CHAPTER ONE

OVINE JOHNE'S DISEASE IN AUSTRALIA

Introduction

1.1 The following chapter provides an overview of the epidemiology of Ovine Johne's Disease and the way in which it has emerged in Australia. This chapter also provides an update regarding the prevalence of OJD and the approach taken by the states in relation to the control and management of the disease.

1.2 Ovine Johne's Disease (OJD) is a slow-developing bacterial disease known to affect sheep, goats and deer. In sheep, Johne's disease is caused by a strain of the bacterium *Mycobacterium paratuberculosis* which is also known as *Mycobacterium avium* subsp *paratuberculosis*.[1]

1.3 Once established in the intestinal lining, the bacterium causes the intestinal wall to thicken. Animals suffering from the disease lose the ability to absorb nutrients from food and this leads to wasting and the eventual death of the infected animal. The average time from onset of clinical illness to death is between six weeks and three months. There is currently no way of treating the disease in sheep.[2] Appearing at the end of this chapter (pages 17-19) are photographs provided to the Committee by Dr Peter Frecklington. These photographs show typical symptoms of Ovine Johne's Disease.

1.4 Ovine Johne's Disease is a disease of the bowel and, as such, transmission occurs when infected sheep shed the bacteria in their faeces. Other sheep become infected when they eat pasture or food, or drink water contaminated with the faecal material. It is also believed that lambs can become infected by drinking their infected mothers' milk or from udders contaminated with faecal material.[3]

1.5 Sheep can become infected at any age, however the disease appears to progress more rapidly in younger animals. Susceptibility to infection can also be influenced by breed, stress and the presence of other diseases. The rate of development of the disease is believed to be related to the amount of bacteria ingested by animals. There is also evidence however, which suggests that even when exposed

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1 NSW Agriculture, *NSW Agriculture Ovine Johne's Disease Policy Manual*, 17 August 1999, p.1.

2 NSW Agriculture, *NSW Agriculture Ovine Johne's Disease Policy Manual*, 17 August 1999, p.1. and Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control*, March 2000, pp. 5-7.

3 Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control*, March 2000, p.7.

to large doses of the bacteria, some animals either recover from the infection, or resist it completely.[4]

1.6 In Australia, Johne's disease occurs in both cattle and sheep. While the strain of bacteria affecting sheep is considered to be epidemiologically different from the Johne's disease found in cattle, there is evidence to suggest that cross-infection between cattle and sheep is possible.[5]

1.7 *Paratuberculosis* has a long incubation period. In most affected flocks, sheep do not begin to show clinical signs of the disease until they are at least two years old and many are as old as four years. In cattle, most clinical cases occur in two to four year old animals, but the incubation period can be as long as 14 years.[6] In addition to the lengthy incubation period, it also takes approximately 12 months for infected animals to start shedding bacteria in their faeces.

1.8 Evidence suggests that *paratuberculosis* is a very resilient bacterium which can survive in the environment for long periods of time. It is believed that under ideal conditions, infected bacteria can survive for at least twelve months on pasture. Experiments indicate that the bacterium is able to survive for between 100-300 days in water and over 300 days in bovine faeces.[7] There is also evidence to suggest that whilst cooler, moist conditions prolong the life of the bacterium, heat and sunlight shorten its survival.[8]

1.9 Based on current scientific knowledge it is believed that producers can eradicate the disease by de-stocking (and selling all susceptible stock) direct to slaughter. Authorities also recommend that in order to completely disinfect paddocks, producers maintain the land free of susceptible stock for at least 16 months (including two summers).[9]

1.10 The Committee received anecdotal evidence regarding a possible relationship between pH levels in the soil and the distribution of the OJD. There is currently no scientific evidence to support this theory. However, a number of people within the

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4 Whittington, R.J. and Sergeant, E.S.G., *Progress towards understanding the spread, detection and control of Mycobacterium avium subsp paratuberculosis in animal populations*, 2001, p.7.

5 Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control*, March 2000, pp. 28-29.

6 Whittington, R.J. and Sergeant, E.S.G., *Progress towards understanding the spread, detection and control of Mycobacterium avium subsp paratuberculosis in animal populations*, 2001, p.7.

7 Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control*, March 2000, p. 31.

8 NSW Agriculture, *NSW Agriculture Ovine Johne's Disease Policy Manual*, 17 August 1999, p.1.

9 *NSW Ovine Johne's Disease Advisory Committee, Business Plan, 1999-2003*, Part A, p. A1.

sheep industry and the scientific community consider it to be an area worthy of further research.[10]

Transmission of the Disease

1.11 The control of Ovine Johne's Disease is a complex issue. It is an issue which is further complicated by the fact that there are aspects of the epidemiology and the transmission of the disease which are still not completely understood.

1.12 A 1998 report prepared by the Bureau of Resource Sciences listed the possible methods of transmission of OJD as follows:

- purchase and introduction of infected animals, either sheep or goats from an infected property (although the property may not have been known to be infected at the time);
- other introduction of infected animals, either sheep or goats (eg. straying stock);
- introduction of infected animals, either sheep or goats, that were thought to be non-infected, but that were infected during transport;
- introduction of infected faecal material - stock vehicles, shared facilities (eg. sheep yards, shearing sheds) or people (eg. shearers);
- ingestion of contaminated feed or water (eg. contaminated from an infected neighbouring property or an infected upstream property);
- airborne spread of contaminated manure dust (eg. sheep yards and other handling facilities might be important); and
- spread through wildlife (eg. feral goats, rabbits or other species might be a source of infection under some circumstances).[11]

Cross-species Infection

1.13 As suggested by the above list, there is evidence to indicate that whilst the organism shows host preference, it is not host specific. Research currently being conducted at the University of Adelaide's Department of Applied and Molecular Ecology has found that cross infection between sheep and both wallabies and kangaroos is possible. The university research team has tested 500 Tammar wallabies and kangaroos since September 2000. To date they have results for 400 animals and the OJD bacteria has been identified as present in four wallabies and two kangaroos.

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10 Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control*, March 2000, p 32.

11 Cannon, R.M., Garner, M.G. and Nunn, M.J. *Ovine Johne's Disease: determining methods of spread*, Bureau of Resource Sciences, Canberra, 1998, pp. 7-8.

1.14 Dr Paul Cleland, a veterinarian from the South Australian Department of Primary Industries and Resources involved in the research trial, argued that it is too early to determine if the animals that tested positive for OJD were suffering from the symptoms of the disease. Dr Cleland also indicated that it was premature to predict the implications of these findings on the Kanagaroo Island OJD control program. [12]

1.15 Researchers are waiting for further test results which will determine whether OJD bacteria can be recovered from the faeces of macropods and, if so, give some idea of the number of bacteria present. Dr Cleland indicated that this information "is a crucial factor in determining whether or not these animals are capable of infecting sheep or other wallabies and kangaroos".[13]

1.16 Whilst it is unclear whether cross-species infection has the potential to significantly compromise disease control and eradication programs, with the identification of wildlife "hosts" such as wallabies, kangaroos, rabbits and foxes, the potential obviously exists.[14]

1.17 Dr Laurence Denholm argues that although there is currently insufficient evidence to suggest that wildlife do transmit Johne's Disease between properties, it could, theoretically, become a problem if environmental contamination reaches high levels in particular areas:

> Infection can spill over into wildlife populations as environmental contamination increases over time, with increasing levels of herd and flock infection in the area, as seen in Scotland where JD is now being reported in wild rabbits. With high levels of environmental contamination, challenge levels may exceed the threshold required for infection of a species such as a rabbit that normally resists infection at lower levels of challenge. There is considerable evidence from laboratory challenge trials to support this concept of cross-species infection at higher challenge levels.[15]

1.18 Whilst cross-species infection is acknowledged as a potential problem, it is generally agreed that the principal mode of disease transmission is the movement of infected livestock.[16] The trading and movement of stud and flock rams as well as

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12 Adelaide Advertiser, *Wildlife find raises sheep disease fears,* 10 April 2001, p. 15.

13 Department of Primary Industries and Resources, South Australia, Media Release, *Interim OJD test results,* Monday 2 April 2001.

14 Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control,* March 2000, p. 29 and Britton, Dr. A., *Safety and Efficacy Assessments of a Killed Mycobacterial Vaccine - Gudair - for Use in the Control of Ovine Johne's Disease,* paper presented to AVA National Conference, Perth, June 200, p. 212.

15 Dr Laurence Denholm, Orange Agricultural Institute, *Controlling the Spread of Johne's Disease by Compulsory Flock Vaccination: Principal Strategy of the Only Two Successful National Control Programs in Sheep or Goats,* paper prepared for Wool and Sheepmeat Services Conference, 1999, p. 61.

16 Hussey, D, and Morris, R., *Ovine Johne's Disease. A Report to The Hon. John Anderson, MP, Minister for Primary Industries and Energy*, Canberra, 31 January 1998, p. 1.

private and public sales of sheep provide the opportunity for disease-free animals to mix with infected stock.

Lateral Spread of Infection

1.19 Recent evidence suggests that the 'lateral' spread of infection is becoming increasingly common and local spread between neighbours is becoming a significant disease control problem - particularly in New South Wales.[17] There is also evidence to suggest that transmission between properties is possible through infected sheep straying onto neighbouring properties and through run-off and creeks flowing through infected properties.[18]

1.20 Dr Denholm argued that the epidemiology of OJD infection and its principal mode of transmission may vary considerably between areas, depending in part on the level of environmental contamination. He suggested that lateral transmission is less likely between adult sheep in areas where faecal contamination of grazing land is lower. Dr Denholm summarised the four potential methods of transmission as follows:

1) From the infected ewe to her newborn lamb during suckling, as a result of faecal contamination of the perineum.

2) From infected adult sheep to uninfected sheep (including older lambs that graze) by faecal contamination of pastures and water sources that are utilised by both.

3) By movement of infected faeces or material contaminated with infected faeces from infected to uninfected contiguous properties, with water flow or by other means.

4) By faecal contamination of pastures or drinking water sources from infected wildlife moving from infected to uninfected contiguous properties.[19]

OJD in Australia

1.21 Ovine Johne's Disease has been found to be present in almost all major sheep producing countries of the world, including New Zealand, Spain, South Africa and

17 *Submission 83*, Dr Laurence Denholm, p. 8.

18 Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control*, March 2000, p. 8.

19 Dr Laurence Denholm, Orange Agricultural Institute, *Controlling the Spread of Johne's Disease by Compulsory Flock Vaccination: Principal Strategy of the Only Two Successful National Control Programs in Sheep or Goats*, paper prepared for Wool and Sheepmeat Services Conference, 1999, p. 61.

Iceland. In infected flocks, the disease can seriously reduce productivity and significantly increase mortality rates.[20]

1.22 *Paratuberculosis* was first diagnosed in cattle in Australia in 1925 and is now endemic in cattle in Victoria, New South Wales, South Australia and Tasmania. The disease was reported in goats in Australia in 1977 and it was first diagnosed in sheep in 1980. It is thought, however, that the disease may have been present in sheep for some time prior to 1980.[21]

1.23 Initially, Ovine Johne's Disease was considered to be restricted to the area in the central tablelands of New South Wales where it was first diagnosed. The disease continued to spread in New South Wales, with most infected flocks identified in the central and southern tablelands. By late 1996, there was confirmation of the disease's spread to Victoria.

1.24 The disease is currently viewed as being endemic in the central and southern highlands of New South Wales and some parts of Victoria - particularly the Gippsland area - as well as both Flinders Island (Tasmania) and Kangaroo Island (South Australia).[22]

Prevalence of OJD in Australia

1.25 During its 1998 OJD Inquiry, the Committee was made aware of the problem of obtaining reliable data on the extent of OJD in Australia. A common view put to the Committee was that the lack of conclusive data was making it very difficult to determine whether eradication of OJD was an economically viable option. The absence of a cost effective and reliable diagnostic test - particularly one which allowed for the accurate diagnosis of individual animals - was identified as one of the obstacles to obtaining accurate data. It was also argued that the lack of conclusive information about the prevalence of the disease had constrained both the Commonwealth and state governments from making an open ended commitment to eradicating it.[23]

1.26 During the past 18 months, the Pooled Faecal Culture (PFC) test has proved to be a very effective diagnostic tool. The PFC test (which was being developed during the Committee's 1998 Inquiry) is providing an alternative to blood testing (serology)

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20 *Submission 80,* Department of Agriculture, Fisheries and Forestry, p. 6.

21 Whittington, R.J. and Sergeant, E.S.G., *Progress towards understanding the spread, detection and control of Mycobacterium avium subsp paratuberculosis in animal populations*, 2001, p.3 and Dr Stephen Prowse, CSIRO, *Ovine Johne's Disease: A scientific review of the current knowledge of Ovine Johne's Disease in Victoria and elsewhere, its impact in Victoria and an assessment of potential strategies for its eradication and control,* March 2000, p. 6.

22 *Evidence,* Department of Agriculture, Fisheries and Forestry, p. 428.

23 Senate Rural and Regional Affairs and Transport References Committee, *The Incidence of Ovine Johne's Disease in the Australian Sheep Flock, First Report,* July 1998, p. 21 (*Evidence,* Tasmanian Farmers and Graziers Association, p. 4.)

and has been shown to be more sensitive, and less expensive than serology. Veterinary Committee[24] approved the PFC test for use and it was adopted as a recognised test in November 1999.

1.27 The wider acceptance of PFC testing, coupled with an increased emphasis on abattoir surveillance has resulted in a more accurate idea of the prevalence and the distribution of the disease - particularly in New South Wales. The Committee heard, however, that there are still some problems with data collection. Epidemiologist Evan Sergeant suggested that, if anything, the prevalence of the disease is currently being underestimated:

> Because of the insidious nature of the disease, and the large proportion of infected animals that are sub-clinical carriers, prevalence of JD is very difficult to estimate reliably and there are thus few published estimates of prevalence of paratuberculosis in sheep, either at the individual or flock level. Any estimates are also likely to substantially underestimate the true prevalence of the disease unless adjusted for the lack of sensitivity of the tests used.[25]

1.28 Mr Sergeant went on to argue however, that whilst there are some limitations in the data, there are some recent findings about the current situation in NSW which should be taken into account in disease control and management - both in NSW and on a national level.

Approaches Taken by the States

1.29 Whilst Animal Health Australia has a co-ordination role for the National OJD Program, the states have maintained responsibility for its implementation at a local level. The approaches of the state authorities vary considerably according to the different levels of prevalence and the distribution of the disease in their state. The following is an update of the OJD status of each of the states.

Western Australia

1.30 Since 1986, Western Australian authorities have required sheep sales to be accompanied by a vendor declaration. The declaration requires the vendor to state that their livestock are currently OJD free and that they have been free of the disease for at least five years. Since 1996, there has been an additional requirement for all sheep imported into the state to be blood tested and to show a negative result. There is also a requirement that the imported sheep come from a flock that has tested negative - MN2 in the case of sheep from a 'residual' or 'control' zone and MN1 for sheep from a

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24 Veterinary Committee is the committee of Commonwealth, State and Territory Chief Veterinary Officers, a representative of the CSIRO and the Chief Veterinary Officer of New Zealand (as approved by the Standing Committee on Agriculture and Resource Management).

25 Sergeant, Mr E., paper prepared for NSW Agriculture, *Epidemiological assessment of ovine Johne's disease in New South Wales*, February 2001, p. 5.

'protected' zone. Sheep entering Western Australia are tested again between nine and eighteen months later and must test negative.[26]

1.31 In evidence before the Committee's first OJD Inquiry, Western Australian authorities indicated that the state was free of Ovine Johne's Disease. During the Inquiry, the Committee received anecdotal evidence about a sheep sourced from an infected flock (outside the state) being sold to a stud in Western Australia. In a letter to the Chairman of the Committee, Western Australia's Chief Veterinary Officer, Dr John Edwards, refuted the claims. Dr Edwards asserted that the early detection of OJD was a priority, and that any suspicion of OJD was investigated thoroughly. Dr Edwards stressed that no evidence of OJD had been found in Western Australia.[27]

1.32 In October 1999, Western Australia was declared a free zone for both Ovine and Bovine Johne's Disease. Although there have still been no confirmed cases of OJD in the Western Australian sheep flock, a case of OJD has been confirmed in goat herd located approximately 150 km east of Perth.[28]

1.33 Agriculture Western Australia has advised that negotiations have taken place between the Western Australian sheep industry, the state government and owners of the infected property regarding the provision of financial assistance. The owners of the property have accepted the compensation package and are currently in the process of de-stocking. According to Agriculture Western Australia, the financial assistance negotiated on this occasion is a one-off package. The Western Australian OJD Steering Committee is currently discussing possible mechanisms for raising funds should further compensation packages be required.

Queensland

1.34 Evidence provided to the Committee's 1998 Inquiry indicated that there had been no confirmed cases of OJD in Queensland.

1.35 Queensland has since instituted further restrictions on the importation of sheep from other states and to date there have been no confirmed case of OJD in the Queensland sheep flock.[29]

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26 Victorian Parliament Environment and Natural Resources Committee, *Control of Ovine Johne's Disease in Victoria: Inquiry Report*, October 2000, p. 64.

27 Senate Rural and Regional Affairs and Transport References Committee, *The Incidence of Ovine Johne's Disease in the Australian Sheep Flock, First Report*, July 1998, pp. 5-6.

28 *Submission 68*, Agriculture Western Australia, p. 4.

29 Senate Rural and Regional Affairs and Transport References Committee, *The Incidence of Ovine Johne's Disease in the Australian Sheep Flock, First Report*, July 1998, p. 6 and Victorian Parliament Environment and Natural Resources Committee, *Control of Ovine Johne's Disease in Victoria: Inquiry Report*, October 2000, p. 64.

Tasmania

1.36 At the time of the Committee's first Inquiry, eight properties on Finders Island had been confirmed OJD positive.[30] As at 31 December 2000, the total number of infected flocks on Flinders Island had increased to 23, with three of these flocks having been completely de-stocked.[31]

1.37 There has been an increase in the level of abattoir surveillance in Tasmania during recent times with the results indicating "a high probability of the presence of OJD on one or more properties on mainland Tasmania".[32] At the time of this Inquiry however, there has been no positive confirmation of OJD on the mainland. Tasmanian authorities continue to maintain a quarantine approach to the disease on Flinders Island.

South Australia

1.38 At the time of the Committee's 1998 Inquiry, Ovine Johne's Disease had been detected in one sheep flock in South Australia.[33] The flock, located on Kangaroo Island, was confirmed OJD positive in June 1998. By July 2000, following further investigations and testing, OJD had been detected in approximately 28 flocks on the island.[34] There are currently 40 confirmed infected properties on Kangaroo Island, with 47 under surveillance.[35]

1.39 The South Australian Government, in consultation with the South Australian Sheep Advisory Group and the State OJD Committee, has recently reached an agreement on a de-stocking program for Kangaroo Island.[36] Having ascertained that industry was able to meet the costs of ongoing financial assistance (through the Sheep Industry Fund) affected producers were offered financial assistance based on their agreement to de-stock their properties.

1.40 The majority of affected producers on Kangaroo Island have accepted the offer of financial assistance and a major de-stocking program has commenced on the

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30 Senate Rural and Regional Affairs and Transport References Committee, *The Incidence of Ovine Johne's Disease in the Australian Sheep Flock, First Report,* July 1998, p. 5.

31 Animal Health Australia, *National Ovine Johne's Disease Control and Evaluation Program, Surveillance Report No. 7, 1 October 2000 to 31 December 2000,* p. 12.

32 Animal Health Australia, *National Ovine Johne's Disease Control and Evaluation Program, Surveillance Report No. 5b, 1 July 1999 to 30 June 2000,* p. 3.

33 Senate Rural and Regional Affairs and Transport References Committee, *The Incidence of Ovine Johne's Disease in the Australian Sheep Flock, First Report,* July 1998, p. 6.

34 Tabled Paper, Cleland, Dr Paul, *Ovine Johne's Disease on Kangaroo Island,* 18 July 200, p. 1 (Tabled at Public Hearing on Kangaroo Island, 20 July 2000).

35 Primary Industries and Resources South Australia, *Update on Ovine Johne's Disease in South Australia,* briefing paper prepared for the Senate Committee Inquiry, 21 June 2001.

36 Victorian Parliament Environment and Natural Resources Committee, *Control of Ovine Johne's Disease in Victoria: Inquiry Report,* October 2000, pp. 64-65.

island.[37] As at 30 April 2001, 30 properties in South Australia (29 on Kangaroo Island) had de-stocked and a total amount of $2.5 million had been paid in compensation.

1.41 A number of minor incidences of OJD have been detected on the South Australian mainland - particularly in the south east of the state. These incidences were anticipated by Primary Industries and Resources South Australia and there are now four properties on the mainland confirmed as infected, with further confirmations expected. [38]

1.42 The South Australian Department of Primary Industries and Resources indicated that there was strong support in South Australia for the current regulatory approach to OJD. The Department stressed that the sheep industry - including the South Australian Sheep Advisory Group, the South Australian Ovine Johne's Disease Committee and the South Australian Farmers' Federation - have indicated their support (through SCARM) for continuation of the National OJD Program. [39]

1.43 Abattoir monitoring commenced in South Australia in October 1999. Initially funded by the local sheep industry, monitoring has been maintained under the National OJD Program. In addition to the monitoring, the South Australian sheep industry has also funded PFC testing at abattoirs using monies raised by a state transaction levy.

Victoria

1.44 Ovine Johne's Disease was officially identified in Victoria in late December 1996 and the Victorian Government responded to the discovery of OJD with its own control program. Between December 1996 and the establishment of the National OJD Program in November 1999, the Victorian OJD Program was one of 'active intervention'. It was an approach which involved eradication via de-stocking, coupled with a compensation package.[40]

1.45 The Committee's 1998 report noted that as of February 1998, 552 properties had been tested for OJD, with 11 per cent of these being found positive. In December 1997, 66 flocks had been detected and identified as having OJD. These flocks were

37 Animal Health Australia, *National Johne's Disease Control and Evaluation Program, Quarterly National Co-ordinators' Report, October-December 2000,* p. 4.

38 Primary Industries and Resources South Australia, *Update on Ovine Johne's Disease in South Australia,* briefing paper prepared for the Senate Committee Inquiry, 21 June 2001.

39 *Submission 52,* South Australian Department of Primary Industries and Resources.

40 Victorian Parliament Environment and Natural Resources Committee, *Control of Ovine Johne's Disease in Victoria: Inquiry Report,* October 2000, p. 71.

principally located in Gippsland and the Western District of the state.[41] Infected flocks were subsequently found around Kyneton and Yea.

1.46 By mid-2000, 188 infected flocks had been detected in Victoria.[42] As at 31 March 2001, 207 infected properties had been detected. Fourteen of these properties are still infected (the remaining property owners have chosen to de-stock).[43]

1.47 There are currently 429 flocks in Victoria which have been classified 'Suspect' or 'Under Surveillance' and further testing is required to determine their status. There are also approximately 150 flocks owners who have declined to allow testing of their flocks. These producers have indicated that while the future of the Victorian Program is uncertain their properties will remain under surveillance until testing is completed.[44]

1.48 On 8 November 1999, a moratorium was placed on compensation for de-stocking in Victoria while a review of the Victorian program was being undertaken. The moratorium was lifted temporarily and advice from the Victorian Department of Natural Resources and Environment indicated that on 13 December 2000, all known affected producers were made an offer of compensation, based on their agreement to de-stock.[45] Recent advice provided by the Department indicated that a total of 193 flocks (482,000 sheep) have been de-stocked - with compensation - since the Victorian Program began in 1996.[46]

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41 Senate Rural and Regional Affairs and Transport References Committee, *The Incidence of Ovine Johne's Disease in the Australian Sheep Flock, First Report*, July 1998, p. 4 (*Submission*, Dr David Obendorf, p.1.; *Evidence*, Pastoral Group, Victorian Farmers' Federation, p. 74 and Hussey, D, and Morris, R., *Ovine Johne's Disease. A Report to The Hon. John Anderson, MP, Minister for Primary Industries and Energy*, Canberra, 31 January 1998, p. 2.)

42 Victorian Parliament Environment and Natural Resources Committee, *Control of Ovine Johne's Disease in Victoria: Inquiry Report*, October 2000, p. 48.

43 Victorian Department of Natural Resources and Environment, *Control of Ovine Johne's disease in Victoria, Update Report for the Senate Inquiry into OJD*, briefing prepared for the Senate Committee Inquiry, 17 July 2001.

44 Victorian Department of Natural Resources and Environment, *Control of Ovine Johne's disease in Victoria, Update Report for the Senate Inquiry into OJD*, briefing prepared for the Senate Committee Inquiry, 17 July 2001.

45 Victorian Parliament Environment and Natural Resources Committee, *Control of Ovine Johne's Disease in Victoria: Inquiry Report*, October 2000, p. 95; Animal Health Australia, *National Ovine Johne's Disease Control Program, Quarterly National Coordinator's Report*, October-December 2000, p. 4 and Email correspondence received from the Department of Natural Resources and Environment, 14 May 2001.

46 Victorian Department of Natural Resources and Environment, *Control of Ovine Johne's disease in Victoria, Update Report for the Senate Inquiry into OJD*, briefing prepared for the Senate Committee Inquiry, 17 July 2001

1.49 There has been increased surveillance activity in Victoria over recent months and the Committee was advised that there are now four abattoirs on line which are providing broad coverage of sheep slaughtered.[47]

1.50 In response to the Victorian Parliamentary Inquiry, the Victorian Government set up an OJD Advisory Committee to provide advice to the Victorian Minister on the control and management of OJD.[48]

1.51 The Advisory Committee, which has met fortnightly between February and June 2001, has been working toward developing and costing a new OJD control program which provides clear direction on the future control of OJD in Victoria and is at the same time consistent with the national approach. The Advisory Committee provided its Report to the Victorian Minister for Natural Resources and Environment on 13 July 2001.[49]

1.52 The Victorian Government has also introduced a support service for affected producers called Community Connections. This service provides a single point of contact for advice and guidance on a range of assistance measures - both financial and social - which are available to producers.

1.53 By means of the Rural Finance Corporation, an OJD Loan Scheme provides a concessionary loan scheme to producers whose properties have been de-stocked as a result of OJD. The Scheme provides funding for living expenses during the de-stocking period, and this allows producers to use the major part of their compensation payments on re-stocking for the future. Grants are also available to provide assistance with the costs associated with farm business management plans and training in farm business management skills.[50]

New South Wales

1.54 In its submission to the 1998 Inquiry, NSW Agriculture advised that as of 30 December 1997, OJD had been confirmed on 229 properties, that more than 60 of those properties had lodged Property Eradication Programs for approval and that 11

47 Email correspondence received from the Department of Natural Resources and Environment, 14 May 2001.

48 Animal Health Australia, *National Johne's Disease Control Program, Quarterly National Coordinator's Report,* October-December 2000, p. 4.

49 Victorian Department of Natural Resources and Environment, *Control of Ovine Johne's disease in Victoria, Update Report for the Senate Inquiry into OJD,* briefing prepared for the Senate Committee Inquiry, 17 July 2001.

50 Victorian Department of Natural Resources and Environment, *Control of Ovine Johne's disease in Victoria, Update Report for the Senate Inquiry into OJD,* briefing prepared for the Senate Committee Inquiry, 17 July 2001.

had de-stocked. They also stated that an additional 189 properties were considered 'suspect' and 860 properties were under investigation.[51]

1.55 Prior to 1996, surveillance data in relation to OJD relied almost entirely on producers reporting suspect clinical cases. Surveillance in NSW has increased significantly since that time and has concentrated on the testing of high-risk flocks. The market assurance testing which has been undertaken since mid-1997 has also provided additional surveillance information. As a result of this increased level of surveillance, the number of flocks identified as infected in NSW increased from 158 (at the end of 1996) to 599 by the end of 2000.

1.56 In a recent report prepared for NSW Agriculture, *Epidemiological assessment of ovine Johne's disease in NSW,* Evan Sergeant undertook an analysis of surveillance data made available through NSW Rural Lands Protection Boards, NSW Agriculture's testing and laboratory information systems and abattoir surveillance activities.

1.57 For the purpose of the analysis, NSW Rural Lands Protection Districts in NSW were allocated to one of three regions which were based on the prevalence of known infected flocks in each district as at 31 December 2000. The high prevalence region consisted of the Central Tablelands and Goulburn districts. The moderate prevalence regions were identified as the remaining districts in the central and southern tablelands as well as the south-west slopes and the eastern Riverina areas. The remaining districts of NSW were allocated to the low prevalence region.[52]

1.58 Evan Sergeant acknowledged that there are some inherent biases in the data used to prepare the report. However, while conceding the limitations of the data, and the fact that the analysis relies upon a number of assumptions, he also noted that all three data sources support the general trend of the findings. Mr Sergeant further argued that the findings about the current situation in NSW are significant and should be taken into account in planning for disease control and management - both in NSW and on a national level.[53]

1.59 The report's findings have been summarised as follows:

- The current prevalence of known infected flocks in NSW is about 1.6%, with a further 8% of flocks currently either suspect or under surveillance;

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51 Senate Rural and Regional Affairs and Transport References Committee, *The Incidence of Ovine Johne's Disease in the Australian Sheep Flock, First Report,* July 1998, pp. 3-4 (*Submission,* Government of New South Wales, p. 3.)

52 Sergeant, Mr E., paper prepared for NSW Agriculture, *Epidemiological assessment of ovine Johne's disease in New South Wales,* February 2001, p. 1.

53 Sergeant, Mr E., paper prepared for NSW Agriculture, *Epidemiological assessment of ovine Johne's disease in New South Wales,* February 2001, pp. 1 & 13.

- The true prevalence of infected flocks is probably around 6%-8%, but may be higher or lower;

- There is no evidence to date of any independent foci of infection in the north or west of the State - extensive surveillance in these areas by serology, PFC and abattoir surveillance has found very few infected flocks, virtually all of which can be traced back to introductions from the endemic areas;

- OJD in NSW is still highly clustered, with the great majority of known and projected infected flocks in the central and southern tablelands and adjoining districts;

- Probably the greatest risk factor for OJD infection is being a neighbour of one or more infected flocks - this risk appears to be greater in the high-prevalence region, where the disease has been present for longer;

- The greatest risk factor for introduction of infection into a district is the introduction of sheep from an infected flock, particularly an infected flock in the high-prevalence region;

- The regional spread of OJD appears to follow closely the pattern of sheep movements from known infected flocks;

- Then relatively few infected flocks identified to date in the low-prevalence areas is probably due to the comparatively low number of introductions into these areas from the higher-risk regions;

- Once established in the low-prevalence areas the disease is likely to spread further to neighbours and through sheep movements in much the same manner as in other districts;

- There may already be some infected flocks in these areas that are only recently infected and are still at too low a prevalence to be detected, as well as a few higher-prevalence flocks that are yet to be detected.[54]

1.60 A recent decision to hold a national workshop on control strategies for OJD came about following proposals from NSW representatives to the Technical Sub-Committee (TSC) of the National Ovine Johne's Disease Program Advisory Committee (NOJDPAC). NSW representatives lobbied for changes to the existing control and management strategies for OJD, particularly in areas of high disease prevalence.[55]

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54 Sergeant, Mr E., paper prepared for NSW Agriculture, *Epidemiological assessment of ovine Johne's disease in New South Wales*, February 2001, p. 13.

55 *Workshop Papers prepared for the National Workshop on Control Strategies for Ovine Johne's Disease in New South Wales*, Canberra, 17 & 18 April 2001, p. 2.

1.61 New South Wales continues to be the state most affected by the prevalence of OJD infection and the Committee is mindful that decisions made by NSW in relation to OJD control and management will have an impact on the way in which OJD is handled at a national level. It will also have an influence on the way in which the other states continue to manage the disease and on negotiations in relation to any future financial assistance for producers.

1.62 A summary of the issues discussed and the resolutions resulting from the National Workshop on Control Strategies for Ovine Johne's Disease in New South Wales are set out in Chapter Seven. (A full set of the National Workshop Resolutions is provided at Appendix 4).