

Double headed attack on lungworm

Vaccine possibility investigated

by Lynda Gray

WORKING ON the theory that two heads are better than one, scientists from Otago University and Invermay research centre have joined forces to combat lungworm in farmed deer.

Zoology student Stuart Parsons became interested in developing a lungworm vaccine after doing his BSc Honours project which compared parasites in Wapiti and Red deer.

Invermay vet and deer specialist Dr Colin Mackintosh advised Parsons on his BSc project and is jointly supervising Parsons with his PhD research which he started in September last year.

About one million deer are commercially farmed in New Zealand and Mackintosh estimates 25 per cent are farmed in the Otago/Southland region.

Between 200,000 and 300,000 weaners are bred

annually and these animals are most at risk from lungworm attack, especially during late summer and autumn.

Apart from good husbandry practices, the only conventional guard against lungworm is three to four-weekly drenching of weaners over the spring and summer period.

"Ultimately what we're looking to develop is a vaccine we can inoculate deer with before they are exposed to the parasite in the autumn," Parsons says.

Mackintosh estimates anthelmintics, lungworm related deaths and associated production losses cost the deer industry more than \$1 million a year.

Once ingested by deer, lungworm damages the lungs and leaves the animal vulnerable to other infections. While light burdens are tolerated, heavy infestations cause

coughing, laboured breathing and ill-thrift. If left untreated the animal's condition deteriorates and it may die within days.

Mackintosh is under no illusions as to the time the lungworm research could take. "It could take three years or more to determine if it's possible to produce a vaccine and as long again to develop it into a commercially viable product," he says. Adding to the time problem is the 'seasonality' of lungworm infections.

Lungworm larvae are dormant during the winter so it's difficult to get sufficient lungworm during this period to continue the research. Also, the only way to get large numbers of lungworm is to allow animals to become heavily infected which is 'very risky', according to Parsons.

Currently the scientists are

conducting laboratory tests to determine if the deer's immune system can distinguish between deer and cattle lungworm.

"If we find the immune system does distinguish between the two lungworms, it's likely we can develop a successful vaccine. If no distinction is apparent the research will change course and we'll concentrate on the genetics of the lungworm and try to identify reasons why the immune system doesn't recognise the parasite," Parsons says.

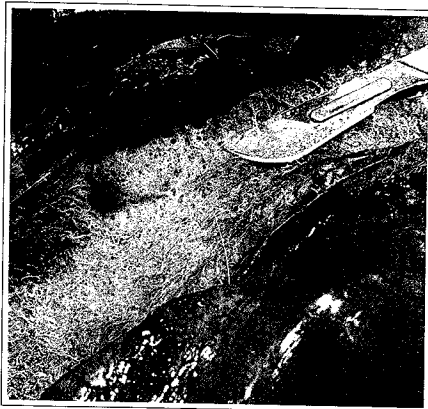
A commercial lungworm vaccine exists for cattle and Parsons will use this as a basis of comparison for the experimental deer vaccine and as a template for developing the deer equivalent.

Parsons is determined to prove or disprove if a deer lungworm vaccine is possible. □



Researcher Stuart Parsons

A cattle lungworm vaccine will be the model



Heavy lungworm infestation

The lungs of a six month Red deer hind which died