

Joint forces tackle Tb

Optimistic ten year plan

by Claire Grant

NEW ZEALAND researchers could achieve a tuberculosis resistant breed of deer and develop a Tb vaccine for deer in the next 10 years.

Otago University and MAF Invermay have joined forces to form a comprehensive research programme, its mid-term aim being to reduce deer Tb in New Zealand.

The complete removal of Tb from the country will only be possible with biological control of possums, the main spreader of the infection, but programme leaders associate professor Frank Griffin and Dr Colin Mackintosh believe the next decade will see some exciting developments in the control of Tb.

This will benefit New Zealand's export industry considerably, as it's likely to face increasing pressure to prove its products are Tb-free.

"Although tuberculosis isn't a killer disease and has a very low incidence in the deer population (less than 1 per cent), it's vital we address the problem to meet export demands," Griffin said.

Griffin, associate professor of immunology at Otago Medical School, was responsible for developing the BTB test which complements the existing skin test for deer and which is crucial for the deer industry's short-term aim of stamping out Tb, using a test and slaughter policy.

"Short-term, the deer industry has the skin test and the BTB test so we can accurately identify deer with Tb," MAF Invermay deer group vet Mackintosh says.

"Medium term, we're

working on understanding the immune system of deer, looking at the prospects for breeding Tb-resistant deer, and possibly developing a vaccine for stock in high risk areas.

"But long-term, Tb will only die out when it's controlled in the feral population."

During the research on disease diagnosis, it became obvious certain animals developed immunity and were disease-free, so the research is concentrating on identifying these protection mechanisms which could be used in vaccinations.

The scientists will do this using BCG, the vaccine against human tuberculosis, as a probe to find out why some deer develop severe cases of the disease

while others survive with mild forms.

Mackintosh said deer show a considerable range of reactions to Tb, from being mildly infected, to being riddled with pus-filled lesions.

One important requirement of a vaccine is that it prompts a distinctly different reaction in deer to that of the original infection, so farmers can easily distinguish between vaccinated and infected stock.

Trials using the BCG vaccine as a starting point have begun with yearlings on the MAF Invermay deer farm. Further trials are planned with weaners. Mackintosh says it will take five years of developing and testing to find out if they have an effective vaccine, but it may be 10

or 15 years before vaccination or genetic resistance against Tb becomes reality.

"Because the disease is very complicated, developing a vaccine isn't that simple, and the chances of our finding the right vaccine first off are remote. The trials so far are preliminary, but we'll have a good idea of the practicality of a vaccine in five years."

But even when Tb-resistant deer and vaccines become part of the deer industry, Tb will still be a threat.

"New Zealand will not be Tb-free until we get rid of the source of infection so it's vital possum control runs alongside this," Mackintosh said. □



Dr Colin Mackintosh, assisted by Rob Labes

Taking a blood sample for the Tb vaccine development programme