Abattoir surveillance for Ovine Johnes Disease (OJD) in New South Wales

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ABSTRACT
Monitoring of adult sheep for Ovine Johne’s Disease (OJD) in NSW and interstate abattoirs confirmed that 48% of direct consignments from the High Prevalence Area and 30% from the Medium Prevalence Area were positive in 2006 compared with 0.5% positive in the Very Low Prevalence Area of NSW. The origin of 3796 sheep consignments monitored in 2006 and 17436 consignments from 1999-2006 were mapped based on locality derived from their unique property identification code (PIC) or from abattoir records. Mapping was confirmed as an important communication tool for use in control programs.

INTRODUCTION
OJD was first detected in sheep in Australia in the Central Tablelands of NSW in 1980. Monitoring of adult sheep for OJD commenced in NSW abattoirs in late 1999 and subsequently in other states under a National Ovine Johne’s Disease Control and Evaluation Program (1998). Abattoir monitoring has been estimated to have an individual animal sensitivity of approximately 70% in heavily infected flocks (Bradley & Cannon, 2005) and 50% in low prevalence flocks (OJD Technical Advisory Group, unpublished). Revised Prevalence Areas were introduced across Australia in July 2004 (Figs. 1 & 2). Gudair® OJD vaccine (CZ Veterinaria, Spain) was allowed under special permit as an aid in the control of OJD in heavily infected flocks (5% or more annual mortality) in NSW from January 2000 and was registered nationally for wider use in April 2002. The distribution of OJD in NSW determined by monitoring adult sheep slaughtered from 1999-2006 is reported in this study.

![Australian OJD Prevalence Area Boundaries from 15 November 2004](image)

\textbf{Fig.1:} OJD Prevalence areas implemented across Australia from 1 July 2004 (modified 15 November 2004)

MATERIALS AND METHODS
The lower small intestine of each sheep was visually inspected and palpated for signs of thickening with confirmation of OJD by histopathology on up to 3 sheep with lesions sampled per consignment. A consignment was determined positive if 1 or more sheep were confirmed with OJD. More than 4.13m adult sheep were individually inspected (1999-2006) derived from all sheep producing areas of NSW. The origin of each consignment was determined...
from abattoir records. The introduction of the National Livestock Identification System (NLIS) in 2002 required sheep consignments to be accompanied by a National Vendor Declaration (NVD). Recording of the Property Identification Code (PIC) on the NVD became compulsory from January 2006. This enabled consignment to be precisely allocated to a property, locality, local government area or OJD prevalence area.

**NSW OJD Prevalence Areas for Implementation 1 July 2004**

![Map of NSW showing OJD prevalence areas](image)

**RESULTS**

OJD was confirmed in 48% of direct consignments from the High Prevalence Area of NSW (Fig 2) and in 30% from the Medium Prevalence Area in 2006. In contrast 0.7% of the consignments from the Very Low Prevalence Area of NSW were positive in 2006 (0.5% when corrected for multiple positive consignments from individual properties destocking). Figs 3 & 4 show the origin of the 3796 total consignments (green discs) and the 756 positive consignments (red discs superimposed) in 2006. Fig 5 shows the distribution of the cumulative monitoring results for NSW 1999 – 2006 (17,436 consignments, 2,444 positive).

**Fig.3:** Origin of 3796 direct consignments of adult sheep monitored in NSW for OJD in 2006 (size of each green disc proportional to the number of consignments from that locality)
DISCUSSION

Since 1999, OJD has spread to infect more flocks in the High Prevalence and Medium Prevalence Areas of NSW. However around half of the sheep flocks in NSW are located in the Very Low Prevalence Area where infection remains at a low level. The monitoring results
correlate closely with the prevalence areas implemented in July 2004. Early detection in the Very Low Prevalence Area is critical in minimising the risk of further spread. Property Disease Management Programs are implemented in infected flocks in the Very Low Prevalence Area and are strongly encouraged in other prevalence areas. Biosecurity programs (property & regional), on-farm management strategies and Gudair® vaccination are the primary control tools. Field reports indicate that, despite the increase in the proportion of infected flocks, high levels of vaccination in the High and Medium Prevalence Areas have markedly reduced the regional incidence of clinical OJD. Concurrently, the level of sub-clinical infection evidenced by abattoir monitoring has also declined, particularly in the High Prevalence Area (Links et al, 2007).

Mapping provides an excellent visual communication tool that has markedly improved the capacity to review progress with the national OJD program. This has been particularly important in consultation with sheep industry representatives regarding the location of prevalence area boundaries at the regional, state and national level.

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REFERENCES