorting to drenching.
- Success depends heavily on avoiding early exposure to the autumn larval peak and grazing strategies must revolve around that. This requires an understanding of the biology of the parasites involved (especially *Ostertagia*) and tailoring that to an individual farm situation.
- Creating a bank of clean, good quality feed for autumn is essential.
- Once calves have a significant worm burden, it is difficult to correct without the use of ivermectin. Organic remedies may assist in prevention but appear to perform poorly once the burden is sufficient to stop or reverse weight gains.

Worm Life Cycles and Larval Development

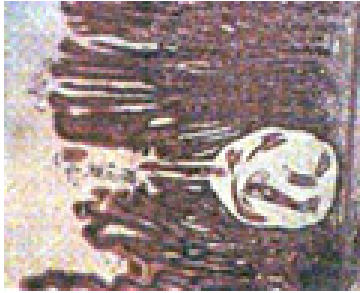
Worm eggs passed in the dung hatch into larvae and go through three development phases on pasture until they become infectious. When eaten, they go through one more stage to become egg-producing adults – it's at that time they start doing the damage. Under ideal conditions this whole cycle can take as little as 4 weeks.

The survival of larvae and their speed of development on pasture depend very much on moisture and temperature. Summer dry and winter cold slow them right down. Larval survival is reduced too, but eggs are much more resistant and can hang around until conditions are more suitable. What tends to happen is a minor rise in the numbers of larvae in spring then a drop off in summer, followed by a rapid build-up in early autumn once the rains arrive and the weather cools off. This is the major danger period for spring-born calves.

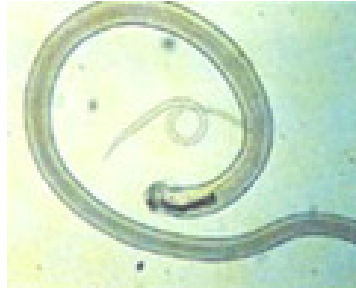


There are several species of worms that can affect calves but the two most important ones are *Ostertagia*, which lives in the stomach (abomasum) and *Cooperia* which lives in the small intestine. *Ostertagia* in particular can make calves quite sick and substantially inhibits appetite.

A serious infestation of a combination of these two species results in a scouring animal, losing weight with a suppressed immune system. It is now wide open to any other infections that happen to be around such as pneumonia, BVD or Yersinia and in a weakened calf, these infections can be lethal.



Ostertagia cyst in the abomasal wall



Ostertagia adult and larva

Controlling Larval Intake

It is virtually impossible (and indeed not desirable) to rear calves in a larvae-free environment. The objective is to keep larval intake low enough so weight gain is not affected while allowing just sufficient exposure for resistance to develop.

The key to achieving this is to minimise exposure to the autumn larval peak

If significant larval intake happens early in the autumn, the consequent cycle of suppressed appetite and poor immune response is very difficult to break without resorting to a conventional drench.

Creating clean pasture for the autumn:

- Cut for supplement. The regrowth will be safe from larvae but watch out for Facial Eczema if cutting for hay in the summer. The dead material left behind may result in high spore counts when it rains.
- Regrass. High tannin species such as chicory and plantain may help, as may flax. Note these species seem to work best as a preventative. Once calves have worms, their usefulness appears limited.
- Spelling. If there's been no young stock in a paddock since the winter before, it's likely to be relatively safe.

Using older animals. Adults are generally resistant or only carry a small number of worms. Cleaning up behind the calves at the run-off using dries or beefies keeps larval numbers to a minimum. The safest place for calves is the milking platform rotating 10 days in front of the cows, but this is not usually the most practical option in autumn!

Pasture management:

Spreading calves out helps reduce both pasture contamination and larval intake. It also helps with eczema if this is a problem. No strip grazing during the risk period! If necessary, feed some silage or hay. Follow with older animals or, although this is not exactly ideal, the rising 2yo's (but only if they will not get pinched).

Resistance and Resilience These are two sides of the same coin. A resilient animal is one that can carry a worm burden but show little or no signs. A resistant one has an immune system that does not allow worms to get established. You need to keep this in mind sometimes when testing for worm burdens (see later).

There are breed differences. Friesians tend to be more resilient and develop resistance earlier than Jerseys. In a mob of crossbreds it's common to see some animals that look almost pure Friesian and some almost pure Jersey. Watch the Jersey ones – they're more likely to develop worm problems.

Testing Unfortunately, faecal egg counts (FEC's) are not a particularly reliable method of assessing worm burdens in cattle more than 6 months old. However, they can still be quite useful when interpreted in conjunction with growth rates and how the calves are looking. The best method of checking for *Ostertagia* is a blood test but since this is relatively expensive, it is probably most useful when initially developing a pasture management regime as a check to see you've got it right.

Getting a faecal sample:
Although samples can be scraped off the yard, it can be a bit difficult if the faeces are liquid. If you want to know tag numbers you'll need to watch them closely.
To get a direct sample you will need latex gloves, lube, pink-topped pottles (at least 10), a felt pen.
Write the calf's number on the pottle first. Lubricate the glove, insert 2 fingers into the calf's rectum and spread them to allow some air in. Wait. Most calves will defaecate into your hand within 30 seconds. If not, gently massage the top of the rectum.

Weighing This can yield really useful information and give you warning if things are not quite right. A set of weigh bars doesn't cost much and can be shared between neighbours.

What we did at DCRU The following strategy has evolved over 5 seasons. Previous to that all young stock were grazed off on a property at Foxton at very low stocking densities, supplemented with carrots. Although not particularly representative of what happens on most organic farms, this was very successful at producing extremely well-grown worm-free heifers! However in 2005 the property was sold and the decision was made to take over control of grazing.

What works There are two small run-off blocks adjacent to Massey which have been converted and certified. One is at Haurongo, an elevated river terrace to the south and the other at the Dry Stock Unit (DSU) on flats next to the Turitea Stream. Haurongo tends to dry out in the summer but the DSU usually provides good consistent summer grazing, although in the autumn it can get quite damp. A cut of silage is taken off the flats in October.

Calves stay on the milking platform rotating in front of the cows until mid-December*. By that time the DSU paddocks that were cut for silage are ready for grazing and the calves stay there for the summer. With the arrival of the autumn rains they are immediately moved to Haurongo (which has also had silage and hay cut off some paddocks).

We've found the timing quite critical – 10 days too late and the calves will have worms. Some years the rains arrive abruptly and there's no problem making the decision. Other years it's more gradual – I use district spore counts as a guide figuring if the eczema fungus is doing well, so are worm larvae. One problem is that in dry years there's little feed waiting for the calves at Haurongo and, although the chicory and plantain mostly survive, a lot of what's left is poor quality. To bridge the 7 – 10 day gap until it greens up again, a bit of silage can get fed and if things get really tight we usually have a bit of calf meal in reserve for emergencies. ACV goes in the trough.

The calves spend the autumn rotating half a paddock at a time. By then there's usually some dries to clean up behind them although growth far exceeds demand. Two weeks after the herd is dried off, the cows are moved to Haurongo and the calves back to the milking platform where they first-graze the new grass and generally keep the place tidy over winter.

This regime does not keep the calves completely worm-free. We see small numbers of eggs when doing FEC's from some calves and in the last 3 seasons there was one calf which showed evidence of Ostertagia in the blood test. However, growth rates were not significantly affected and target weights for mating and calving have all been met.

*Grazing newly-weaned calves on the milking platform will expose them to any diseases carried by the cows. This may be of advantage in most circumstances but if the farm has a high prevalence of Johnes Disease, it is advisable to keep calves well clear of cows until they are at least 6 months old.

What doesn't work: Getting the timing wrong! This has happened twice, both times resulting in (primarily) an Ostertagia outbreak. As mentioned above, moving the calves onto clean pasture at the right time was critical.

Once there was sufficient worm burden to produce diarrhoea and/or reverse weight gains, we had little success with ACV/garlic/homeopathics.

The Grow Organic Dairy Project Calves/heifers from 8 farms are being monitored for the second season. One difference that has emerged is the relatively low prevalence of Ostertagia on the monitored farms unless calves are put under real pressure. This contrasts with DCRU where it was the first species to emerge when things went wrong. Although everyone has different grazing regimes, those with the least worm problems do a number of things in common.

- Calves stay on the milking platform as long as practicable (either rotated 10 - 15 days in front of the cows or stocked 2-3 to a paddock)
- A clean bank of feed is created, primarily by cutting for supplement
- Older animals are often used to clean up
- Supplements used if necessary (as worm-free feed and/or to prevent grazing too low)
- Some form of monitoring of weights and / or trace elements

“When at home we don’t graze the calves tight (will feed silage to prevent this) and never break feed them on a cow paddock for a second time” – Kathy Bentham

“Big fan of flax especially in autumn. Maintain good Cu, Se and S levels in soil and pasture. Don’t keep calves that aren’t vigorous in the early weeks of life. I believe the 2 to a paddock regime gives them a fantastic start. Be observant and treat them as a priority even at the expense of some milk production.” – Mike Moss

Do you regularly discuss feed availability, parasite control and any other health issues with the grazier? “Yes, always” – Mark Pike

“We have always weighed young stock” – George Moss

“We stock 2 or 3 to a paddock until January than break feed through the best paddocks (not grazing the same paddock). As summer dries out we add silage to the feeding system” – Phil and Tracy Bax

Grazing Off

Grazing-off disasters seem just as likely to happen with organic farmers as conventional. To minimise the chances of this, good communication between owner and grazier is vital. Ideally there would be a contract on a weight-gain basis. The owner should regularly visit and discuss feed availability, parasite control and any other issues.

To Sum Up

- Quality feed at all times (supplement if necessary)
 - Create a bank of clean feed for autumn. Include a variety of species (chicory/plantain). Keep them spread out. Get them there at the right time.
 - Keep an eye on trace elements
 - Monitor (weighing, FEC’s)
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Finally...

If things go wrong and you have to use ivermectin, make the decision early. This is especially important if the weather is turning cold.

It should perhaps be noted that there is now reasonably widespread resistance by *Cooperia* to the ivermectin-type drenches. Although on its own *Cooperia* doesn’t usually produce a spectacularly sick animal it can certainly affect growth rates. Our conventional colleagues have combination drenches to fall back on, but perhaps for only a limited time. All the more reason to show them how it’s done.

The material in this information sheet comes from the experiences of organic dairy farmers, work at Massey University and published literature.

This information sheet has been compiled by Alan Thatcher Senior Veterinarian, Massey University

Additional information on other organic farming related topics: www.organicpastoral.co.nz

Grow Organic Dairy is a project by ODPG and Massey University and aims to grow the organic sector by supporting existing and potential organic farming businesses.

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Massey University

