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Sustainable internal parasite control for sheep

- What can I do to combat drench resistance problems in the long term?

Re-thinking parasite control

In the long term, farmers can not rely on drenches to control parasites. Some estimates suggest that more than 65% of farms have a species resistant to at least 1 drench family. Drench resistance is the inherited ability of **worms** to tolerate doses of an anthelmintic that would be expected to kill them.

Project aim

This Meat New Zealand-funded project aimed to develop long term methods of managing internal parasite problems in sheep. It aimed to -

- raise awareness of the drench resistance problem
- work with farmers to find ways to both **combat** drench resistance, reduce anthelmintic use and maintain production levels
- increase the number of farmers using strategies to delay drench resistance from 5% in 1991 to 50% in 1993

Parasitism costs are high

The effects of parasitism (both short and long term) cost the New Zealand sheep industry an estimated **\$270 million** annually in **lost production** (1995).

It is estimated that anthelmintic costs for sheep have increased from **\$25 million** in 1991 to **\$48 million** in 1998. However, sheep numbers (total wintered) have actually dropped from 55 million to 46 million over these seven years. Using the figures above, on average, **farmers spending on anthelmintics** has increased from about **\$0.45 to \$1.04 per sheep wintered** from 1991 to 1998.

Key findings – use integrated approach

The project found that sheep farmers must take an

integrated approach to managing parasites. In other words, use –

- pasture and stock management
- monitoring techniques
- genetics
- strategic use of anthelmintics

...to combat the problem from several angles.

On the Parasite Action Farms in the project, farmers saved on average **\$1500/year**. This was achieved through **regularly** monitoring faecal egg counts and adjusting management.

Parasite Action Farms to demonstrate methods

Four **Parasite Action Groups** were set up, involving farmers, vets, farm consultants and scientists. They were in Canterbury, Lower North Island, Southland and Gisborne. **Twenty farms** with existing drench resistance problems were identified in these regions and they were then set up as **Parasite Action Farms**. Field days were held twice a year on each farm and a specific plan was drawn up by the Parasite Action Group to combat the particular parasite problems.

Monitor farms surveyed

The project also involved carrying out a Faecal Egg Count Reduction Test (FECRT) on each of the 22 Meat New Zealand monitor farms. This survey identified what worms were in the mobs, their quantity and the efficacy of the drench control. Farmers can request their vet or local laboratory to do this test (costs about \$300).

What was very revealing about the FECRT survey was that **50% of the monitor farms** were found to have worms with drench resistance to benzimidazole (white drench) in 1992. 14% of the farms had worms resistant to Levamisole (clear drench).

Internal parasite management strategy for farmers

(1) Set up an internal parasite management programme

Get your vet or animal health advisor to help you. The aim of your programme should be to -

- reduce the contamination of pasture by infected stock
- restrict the exposure of susceptible stock to infective larvae

(2) Prepare 'safer' pastures to reduce the intake of infective larvae

Most of the parasites, at any one time, are on the pasture, rather than in the sheep's gut. Spelling the pasture for short periods (less than 3 months) will not reduce numbers of infective larvae sufficiently.

To help prepare safer pastures, pre-graze with resistant stock (e.g. cattle) to remove the long grass.

(3) Reduce stress in your flock through good nutrition

Well-fed sheep in good condition will be less susceptible to internal parasite challenge than under-fed sheep. This is the single most important factor in establishing sustainable management of parasites.

(4) Use anthelmintics only when needed

Don't drench to dates! Regularly **monitor** internal parasite levels through taking a faecal egg count (FEC test). Farmers can buy commercial packs to do their own FEC tests and can get worms identified by taking faecal larval cultures.

Although worms can cause scouring in animals, there are **other causes of scouring** that are unrelated to worms.

(5) Correct drenching/dosing/injection practises

Set dose rate for the heaviest sheep in mob. Use one drench family a year. Aim to keep the number of drenches per year to a minimum.

(6) Use stock management to protect lambs

Parasite numbers usually peak in spring and autumn. Give younger stock the cleanest, highest quality pastures and/or newly established pastures (e.g. fodder crops) during this time. Sheep and cattle (not goats) develop a level of natural **immunity** (around 8-9 months for sheep).

Re-contamination of pastures will occur between 1-5 weeks, depending on the stock and the weather. Graze lambs for a short time on each block.



Quarantine drench stock arriving on the property with a Milbemycin-Avermectin drench. Hold in the yard for at least 24 hours.

How did this project help farmers?

Reports from each Parasite Action Farm were sent to 50 of the neighbouring properties. During the course of the project, there were over **160 field days**, involving **5000 farmers**. At one field day in 1992, approximately 30% of farmers indicated that they would adopt some integrated parasite strategies. Project staff ran workshops for **vets** on possible strategies to limit drench resistance and developed 'point of sale' information on drench resistance to go out with anthelmintic products.

Cost/benefit to farmers

This project used a model to work out the long term financial implications of drench resistance. They were found to be very considerable.

Farmers are spending more on anthelmintics than they were in 1991, although they have less sheep. This is mainly because the rotational drenching system (to help combat drench resistance) requires farmers to purchase the more expensive drench families at some stage.

Resources for farmers

This project produced a booklet on *Integrated Approaches to Internal Parasites*. This is available from Meat New Zealand on 0800 696 328. *Also see R&D Brief 1, 16, 33 and 34 for more information on parasites.*

In 1991, it was estimated that only **5% of farmers** were carrying out **FEC tests**. While there has been some increase in the amount of farmers doing regular FEC tests on mobs, many farmers are still missing out on potential cost savings through using this simple monitoring tool. The project demonstrated that up to **\$1500** per farm could be saved.

Points to Remember

- Act now to delay the onset of drench resistance, prolong the effectiveness of the remaining drenches and avoid the occurrence of total drench failure.
- Drench resistance is forever.

Contacts for more information

- For a copy of the booklet **Integrated Approaches to Internal Parasites**, phone 0800 696 328, free fax 0800 187 781, or email: help@meatnz.co.nz and quote R&D Brief 67.
- Scientific contact: Jon Manhire, Agriculture New Zealand, phone (03) 348 0253.
- Funded by Meat New Zealand.
- Contractors: Agriculture New Zealand.
- Meat New Zealand contact: Mark Aspin, phone 0800 696 328 or direct dial (04) 474 0836.