

OVERSEAS TRAVEL REPORT

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Travel to Italy and Portugal

17th July – 2nd Aug, 2004

Visit to Istituto Zooprofilattico Sperimentale (IZS), Brescia, ITALY

July 19th to July 21st

Background

IZS is a veterinary institute in northern Italy that conducts research into, and routine monitoring of animal diseases. It is the World Health Organisation nominated world reference laboratory for Rabbit Haemorrhagic Disease (RHD).

I visited IZS to further our important contacts with Dr Lorenzo Capucci, an expert in study of RHD virus who developed all of the main diagnostic ELISA tests currently in use in Australian RHD research. Rabbit research in Australia is entirely reliant on IZS for on-going supply of the ELISA reagents that underpin RHD analysis on a national scale. To date, they have supplied reagents to APCC based on a good working relationship established between Dr Capucci and Dr Brian Cooke, a former APCC and CSIRO staff member, who collaborated extensively in earlier research on RHD epidemiology. If collaborative arrangements with Dr Capucci were to lapse, reagents to continue RHD research could cost in the order of \$5,000 - \$10,000 per year, or even become unavailable.

Outcome of the visit

While in Brescia, I established cordial working relationships with Dr Capucci and with Dr Antonio Lavazza, who has taken over much of the routine investigation of RHD at IZS.

Dr Capucci examined RHD test results from South Australia and provided valuable technical input regarding their interpretation, and suggested possible directions for future research to resolve outstanding issues regarding RHD.

A jointly authored research paper was finalised for presentation at the World Lagomorph Conference.

Arrangements were made to collaborate with Dr Lavazza in research into European Brown Hare Syndrome Virus, an RHD-like virus that has caused widespread mortality in European hare populations. While this collaboration offers no immediate benefits to South Australia *per se*, it will reinforce the working relationship between our laboratories at almost no cost (we will contribute data and samples gathered in the course of past work on rabbits). Hares cause minor, but increasing agricultural losses in South Australia, so there is some possibility that this work may provide direct benefits in the future.

Assurances were given by Dr Capucci that IZS wishes to continue to provide reagents for Australian RHD research through the collaborative arrangements currently in place.

2nd World Lagomorph Conference, Vairao, PORTUGAL

July 26th to July 30th

Background

The Lagomorph Conference provided a unique opportunity to discuss our current research on rabbit management with experts from the field in other countries and to present the wider Australian viewpoint on recent developments. The conference included workshops on rabbit control and RHD where I presented research done on the epidemiology of RHD in South Australia and the benefits to the State since its introduction. Representatives from more than 60 countries attended.

Outcomes of the Conference

The primary outcome of the conference was increased awareness for Australians of the current status of rabbit research in Europe and vice-versa, and establishing contacts with other researchers to maintain that exchange of information. Among the specific issues discussed, two stand out as being of immediate interest in Australia:

Trends in development of resistance to RHD

RHD has been present in Europe for almost 20 years but in Australia only for 8 years, so it is likely that resistance in rabbit populations will become apparent in Europe before becoming apparent in Australia. If we can use the European experience to put a time-scale on likely changes in Australia it would have important management implications for landholders.

In Europe, as in Australia, the impact of RHD on wild rabbit populations has varied greatly between areas. Parts of Portugal and Spain have probably been most affected and are climatically more similar to Australia than most of northern Europe. There are no data yet available to show that rabbit populations in the Iberian Peninsula are recovering from declines that followed the spread of RHD, and indeed there is great concern that some rabbit populations are continuing to decline (rabbits are valuable native animals in Spain and Portugal). Reports from elsewhere in Europe generally concur; there is as yet little or no evidence of post-RHD recovery in wild rabbit populations.

These observations may be influenced by several factors that do not apply in Australia. In particular, the diversity and abundance of rabbit predators in Europe is greater than in Australia. Predation may be preventing population recovery in Europe even if RHD is causing less mortality than it did 15-20 years ago. Hunting pressure is also much greater than in Australia. Nevertheless, hunting pressure as an explanation for the continued low rabbit numbers must be balanced against the observation that extensive rabbit recovery programs in a number of areas (including restocking and habitat manipulation), conducted by both hunting and conservation agencies, have generally failed to produce significant population recovery.

Despite lack of data to define trends in rabbit numbers, Dr Paulo Celio Alves of the Research Centre in Biodiversity and Genetic Resources in Porto, Portugal, believes that he has in the past few years observed the first signs of natural post-RHD recovery in some rabbit populations in southern Portugal. If that is taken as

a likely timetable for Australia, we may have another 5-10 years before significant recovery commences locally.

Dr Alves and Dr Nuno Ferrand have led a research team that has conducted world-leading research into genetic diversity of wild rabbit populations. As part of this research team, Dr Pedro Estevez is beginning a project to investigate the genetic basis of resistance to RHD in rabbits. This work will be of direct relevance to monitoring the emergence of resistance in both European and Australian rabbit populations. Dr Estevez is keen to collaborate with us in this research and discussions about the nature of that possible collaboration will commence shortly. As a direct result of my visit to IZS in Brescia, I was able to alert Dr Estevez to the detection, by Dr Antonio Lavazza, of a commercial rabbitry in Italy where rabbits had high levels of resistance to RHD. That will provide a useful genetic source for the planned research.

Development and testing of GMOs in Europe to protect against RHD

Scientists working in Spain have recently field-tested a genetically modified, attenuated strain of myxoma virus (GMMV) that protects surviving rabbits against both myxomatosis and RHD. There has been great concern that if released in Australia, the GMMV could pose a major threat to effective rabbit control.

The Spanish research institute conducting the GMMV research did not take part in the calcivirus workshop where these issues were discussed. Nevertheless, Dr Raphael Villafuerte, a leading rabbit researcher from Ciudad Real in Spain, reported that the GMMV had apparently not persisted on the island release site and researchers were planning to use genetic markers to determine for how many generations it could persist.

This is good news from the Australian perspective, indicating that the GMMV may not spread widely in Australia if accidentally or illegally introduced here, although the issue of possible genetic exchange of the transgene with more persistent myxoma strains has not been addressed.

There appears to be widespread community and political support in Europe for release of the GMMV. For example, Armando Loureiro from the Portuguese Conservation Agency reported that the Portuguese hunting association had gathered large amounts of money to commercialise or release the virus in Portugal, that the Portuguese Secretary of State had recently promised to support the project at a hunters' meeting, and that the Spanish proponents believe that the EU regulatory body for GMOs lacked the power to prevent its release if locally approved. Jim Casaer, of the Belgian Institute for Forestry and Game Management, reported that the hunting fraternity in Belgium and throughout Europe are eagerly awaiting the commercial release of the GMMV, believe it is a matter of 'when' and not 'if' it is to be released, and that they are discussing illegal releases in the event that it is approved for release in Spain but not elsewhere.

In the face of such populist support it is unlikely that submissions from concerned scientists in Europe or Australia will influence decisions about release of the virus. Our best alternative may be to try to stay well informed of the progress of the work, and argue against use of more persistent myxoma strains for genetic manipulation. However, the failure of the Spanish researchers to take part in an international conference, which was held "in their own backyard", to specifically address the topic, suggests that information may not be easily obtained.