

A dissection of uncertainties

A statistical analysis, properly conducted, is a delicate dissection of uncertainties, a surgery of suppositions.

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After RHDV escaped from Wardang Island and reached mainland South Australia, the monitoring and surveillance program to document the impact and spread of the disease ran for a little over 6 years. It was finally closed down in early 2002. It was argued that Australia had spent enough on RHD research and that it was time to divert the funds to other research areas.

With the benefit of hindsight, this closure was made too early. Funding ceased just as rabbits began their long slow build-up after successfully weathering the period of greatest attrition. Awareness that the tide had turned was delayed, and capacity to take further action was severely reduced. Nonetheless, it would be wrong to conclude that the monitoring and surveillance program left no legacy.

The results from this program showed how widely the patterns of RHD outbreaks varied from one part of Australia to another. More significantly, the program established a detailed practical approach to studying the epidemiology of a wildlife disease that is unsurpassed anywhere else in the world. Basically, through the collection of high quality field data and samples from rabbits, coupled with the best available system of analysing antibodies, it became possible to directly observe and measure details of the epidemiology of RHD. Ultimately, a better understanding of epidemiology, the interaction between the virus and its rabbit host, was achieved.

With the exception of the ground-breaking work of Carlos Calvete and Rosa Estrada in Spain and limited epidemiological studies in France and Britain, a very different approach was taken in Europe. Much more reliance was placed on the molecular biology of the virus and the subsequent use of mathematical epidemiological models to explore likely epidemiological processes. The difference between the two approaches means that when we speak of an epidemiological model of RHD in Australia this usually refers to an analytical mathematical model that draws information out of masses of field data. By contrast, 'models' in Europe often refer to mathematical models that approximate the modeller's concept of how RHDV might interact with rabbit populations.

As part of the monitoring and surveillance program, Dr Helen Neave in the Bureau of Resource Sciences, Canberra, drew together information on the impact of the disease from 455 sites across Australia. The information was sent in by numerous observers who had been curious to know what RHD was achieving on their patch. In its simplest form disease impact was generally assessed using night-time spotlight counts of rabbits made in the same localities just before the disease broke out and again after the initial outbreak had run its course.