

Assessment of the NSW Ovine Johne's Disease Program

Richard Bull

September 2003

This report is presented by independent consultant Richard Bull to the NSW Minister for Agriculture,
the Hon. Ian Macdonald.

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (August 2003). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Agriculture or the user's independent adviser.

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The Hon. Ian Macdonald MLC
Minister for Agriculture and Fisheries
Level 30 Governor Macquarie Tower
1 Farrer Place
SYDNEY NSW 2000

Dear Minister

I have much pleasure in submitting my report to you on the Assessment of the NSW Ovine Johne's Disease Program and Directions for the Future.

I have undertaken a wide consultation process with meetings organised with all of the key stakeholders and twenty-five separate meetings around the State involving producers, Rural Lands Protection Board Directors and their staff and stock and station agents. In early July I released a paper containing preliminary conclusions for comment and received many quality submissions and general feedback. The key stakeholders were again consulted for their views.

I have recommended to you a change in our policy in NSW to a market driven approach in which the producers will be given ownership of the program and the Department of Agriculture will revert back to a supporting and educative role. The availability of the vaccine Gudair® has now given the sheep industry real tools to deal with OJD and diminish its damaging consequences. I recommend implementation as early as possible in conjunction with Victoria and the other participating States.

I would like to acknowledge the support I have received from the Director General and the NSW Department of Agriculture, which has enabled me to readily access the cumulative wisdom and knowledge of all personnel involved in the OJD program. I would like to particularly thank Dr Paul Forbes, who did a splendid job acting as my Executive Officer and Glenn Taylor, Ministerial Adviser to you in Orange.

I would also like to especially acknowledge the contribution made by the NSW Farmers' Association.

Finally I would like to thank you for the opportunity to assess the current Ovine Johne's Disease program and to make the following recommendations for the future.

Yours sincerely

A handwritten signature in blue ink, reading "Richard Bull". The signature is written in a cursive style with a large initial 'R' and a stylized 'B'.

RICHARD BULL

TERMS OF REFERENCE

1. Undertake an analysis of the current situation including:

- Lessons learnt from program to date
- Current knowledge about the disease, its spread and control strategies
- The impact of both the disease and current control strategies on stakeholders including wool and sheep meat producers and others in rural communities who interact with these producers, at an individual, regional and statewide level.

2. Identify and define potential future developments which may impact on the management of OJD in NSW including (but not limited to):

- Possible risks to government
- The likelihood of disease spread and potential impacts on production and animal welfare
- Other industry issues, including the capacity of individual producers and the sheep industry to collectively manage disease risks

- Trends in management of the disease in other jurisdictions and internationally and potential implications for trade.

3. Define appropriate objectives for OJD management in NSW, taking into account industry and government positions.
4. Develop options for achieving these objectives, including an analysis of the "do nothing option", and provide commentary on the implications of these options from the perspective of cost, social impact and animal health management.
5. Define the potential roles of industry and Government, including funding for each option.
6. Work with the OJD Advisory Committee and other relevant groups to undertake consultation.
7. Make recommendations to the Minister on a preferred option for the future.

Executive Summary

BACKGROUND

OJD was probably introduced into NSW from New Zealand and was first officially recognised in 1980 in the Central Tablelands.

A Steering Committee was formed in the early nineties to assess the disease and make recommendations to the Minister for Agriculture. This later evolved to the present OJD Advisory Committee.

The issue became national when Agricultural Ministers from the Commonwealth and all State and Territory governments agreed to a National OJD Control and Evaluation Program in 1998 (later re-named the National Ovine Johne's Disease Program, or NOJDP), and this was endorsed at the time by Wool Council of Australia, and Sheepmeat Council of Australia. This followed closely after the Morris Hussey Report was completed. Messrs Morris and Hussey recommended a program to allow further research and evaluation of future directions whilst at the same time controlling the further spread of the disease.

Morris and Hussey also noted in their findings that control and evaluation were needed for a period of time until the tools became available to manage the disease.

The conclusion of the current national program in June 2004 has created a number of reviews in both NSW and other States to evaluate the current program and to draw up policy positions for national negotiations to occur in the latter half of 2003.

The Hon. Ian Macdonald, NSW Minister for Agriculture and Fisheries, appointed an independent issues management consultant, Mr Richard Bull, to assess the current program in NSW and to make recommendations on the direction of a future OJD program.

CONSULTATION

The review commenced in early May with the consultation period extending over approximately eight weeks. During this time all major stakeholder groups were consulted and twenty-five separate meetings were held around the State. The meetings, organised by the Rural Lands Protection Boards, drew together representatives from local producers, stock and station agencies, Board Directors and Board staff.

Whilst all meetings realised quality feedback on the terms of reference, not all were representative of all groups.

Feedback from those attending the meetings was reasonably consistent but varied in some responses depending on their particular prevalence zoning. Some of the common themes include:

- The desire of the industry to actively manage OJD on their own behalf through the use of assurance mechanisms and on property management, with Government taking a supportive rather than regulatory role.
- Division within the industry driven by perceived unconscionable regulations under the current program.
- The desire of producers in low prevalence areas to have certain protocols available to them to limit the spread of the disease into their area.
- The availability of the Gudair® vaccine providing a great deal of optimism for the future management of OJD and future pathways to trade for infected flocks.
- Widespread dissatisfaction with the sheep producer levy in NSW, with any future funding being provided by

transaction levies applied nationally or State based.

- Overwhelming support for the disease to remain notifiable without the current regulatory impact.
- Those traditional trading patterns between north and south and east and west have mitigated against the spread of OJD and will continue to do so.

Consultations were also held with Government and Industry representatives in both Victoria and Queensland. As these are both primary trading States for NSW, their views and attitude to prospective change are important.

Predictably, Queensland are keen to maintain as much protection as possible for their disease free status whilst Victoria preferred a market driven approach with pathways to trade for infected flocks.

PRELIMINARY CONCLUSIONS

As a means of gaining feedback from producers and key stakeholders and to give industry as much ownership of the recommendations as possible, two documents were released for comment.

The first was a detailed analysis of the issues and an explanatory summation of the interim findings. The second was a brief summary of the review's preliminary conclusions.

Both documents triggered the desired feedback with both negative and positive comments.

The release was timely, coinciding with the NSW Farmers' Annual Conference.

The Preliminary Conclusions had a good airing in debate and discussions, with the Association's policy representing similar themes and gaining overwhelming support.

OUTCOMES AND CONCLUSIONS

The level of knowledge amongst producers proved to be unevenly distributed. Whilst awareness was high following media publicity, the level of knowledge remained poor, with the exception of high prevalence areas and affected producers. Quite a deal of misinformation has clouded the genuine facts about the disease, especially with the strategies to control the disease such as vaccine use.

Affected producers were found to be carrying the full impact of the disease. Financial and emotional consequences have been common, leading to the Agriculture Department adding extra counsellor support to their extension services. Regrettably the disease has caused a move away from sheep in the medium and high prevalence areas.

The NSW Department of Agriculture has also been stigmatised from the implementation of the severe regulations accompanying the current OJD policy whilst RLPB staff have been harassed and impeded from their regulatory work. Staff from both organisations have had to work through complex and difficult issues throughout the period of the Control Program, but have done so in a most professional manner.

There has been some speculation that OJD carries some risk to human health. This cannot be substantiated and must be dismissed with present knowledge.

It is generally perceived that overseas trade will not be affected by the continuation of the current program or any proposed market driven

approach. New Zealand, which has had endemic OJD prevalence for a number of years, has not suffered from any diminution of trade and would be affected far more than Australia. Interstate trade will depend on the attitude of the neighbouring States to the prospective changes in NSW, which will become apparent when NOJDP negotiations are completed.

The majority of meetings expressed the opinion that individual producers and the sheep industry had the ability and desire to collectively manage OJD. Producers will act appropriately if the tools are available and the market signals give them a positive message.

Producers and RLPBs in low prevalence areas expressed a strong interest in having some protocols available to deal with incursions of the disease if the current protected zone was to be abolished as part of a market driven risk based future program.

The Review found that future objectives for the management of OJD in NSW centre on equity and responsibility from producers. Those in high prevalence areas have a right to reasonable market access whilst maintaining responsibility to minimise the disease risk. Producers in low prevalence areas have a right to reasonably protect themselves against any incursion of the disease.

It was also found that any future control program should account for the epidemiological information available, following criteria such as the factors described by Michael Thrusfield in *Veterinary Epidemiology*, second edition, 1995.

The role of Government attracted spirited discussion during the consultations with most preferring the Government to adopt a supportive and educational role in the future rather than the adversarial situation under the current program.

The current OJD levy mechanism has been roundly condemned and is unlikely to attract any support in the future. Producers preferred any future funding to be obtained through the current transaction levy which is run on a national basis.

The Review has concluded that the current zoning would be discontinued as a regulatory mechanism but prevalence mapping would continue on a regional basis initially and move to a localised basis when the capacity to achieve this is developed. In order to use the most relevant information, only test results based on the previous 1–2 years would be used.

To enable those producers who want to collectively manage the disease in their area, the Review has endorsed the concept of exclusion areas. A statewide policy template will be available for RLPBs to select those protocols that will best suit the needs of their ratepayers. Producers will be encouraged to enter into locally based voluntary exclusion areas to maintain their low prevalence status.

The current management area has sought support for its continuing protocols to drive vaccine use and restrict purchases to vaccinated sheep. The Review fully endorses their endeavours and recommends that an enhanced continuing education program be formulated.

Future trading in NSW will be based on the use of Animal Health Vendor Declarations (AHVD). The statement will include factual information regarding management of OJD, vaccination status and testing history. It will also contain Technical Advisory Committee's recommendations for trading credit points. The Review believes that the credit points must equate to the factual statements.

In order to protect the integrity of the declaration there will be increased penalties in the Stock Diseases Act for false information.

Inclusion on the National Vendor Declaration should be a long term goal with the OJD information as a tear-off section. AHVDs will be required in duplicate book form for all sheep producers.

Following representations from the goat industry, the Review recommends that the same protocols for the movement and vaccination of sheep should apply to goats.

The Gudair[®] vaccine has been of enormous benefit to the control of OJD in infected flocks. It is therefore vitally important to make the vaccine available wherever it is needed throughout NSW for control in infected flocks and protection in clean flocks.

In order to make the vaccine as accessible as possible, the Review recommends that Gudair[®] be retailed through normal animal health product suppliers, such as stock and station agents. It is expected that retailers will carry responsibility for ensuring the end user is familiar with proper usage – pamphlet, instruction for use, etc.

Stud producers have sought to have a distinctive marker added to the vaccine to differentiate between vaccinated and infected sheep. The vaccine does not differentiate in a serology test, which is the common requirement of overseas buyers.

The Review supports a marker added if it does not add significantly to the cost.

The Review supports the continuation of Abattoir Monitoring to assist in prevalence mapping and producer information. To this end it is important that results of testing, both positive and negative, be available to the producer.

The Review sees the Department's role as overseeing the Abattoir Monitoring program,

Market Assurance Programs and on-property testing, together with prevalence mapping, extension services, education and research.

The Review found that there was overwhelming support for OJD to remain notifiable, without the current regulatory impact.

There was widespread perception that both OJD Advisory Committees will no longer be necessary, with the Review recommending the disestablishment of both. If a decision is made to continue with the NSW OJD Advisory Committee, then an alternative structure is recommended.

The Review believes that much can be achieved by implementing the recommendations as soon as practical and well before the end of the current program in June 2004. To this end it is suggested that restrictions on vaccine use be lifted immediately and suppliers expanded. The new program should commence no later than 1 January 2004, or as soon as practicable depending on national negotiations, in conjunction with other States.

RECOMMENDATIONS

- Industry to take the lead role in managing the disease.
- The future role of Government to be educative and supportive rather than regulative.
- The future OJD program in NSW to be a risk based trading model. This in essence adopts most of Option 2 from NOJDP's National Framework for the Future Management of OJD in Australia.
- Future trading to be based on a factual Animal Health Declaration.
- It is proposed that the Animal Health Declaration be included in the National Vendor Declaration.
- A high assurance status for flocks to be developed.
- Exclusion Area may be established in low prevalence Rural Lands Protection Boards in the State providing majority support is demonstrated.
- A group of producers in a catchment area or local area to be encouraged to enter into a voluntary exclusion area to protect their status.
- Zoning to be discontinued.
- Prevalence mapping to be continued on a regional and local basis.
- Vaccine to be available to all producers in NSW.
- Vaccine to be available through retail outlets handling animal health products.
- Negative and positive results from Abattoir Monitoring must be given to producers.
- The changes to the NSW program and the ensuing protocols available to sheep producers to be made available to goat producers.
- OJD to remain subject to section 9 of the Stock Diseases Act.
- OJD to remain subject to section 20J of the Stock Diseases Act and the penalties be increased to 200 points.
- Exclusion Areas to be subject to sections 11A, 14 and 20H of the Stock Diseases Act.
- The NSW OJD Industry Advisory Committee to be wound up at the conclusion of the current program.
- The NSW OJD Advisory Committee to be wound up or restructured at the conclusion of the current program.
- Changes to be implemented no later than 1 January 2004, or as soon as practicable depending on national negotiations, following two months of educational campaign and immediate changes to vaccine use and supply.

Assessment of the NSW OJD program

1. THE CURRENT PROGRAM – LESSONS LEARNT

Program management

A number of reflections were made regarding the conduct of the program. These principally refer to the establishment of such programs, the desirability of maintaining industry control over such programs and the potential impact that experience with OJD may have in the event of the break out of a virulent exotic disease.

It was strongly felt that industry should make decisions as to the intentions of any such program and set the direction of the program. From there the industry informs the government of industry's intentions and desires in relation to the operation of the program. Whilst such a process happened on a narrow base in relation to OJD with NSWFA and stud breeders being involved in setting up the program, no broader support within industry was developed or maintained.

Many held that the program was owned by firstly the Department, then by professionals within the Department and Rural Lands Protection Boards and finally by small sections of the industry. That perception led to a limitation being placed on the level of support enjoyed by the program. Essentially it was seen as being "their" problem rather than being a problem faced by the whole industry. Many argued about this issue of ownership of the program rather than concentrating on the management of the disease.

Those referring to the success or failure of the program used their particular standpoint to measure the outcomes of the program.

At a national level the National Ovine Johne's

Disease Program set out to achieve a number of outcomes. The objectives in the NOJDP were successfully achieved. In essence the key outcomes have been:

- i. Gudair® vaccine registered and made available to producers;
- ii. A better laboratory test developed and approved, namely the Pooled Faecal Culture test, with a speedier test, Direct PCR, on the way;
- iii. A property disease management program, developed by NSW Agriculture and supported by RLPBs, as the basis of producer education and ongoing disease control, prevalence reduction and documentation to underpin management of OJD;
- iv. Abattoir Monitoring put in place to assist the control program and trading, with ongoing use in monitoring of the disease and its incidence within areas;
- v. Greatly improved knowledge of the level of stakeholder acceptance of zoning as a tool in the control of spread of an endemic sheep disease.

NSW Agriculture and industry leaders were faced with the dilemma of balancing the disparate needs of producers affected by OJD and producers in areas determined to remain free from the disease. Furthermore the Department and the Boards had the responsibility of implementing the Stock Diseases Act which underpinned the National Program.

For those who judge the program by the impact on affected producers then the program could be described as a failure. The negative impacts that the regulatory program had on producers were seen as being unacceptable. Those impacts affected producers socially as well as economically.

The imposition of quarantining properties without pathways out of quarantine was regarded as driving the antipathy shown to the program. This was exacerbated by the failure to provide adequate compensation to those being prevented from maintaining their livelihoods. Quarantines were justified as being for the protection of the industry as a whole. The cost of the quarantine however was borne largely by the producers affected.

If matters such as these are not addressed in the future then a program such as the OJD program applied within NSW should not be contemplated.

An outcome of the conduct of the program was antipathy and opposition on the part of producers. It can not be claimed that the program enjoyed the active support of the producers. Any regulatory regime that fails to win at least an accommodation from producers will not succeed. Producers either passively avoided looking for OJD or actively opposed measures to deal with the disease. Many producers stated clearly that they ignored symptoms of ill health of any kind within their stock for fear of a visiting veterinarian suspecting OJD in their sheep.

The disease was driven underground as a result of producers' reactions to the apparent inequities of the program.

The specific performance of the zoning and accompanying regulatory tools to contain the spread of the disease was represented by professionals as being successful whilst others held the ongoing spread to indicate failure to

contain. This outcome can not be attributed solely to zoning as a tool. The recognized difficulties in detecting OJD, the inability to certify stock free of the disease plus the opposition of producers to the program led to ongoing spread. Many hold that reliance on the current program will lead to spread of OJD being merely slowed.

Industry made clear that they do not want another program of this style to be used. Experience from this program must be turned into practical lessons to direct future efforts so that in the event of the incursion of exotic disease such as Foot and Mouth, an efficacious program can be quickly put in place. The current risk is that the OJD program has set the tone for future efforts to control diseases in livestock, particularly endemic diseases.

The program can be described as being driven by science rather than lacking scientific credibility, with the social and economic impact to producers being largely ignored. Whilst there were many lessons needed regarding the behaviour of the disease, the implicit definition of the program as being the development of scientific knowledge led to other important considerations being ignored. That was not an intention but an outcome of never arguing the assumptions underpinning the NSW program and the NOJDP. In this case the presumption of control led to unacceptable impacts on producers caught up with the disease. Programs must empower producers to manage their situation rather than accidentally treating them as objects to control.

The efficacy of the regulatory control within the program was also treated as being open to challenge. Despite widespread knowledge within the industry of contraventions of the regulations, few prosecutions were ever mounted. Players in the industry clearly believed there were neither the resources required nor the commitment to adequately police adherence.

Major criticism of the program looked at the level of resources provided to achieve the stated outcome. It was held that resourcing was always held to be inadequate. It was questioned whether the program should have been considered given this.

The collection of levies to support affected producers and the expenditure of those levies was regarded as a major failure of the program. The letter sent as part of the collection process put producers offside and generated active opposition to the program. Use of such communication that unnecessarily alienates producers must be avoided. Poor communication in one part of the program affected the whole program; producers do not treat parts as isolated events rather as being reflective of the whole. This may well have been as much a failure to "sell" the strategies that help control OJD as actual, inappropriate expenditure.

In summary, lessons about such a program are that any program which fails to gain broad support from producers, or at least an accommodation from producers to support a program, will limit what can be achieved or will fail totally.

The use of a highly regulated approach to controlling OJD has clearly divided the industry. The antipathy between producers, RLPB and NSW Agriculture means the opportunity to influence producer behaviour is minimal. No producer will talk openly with those who can apply regulation to their business and that can cause serious damage. This is the same reason behind changing the regulatory approach to lice control after some 90 years. District Veterinarians are now consulted by sheep producers without fear of prosecution for advice on control and possible eradication from their flocks.

In a similar fashion, the management of footrot improved when regulations were not used as the

primary tool to control that disease. Producer support is not generated and producer commitment fails when they do not believe they have ownership of a problem.

OJD was seen as being another endemic disease that needed to be managed in the same fashion as other endemic diseases. OJD is equivalent to neither foot and mouth nor bovine spongiform encephalopathy. It was seen that the program had acted as though it was equivalent. The regulatory tools used were held to be more appropriate for disease such as FMD and BSE than for OJD. In reality the regulatory tools were seen as being inappropriate given the seriousness of the impact of the tools.

Many held that the program should always have been based on widespread use of vaccination with minimal regulatory input. It was held that the program would have had a faster impact on behaviour if it had been principally advisory.

In specific terms the communication between affected producers, the RLPB and NSW Agriculture was held to be counter productive. Producers frequently were informed by letter of a positive diagnosis and then not contacted for extended periods of time. The capacity to communicate effectively with producers is critical in any effort to control disease. Without effective communication producers are not provided with the information required to manage such a disease and their support is squandered.

The control of the spread via zoning was not held to be successful, although it was argued that latterly control was emerging. Evidence gathered about disease spread supports traditional trading patterns as providing a better explanation of any control of spread than zoning. That evidence shows OJD as living within the traditional trading patterns.

The evidence showing OJD as living within traditional trading patterns should not be taken

as showing that current protected areas will remain free of OJD. That evidence merely indicates that on current trade behaviour there is minimal risk of OJD being sent to the protected area by movement of stock. Producers in those areas, particularly buyers, must actively manage their buying and management practices to minimize the risk of bringing OJD onto their property.

Knowledge

It needs to be restated that the national program was meant to develop knowledge. That has been achieved and needs to be recognised. The spread of that knowledge, however, is problematical.

It was widely recognized that there is now a high level of awareness of OJD but very poor knowledge of it. Producers are clearly aware of OJD as a result of letters and articles appearing in the Land as well as in other media. That does not equate with knowledge of the behaviour of the disease or its management. It was also held that the awareness process detracted from sound knowledge.

Producers felt there had been a lot of misinformation spread about OJD. Means of spread, behaviour of the vaccine and impact on a flock were poorly understood. This was seen as being driven by antipathy and indifference. The negative impacts of the program led to an unwillingness on the part of producers to find out about OJD.

Knowledge development was also seen as being needed to empower rather than just inform producers. Following the Morris Hussey report, the NOJDP set out to provide producers with the tools and knowledge to enable them to manage in their own right. This principle needs to be remembered. Knowledge of OJD should not be developed in its own right. It must be

remembered that it is being gathered on behalf of industry and in order to serve industry. Empowerment is also more than knowledge; it includes a belief that individuals and the industry hold about their ability to control future events.

Communication of knowledge was severely hampered by the antipathy created by the program. Producers were unwilling to talk with either RLPB or NSW Agriculture staff about OJD because of opposition to the program as well as fear of potential discovery of OJD on their properties.

The active opposition must also be put against the indifference producers show to issues they are not affected by. Many producers recognized that they would only bother to find out about OJD when they were directly affected by the disease. Being hit financially was seen as being the best motivator to learning about the disease.

Knowledge levels amongst some were extremely high. That has been driven by necessity. Recreating that drive amongst others is a major issue for any future educational campaign.

It is also true that there are those who are talking about the disease but often don't have experience with it. This limits understanding. Part of the problem here has been the absence of a unified and accepted voice on what was being found about OJD. It was also partly generated by the apparently political nature of many campaigns surrounding the program.

It is clear that knowledge of on farm prevalence is being hampered. Many producers are hiding disease symptoms of all kinds for fear of OJD being detected on their property. This limits the program's ability to learn about the disease as well as producers gaining knowledge of their own situation. Fear has been widely taken to mean *Fear Erases All Reason*.

Regulations, and more importantly the manner of application of the regulations, are held to have driven the disease underground. That in itself contributed to the ongoing spread of the disease as well as inhibiting the acquisition of sound field knowledge.

A major issue is the belief that MAP testing or zonal boundaries will of themselves prevent sheep becoming infected. Furthermore those producers who think they won't get disease because of these tools alone are seen by others as having their head in the sand. In essence every producer in the State has a duty to actively deal with OJD, either by minimizing the risk of bringing the disease onto their property or by reducing incidence if they have it.

The rapid change in policy was held to be a hindrance to the spread of knowledge of the disease and compliance with the program. Whilst the responses were meant to reflect development of knowledge, the speed of changes without accompanying understanding of the reasons for the change led to confusion and unwillingness to keep abreast or comply with policy. The unobvious question was posed as to whether industry existed to serve policy or policy to serve industry. The speed of change and the means by which new policy was approved created adverse impressions as to the role and legitimacy of policy.

Perceived variability of interpretation of policy amongst District Veterinarians was a major issue. That variability helped to create confusion in the mind of producers as well as inequities. Part of this issue was driven by the speed of policy change and the communication of those changes. Whilst there is a desire to respond to developments in knowledge as quickly as possible, there is also the need to bring those who are affected by policy along in the process.

It was expressed that guidelines were different every day. This led to fatigue and unwillingness to keep up to date with policy. Policy was seen to dominate thinking and so dissemination of knowledge was not as significant an effort as it should have been.

Specific technical problems arose during the inquiry. Amongst those is the nature of the disease. The lag between infection and expression via clinical signs led many to either not believing the disease was present or being unwilling to find out about it. Furthermore, there has been a belief develop that with the registration of the vaccine the disease is no longer a problem. Whilst the vaccine helps to minimise the disease, OJD will remain an issue that must be actively managed. New Zealand's experience shows how OJD can cycle if active management is not maintained. Knowledge of this is essential.

Complexity of the knowledge on OJD may well inhibit spread of that knowledge as well as continue to drive OJD underground.

Impact of disease

The impact of the disease affected both finances and production. Mortality rates in infected flocks were significant. This severely damaged the viability of those businesses, particularly those who had few choices as to the enterprise mix they used.

The impact of the disease has been clearly demonstrated through data collected from affected producers. Evan Sergeant, of AusVet, developed models based on mortality data which shows how mortality may progress within a flock. It indicates that death rates of around 10% can be experienced. This, however, does not mean all flocks that are infected will reach that level nor that flocks won't exceed it. It does provide a sound indication of how the disease progresses within an infected flock.

For flocks with OJD established in home bred sheep the losses were such that their financial viability was severely damaged. Businesses could not maintain such losses.

Experience has shown that access to the vaccine quickly dealt with deaths. Producers gained rapid control of mortalities once they were able to use the vaccine on their flocks. Limiting access to vaccine to those tested led to many not testing or vaccinating, thereby making the impact of the disease worse. This was led by fear of impact of regulation resulting in producers being unwilling to find out.

The argument presented that those with nothing to hide would come forward for testing is disingenuous. Given the difficulty of identifying affected sheep in a flock and the implications of quarantine, few producers were willing to risk a positive test. This can be held to have resulted in late detection of the disease, late management and a worse impact.

It was clearly expressed that the disease had less impact than the regulations. Regulations were seen as having become an end in themselves. This took attention away from the disease as time and effort were spent arguing regulations rather than assisting producers to manage the issues they faced.

Whilst losses became significant without vaccine, the disease's impact could be minimised through a vaccination program. Behind this lay questions as to the ease of access to vaccine to minimise losses. The registration process used, and the access provisions provided during registration in this instance given overseas experience and Gudair being the only major tool available to manage OJD, frustrated early intervention and access.

One factor affecting breeding flocks was a belief that the individual genetics of a flock were irreplaceable. This varied greatly according to the nature of the business. Leading studs clearly

risked loss of their genetic material if an infection became established in their flock. The belief led to producers not recognising alternative means to maintain genetics or replace with equivalent genetics.

Regulations were held to have had the greatest impact on producers. The impact of quarantines and positive diagnoses led to some businesses being effectively closed for long periods of time. That came from the inability to source markets, the discounts received as a result of markets being curtailed and buyers being given unfair advantages over sellers. The prevention of access to market opportunities as a result of association, as represented by zone maps, rather than demonstrated incidence also penalised producers.

Those impacts also spread to affect producers who were not directly affected by the disease. The presumption of infection associated with movement restrictions in place with zoning together with opposition generated by the program led to lost market opportunities. When this was combined with failures in MAP flocks, further damage was done to the willingness of producers to support the program.

There was a high loss of confidence and trust in Boards and Departmental staff as a result of regulatory requirements and the program as a whole. That confidence is vital if both those organisations are to function effectively. Their capacity to deal with the OJD requirements was diminished and will take time to restore.

The fear of the impact of regulations following a positive test on self and neighbours led many to not being willing to test. This meant many producers were also less willing to have veterinarians on property for any sheep suspected in relation to other diseases due to fear of accidentally finding OJD. It delayed the early use of vaccine, worsened loss rates and increased spread.

The negative impacts of regulations put so many offside with the program that Boards could have shut up shop. When regulatory controls leave producers with little opportunity to improve their circumstances or are perceived to be unreasonable and attract widespread opposition then they become counter productive. In this case regulations were held to be extremely counter productive. This may well have been attributable to an apparent failure to win producer support in the beginning as well as to the complexity of policy that was constantly seen to change, producing uncertainty.

Zones are primarily meant to map actual incidence of a disease with movements governed by demonstrated freedom from the disease. OJD zones were held to have been constantly following the disease and producing anomalies in trade that were not justified and which would not achieve the control desired. The zones reflected trade patterns rather than a useful control device and was taken as reflecting the bluntness of zoning for OJD.

Human nature, along with inadequate resources, makes it nearly impossible to police regulatory zones. The apparent failure to adequately apply regulations across the State led to distrust in the regulations.

Removal of zones will not lead people to ignore their implications. Informal zones will remain in place until buyers develop confidence in those areas once zoned. The current Management Area and Control Zone will suffer prejudice until their buyers are confident the sheep they buy are clear of OJD.

Testing procedures were also poorly regarded. Understanding of the efficacy of test procedures was tainted with early problems with blood tests, though this was overcome by PFC testing. The slowness in producing results, the charging structure for collecting samples and laboratory

costs and the selectiveness with which testing was undertaken added to the problem.

That was compounded by producers quoting that one infected sheep could bring a test undone and a whole flock being classed as infected. This reflects there being a low threshold to go infected without a path to recover in the first instance, and only latterly a path based on extended use of vaccine.

Abattoir Monitoring was seen as being more acceptable as all sheep going to slaughter could be included. The use of selective testing as opposed to universal testing obstructed the program. It was seen that once testing was mandated by regulations then all should have been involved.

It was felt that regulations make a lot of honest people dishonest. The impact of regulations has been such and confidence so low that producers felt compelled to take what actions were necessary in their best interest.

The level of social impact on producers can not be overestimated. The impact on producers of a positive test was very high. Such results led to isolation, to producers being "treated like lepers". Many producers had feelings of guilt as they did not believe they could provide for their families or hand their properties on to children.

Many of the factors above, describing ineffective communication, loss of capacity to run business, lack of clear and consistent knowledge on the disease and lack of avenues to overcome the disease, led to social impacts. In essence, producers felt they were disempowered.

The social impacts of OJD have been held to have been the greatest single impact of the program. That impact severely damaged producers' lives and families. Fear of this played a major role in leading producers to being

unwilling to cooperate with the program. The emotional and social impacts were clearly discussed during the Review. Many stories of the trauma caused by the program were conveyed. Simplistic approaches to programs which concentrate on scientific/technical questions at the expense of socio-cultural ones will have little chance of gaining support.

Whilst the social impacts can be briefly summarised, the significance and centrality of these impacts must not be underestimated. Any departmental policy or program that fails to give due significance to these impacts will be greatly impaired.

It must be stated that any future program that lacks the support of producers should not be considered. Programs and policies exist to empower industries to manage their own future – to put power into producers' hands to achieve the outcomes they as an industry and as individuals desire. Those programs may well challenge the assumptions and beliefs behind the desires, but must not take a superior position to the industry being served.

2. FUTURE DEVELOPMENTS

Existing Stock Diseases Act

The Stock Diseases Act regulates the management of infected stock. It deals with infections across the board.

Current policies regarding OJD extend the principles of the Stock Diseases Act to cover a wider range of animals on the presumptions of likely infection or risk of infection and subsequent spread of the disease. The OJD policy provided the levers to achieve the objective of the Morris Hussey report. That objective was to control OJD whilst knowledge was developed that would empower the industry to manage the disease on its own behalf.

The objective of developing knowledge has been sufficiently met to provide the industry with knowledge of the disease and tools to manage the disease, as well as clear indication of future direction for research to continue improving industry's capacity to manage OJD. Whilst many fear that the low levels of knowledge within the industry will impair the ability of industry to manage, it is clear that current arrangements generate a very high disincentive to producers improving their understanding. That disincentive will only be overcome when power is placed directly in industry's hands and producers realise they carry prime responsibility for the proper management of OJD.

Once the current policy governing the management of OJD in NSW is removed, OJD will still remain notifiable under section 9 provisions of the Stock Diseases Act. OJD will be subject to the Act in the same manner that many other diseases are.

It was made clear during the review that any attempt to control OJD must be based on winning the active support of producers. The belief that the current program failed because of lack of support for affected producers as well as support by producers was clearly stated. First use of regulatory tools to gain compliance was held by industry to lead to certain failure.

There has been much discussion of the Exclusion Area concept as being a tool for producers to manage OJD within their area. Such a tool would assist them to collectively define the entry criteria for stock coming into an area and the management principles that would apply within the area.

Success of an Exclusion Area would depend on the active support of producers. Introduction of an Exclusion Area should not be contemplated until a plebiscite shows majority support of relevant producers in the board area and producers demonstrated a willingness to fund such Exclusion Area. Agreement to funding needs to form part of such a plebiscite. Furthermore the Exclusion Area should have a defined end point unless a further plebiscite supported its continuation.

Such an area does not diminish the primary responsibility for preventing OJD entering an area. That responsibility lies with buyers. If buyers wisely manage their purchases so as to seek assurance with any purchase then risk of entry is minimised. Looking at criteria for entry such as testing histories and vaccination histories provide a basis to inform producers. In essence this is a matter of "buyer be informed" rather than "buyer beware" (caveat emptor). The Boards' educational campaign as to

desirable criteria to achieve minimum standards with introduced sheep will be critical.

Critical comment was raised regarding the integrity of Animal Health Declarations. False declarations would be covered by provisions of the Stock Diseases Act S 20J. Such declaration would also be subject to provisions for the sale of goods. In order to improve the transparency of statements attached to stock being sold, the title of Animal Health Declaration was used and it is proposed that information provided on the form be of a factual nature alone rather than statements on the basis of "to the best of my knowledge".

Questions to do with professional duties of care held by producers to manage the spread of OJD were also raised. The use of tort law and common law remain options for affected producers to investigate.

What did become apparent during the course of the review was the poor level of understanding, amongst Boards, of the powers of Stock Inspectors under the Stock Diseases Act. In some cases that ignorance was produced by professionals, who should have known better, apparently providing misleading advice as to inspectors' powers.

Withdrawal of Government resources/ regulations

Government involvement in OJD was seen as an obstruction in dealing with the disease. It was blatantly stated many times that government should "get out" as it was seen as being inefficient and ineffective. A majority of producers stated that if government is involved then the industry gets pushed and shoved in directions it does not want to go. The role of government in OJD was defined as being research and extension alone.

Such a view conforms to the Morris Hussey report's intentions as well as the intentions of

the NOJDP. That is, the desired outcome was to develop knowledge of OJD, and tools to deal with it, and give them to industry to manage the disease.

The role of NSW Agriculture was seen as:

- Continuing with Abattoir Monitoring so as to maintain knowledge of changes in prevalence on a State, area and individual basis (whilst there are technical concerns with the accuracy of such data it is a tool that is used and can be improved);
- Providing negative results from Abattoir Monitoring to producers as part of building a network of knowledge within the market;
- Continued support for MAP and Tested Market Standard in order to inform markets and assist managers to decide on their practices to minimise the risk from OJD;
- Prevalence mapping on a localised area basis to provide information to buyers and managers on incidence of OJD within an area over time – the unit area to be defined by producers within a locality or board;
- Extension services and education, including the promotion of vaccination as a marketing advantage, to produce a knowledgeable industry;
- Ongoing research, including enhanced modelling, to improve knowledge of the behaviour of OJD in different prevalence areas and knowledge of the vaccine – the latter being seen as vital in relation to declining presence of OJD within a flock undertaking a vaccination program;
- Facilitating the establishment of Exclusion Areas.

There was a universal desire to remove the regulatory impost that producers had experienced. The negative impact of regulations listed above was seen as being the major reason OJD has been driven underground. Future success in managing the disease was held to be dependent on winning active support and openness from producers. Draconian regulations are not conducive to winning support.

Despite this there was a view that producers would accept regulations if there was a clearly justified reason for their introduction. If regulatory tools are to be introduced in relation to an Exclusion Area then producer support needs to be gained before they are enacted.

A major concern expressed in particular within the Management Area was the need to achieve uptake of vaccine in order to manage the disease. The historical development and spread of OJD within that area led many to the conclusion that producers must treat all stock as being threatened by OJD. It was recognised that purchase of sheep within that area and movement of stock to the area needed to be based on buying stock subject to a sound vaccination program. Stock subject to a sound vaccine program over time along with other sensible management practices were held to provide far higher assurance to buyers than stock from areas of unknown but suspect prevalence that are neither vaccinated nor tested.

It must be recognised that removal of onerous regulations and policy will not remove the current divisions in the industry. Time and a sound educational campaign will be required to remove the misinformation and prejudices about OJD and those areas affected by it. That will need to be supported by providing clear data as to the changing prevalence of OJD as a result of vaccination and management campaigns to control the disease.

Concerns were expressed that adverse perceptions of Australia may develop if it was thought the industry totally walked away from the disease. It is clear, however, from the international spread of OJD and the experience of New Zealand in relation to its trade, that such perceptions would be very unlikely to develop. Any fear of an impact on the meat trade is disproved by New Zealand's capacity to continue with their trade despite the cyclical development and suppression of the disease in their country.

There will be an ongoing need for a watching brief to be maintained at a federal level. Research activities would be much better coordinated and mapping of prevalence on a national level achieved. That can provide an avenue to pursue a consistent approach to OJD on a national basis rather than on a State by State one.

Opinions were expressed that government and industry could provide assistance to get vaccination going. The uptake of vaccine is held to be the critical action to control OJD. No other tool, apart from destocking in low prevalence areas, has shown the capacity to achieve the control that vaccine can. Many very clearly stated that flocks in the current Management Area that are not vaccinating should be treated as infected. Furthermore it was held that flocks in the current Control Zone that are either not vaccinating or undertaking ongoing testing should be viewed similarly. A vaccine program within the Control Zone was also seen as being prudent management on the part of managers.

Risks to government

Risks to the government were largely seen as being the effects of continuing with a discredited program on the ability of regulators and extension services to work with industry. It was stated that the Department would never

regain credibility in the current program. As a consequence, compliance rates will continue to be poor through ignorance and antipathy, apart from any impact a campaign for avoidance may have.

The associated risk to the above is that faced by the industry. Having the disease driven underground will lead to the industry facing ongoing risks from the spread of OJD. That will also lead to individual properties running the risk of a build up of OJD to critical levels within their flocks.

Taking a broader view, the antagonism between producers and the Department reduces government's ability to respond to future threats. Producers' confidence in regulatory bodies is seen as essential to the future of the industry.

Public interest in OJD heightened with the risk OJD poses to neighbours of affected properties. That risk arises due to the difficulty of detection, the incubation period between infection and detection and the ease with which the disease can move from property to property. Neighbours have little chance to mitigate this risk.

Neighbour risk is most effectively dealt with through ensuring that the disease does not continue to be driven underground. The negative social and regulatory impact has inhibited the willingness of producers to discuss with their neighbours the incidence of OJD. Producers have also been unwilling to actively look for the disease. As a result, producers remain in ignorance of their situation and can not inform neighbours of any risk.

Neighbour risk will also be addressed by an educational campaign that promotes the prudential benefit of preventative vaccination programs. Producers who are informed of risks associated with OJD and benefits of vaccine

programs can make better informed purchases that avoid introducing OJD to an area and take up vaccine to mitigate risk within their flock from spread within their neighbourhood.

The cessation of mapping of prevalence of OJD is seen as being a risk to government. The lack of knowledge of the incidence of OJD would reduce the ability of government and industry to respond to changes in incidence. Continuing mapping of prevalence will contribute to the ongoing management of OJD. Given the development in knowledge across a number of fronts the knowledge of spread and changing incidence will be vital.

Mapping of prevalence assumes continuation of Abattoir Monitoring and use of other testing results to ensure an accurate picture of incidence is maintained. The industry is keen to keep Abattoir Monitoring going as it provides market knowledge that is not available from other sources. Abattoir Monitoring and testing were seen to be part of extension advice.

Maintaining OJD as a notifiable disease is desired by industry. Notification would not be linked to quarantines but rather would ensure that an accurate picture of the changes in incidence of OJD is maintained. Notification would also be used to trigger extension activity to support producers' ability to manage the disease and help keep neighbours informed so as to mitigate risk of spread from property to property.

Any move to stop mapping or identification of changing patterns of disease incidence would be seen as a lack of commitment. These activities are seen as being roles that can be centrally supported. An informed industry is central to the recommendations of this report.

The link between OJD and Crohn's Disease has not been established. Evidence to date does not

support such a link and therefore the link should be dismissed at this point. A very good review of the zoonotic potential of *Mycobacterium paratuberculosis* is available from the University of Wisconsin at <http://www.johnes.org/zoonotic/index.html>.

An ongoing criticism of the current program was the rate of change and complexity of policy. Whilst policy was developed to reflect knowledge acquired and deal with anomalies identified in the program, the effect on producers and professional staff was profound. Complexity and instability in policy directly influences compliance. It furthermore influences industry's willingness to cooperate across the board. The loss of support generated reduces Government and the Department's ability to use policy to deal with industry issues.

The process to introduce the vaccine was also criticised. Delays were largely generated by national acceptance. Given overseas experience with the vaccine, the apparent absence of collateral risk with the vaccine and the absence of alternatives, it was apparent that a more liberal approach to introducing the vaccine would have increased the speed of the industry in dealing with the disease.

The restrictions on access to the vaccine were also seen as limiting. Given the epidemiology of OJD and experience gained overseas it would have been reasonable to allow preventative use on a locality basis rather than wait for positive diagnosis. Knowledge of difficulty of detection was available throughout the program. Given that, allowing vaccination in neighbouring properties would have improved ability to limit spread and prevent neighbouring flocks from experiencing clinical stages with associated mortality rates. It would also have helped to limit build up of infection in those flocks.

Whilst mapping the spread of the disease was integral to the national program, management of the disease should have taken precedence.

Producers who are given no path out of a quarantine that follows positive diagnosis will not cooperate with testing. As a result they were not in a position to mitigate and so limit spread.

Many producers saw the process used to gather the levy and the spending of funds from the levy as unsatisfactory. The levy letter from the Department to producers put the majority of the industry offside. Communication between the Department and the industry should not be designed to merely protect an esoteric legal position. Correspondence should either inform or enlist producer support. Letters which alienate do neither.

Disease spread

The first principle being advocated by this review is that buyers have the greatest control of spread of OJD into an area. Producers in the Protected Zone made clear they do not want the disease entering their flocks. Equally producers affected by OJD made clear they do not want to spread it.

The Exclusion Area concept relies on an educational campaign that informs buyers of their responsibility to protect themselves and their area. Whilst regulatory support can provide an avenue of last resort, the onus for limiting spread to new areas lies with producers not regulators. Experience with the OJD program shows the limits of regulation in controlling movement. Neither the resources nor the goodwill are available to ensure 100% success of a regulation-based approach to controlling such spread. If there is not a buyer for risky sheep then there will not be movement.

Whilst much argument centres on producers in the Protected Zone, a majority of producers in the Control Zone remain unaffected by OJD. Given an infection rate below 5%, and

anecdotal evidence from researchers that the true rate is four times detected rates, 80% of producers in that zone do not have OJD in their flock. Those producers must be considered when designing any process to mitigate the spread of the disease. In this instance, spread will be mitigated via an educational campaign regarding buying patterns and management options, principally vaccine as prudent insurance. Again principal responsibility lies with producers to manage their own risk.

The central question that all producers in the State who remain unaffected directly by OJD need to ask themselves is "How will I avoid OJD?" For those affected directly, those neighbouring infected properties and all producers in the Management Area, the question is "How do I improve my confidence in my flock?" For the latter, the principal tool will be a vaccine program over an extended period of time. That time frame will need to be assessed on an individual basis.

Whilst vaccine forms a central tool to managing OJD, it needs restating that subsidies were not widely supported by producers.

Evidence was gathered during the review as to the traditional trade patterns within the State. Discussion above argues that OJD lives within the traditional trade covering larger volumes.

The arguments as to explanation of slow down of spread addresses two points. What has limited spread of OJD in the past and what will achieve control, given the use of vaccine, in the future? It has been argued above that past limitation on spread is more simply explained using traditional trade patterns. Future control is now the critical issue.

With zoning, it is clear that unwritten rules, such as de facto boundaries and not dealing with affected areas, will remain irrespective of formal zones. That will mitigate against trade and movement of affected sheep.

Arguments have been raised as to success with controlling other diseases through the use of zoning. Sheep scab, catarrh, tuberculosis and brucellosis have been cited as cases in point. Behind these arguments lie questions as to technology for control and eradication as well as commitment of resources to achieving eradication. Those claims furthermore fail to address footrot and lice control. The former clearly demonstrates the improvement in control achieved by initially moving from a primarily regulatory control to producer control.

An implicit belief is raised in arguing for disease control based on regulatory tools. That belief is that control can only be achieved by regulators. Furthermore it is based on an expert being in the position to know and determine the desired outcomes for the industry in relation to a disease. It is fair to say that the industry is very clearly stating that the industry itself will decide.

The situation is compounded by the technology involved being questioned and by the industry not being prepared to make the resources available.

Any program based on historical examples would be based on a presumption of eradication. Whilst test procedures and vaccine were presented as being more efficacious than that available to the Brucellosis campaign, the capacity to identify individuals infected, the incubation period involved, and flocks of MN3 status subsequently failing testing, mean that conditions required to achieve eradication are not present. Very minor support was given by way of submissions to a belief in the ability to eradicate OJD. It was also made clear to the review that draconian regulation of movement would not stop spread. The evidence as to trade patterns gives greater confidence in limitation of spread.

Resources for zone-based control measures have never been adequate. The program suffered from a chronic lack of resources, which led to failure to support those being affected by regulatory requirements, as well as a less aggressive approach to developing the knowledge required to manage the disease. Given the antagonism caused by the levy process, it is apparent that resources will not be raised on a statewide basis. Individual boards may gain financial support from their ratepayers to undertake control in their local area; this is a matter for each area to decide.

There was widespread support to remove the negative impacts of zones on producers. The preferred position was to follow similar actions to Footrot control, which initially used an educational campaign that won support to achieve desired and achievable control.

Whilst traditional movements will provide a major limitation to future spread between current zones there is a fear that such movements will occur "once the drought breaks". Would regulations prevent such movements? If producers in unaffected areas intend to buy from the affected areas to speed up restocking then what will stop them? Producer ignorance can only be overcome by education. Any expectation that producers will gain approval before purchasing stock will continue antagonisms that have developed in the current program and will promote non-compliance. Buyers have total control over such movement.

Undesirable movement of animals on a disease basis is totally under the control of the producer receiving them. Persuading producers of this truth and of the criteria to use in an area to avoid the disease is a matter for the local Board.

Zones were seen as useful tools in relation to mapping incidence and prevalence. That

knowledge is valuable to producers. It can improve their management decisions on an individual as well as locality basis.

It is clear the industry is looking to have information made available as to changes in incidence and prevalence of OJD. Knowledge of incidence in an individual flock improves management of that flock. Knowledge within a locality assists producers to address common issues associated with risk mitigation due to lateral spread. Knowledge on a statewide basis will give guidance to the industry as a whole as to developments in relation to the disease. The micro level addresses individual confidence whilst the macro assists with confidence at industry level.

As part of the mapping of prevalence there is strong support from producers for Abattoir Monitoring to be continued. Given the unwillingness of producers to use other tests, AM was seen as being the only test that would be used.

Much criticism was raised in relation to the technical accuracy of Abattoir Monitoring and its ability to detect early infections. There are strategies that would improve this test. National Flock Identification Scheme was held to be essential to improving the testing. Traceability of infected stock is necessary to overcome problems with tracing from box lots. Addressing protocols regarding monitoring procedures could improve the accuracy of the test.

Support was promoted for tissue DNA testing to be undertaken at the abattoir to gain earlier detection of the disease but subsequent information has ruled this out as a viable option due to cost.

Further criticism has been raised about Abattoir Monitoring in relation to its link to zoning and regulatory tools to achieve control of

movement. This argument is separate to an argument for continuation of monitoring. The desire to know where OJD is going, what progress has been made in control, and the demonstration of the current position does not mean zoning has to be in place.

Abattoir Monitoring was also seen as being universally acceptable. Testing is less acceptable. Whilst stud producers use testing to give purchasers assurance it is less accepted amongst commercial producers. Costing structures amongst Boards for collecting samples and laboratory charges are questioned. Notwithstanding the cost issue, the level of involvement was not seen as being reflective of the industry's situation.

Whatever Abattoir Monitoring is used for in terms of monitoring the pattern of OJD, it must be clear to industry what the information can be used for.

There was a desire to maintain notification of OJD as part of maintaining knowledge of OJD. This is seen solely as information gathering, not as a precursor to regulatory action. The question is whether a knowledgeable industry is an empowered one rather than whether notification triggers regulations. Knowledge that informs management is valuable in its own right. The process of notification was also seen as valuable in triggering educational input. Being able to target education gives a better learning outcome. Notification also provides further data on incidence and prevalence.

The notion of an Exclusion Area would provide producers within an area with tools to manage OJD. This is very much on the basis of agreed action between producers to mitigate effects of OJD as well as limit its introduction. Producers could adopt such strategies as a compulsory Property Disease Management Program that defines the steps to deal with an infection. It would also help to define the criteria a group of producers would apply to their purchases so as

to minimise the risk of introduction. Given the pattern of trading, the Exclusion Area may well be a concept with limited application. Many areas that are unaffected by OJD will have little call on using such a strategy. An Exclusion Area will not give producers blanket protection. Risk from trading from areas that are regarded as low risk, yet have pockets of higher infection, would not be caught by such a regime. Reliance on the Exclusion Area could also lead to producer apathy with their own protection. Furthermore the regime may limit trade that represents minimal risk. Given that testing and vaccine represents mitigation of risk rather than surety of absence, trading from affected to non-affected areas will always be risk based trading. Trading will be better influenced by education.

Subsidisation of vaccine use was not supported. Whilst some saw it as an incentive it was widely recognised that market signals would provide the greatest impetus for its take up. Many saw a need to do anything to get producers to vaccinate.

Control of movement of diseased animals using assessment scales was seen as being suspect and subjective. The reliability and validity of any scale was questioned. Whilst trading credits can be based on objective data the interpretation as to acceptable levels of risk is a matter for industry to decide. Threshold criteria, developed by a technical body, remain their collective opinion as to the desired level of mitigation to use. It is industry's role to define what risk is acceptable. Buyers or groups of buyers can use their market power to define what is acceptable to them. Dealing with so-called recalcitrants becomes an educational matter for Boards.

Control of spread within an area of prevalence is dependent on proper use of vaccine. Vaccine provides a tool to address infection as well as avoid it. Much of the debate centres on movement between areas of prevalence. In

reality more producers are affected by movement within an area. The fundamental tools for producers to use in the affected areas are vaccination as prudent prevention, purchases that require vaccination over time, and data that demonstrates absence of OJD to improve confidence. This will not give guarantees; it can only improve confidence. Persistence in these expectations will determine success.

In summary, disease control depends on buyers looking to their responsibilities as buyers and producers managing the OJD risk faced in their flocks. OJD is a disease that will not be eradicated; it must be managed so as to limit and reverse its spread.

Capacity to manage

Central to the control of OJD is the need to empower producers to take control of their own fate. It was clear that many producers were assuming that the regulations achieved the control needed. It was also clear that many producers believed, and subsequently acted on the belief they had no power to control their own destiny. Programs and regulations exist to serve not be served. Principal in this is enabling producers and industry to manage their fate. It was very clear during the review that the majority saw the industry as the manager.

In arguing for empowerment there is a clear recognition of the need to be proactive in managing OJD. To achieve this there is a need to develop producers' knowledge of OJD and its management. Many held that producers will not take control until they are impacted directly. There needs to be an understanding that doing nothing and remaining ignorant will mean that OJD will eventually occur. The problem is convincing producers when they aren't affected. Those in the unaffected areas must be active in managing their own circumstances whilst those in the affected areas must be active in avoiding OJD or in reversing its impact.

As part of becoming proactive there is a need to help producers develop a sound knowledge of the risks associated with trading sheep. That will contribute to limiting spread of OJD to new foci of infection.

What will have greater impact will be helping producers to develop an understanding of managing the risks they face in their own neighbourhood. The majority of risks faced by the industry are risks associated with spread within a locality. That then is followed by risk associated with managing the infection within flocks. Given successes to date with managing infected flocks it is clear producers do now have the tools and commitment to manage the disease once it is found. What is being developed is an understanding of managing risk within a locality, essentially based on use of vaccine as prudent insurance.

It can be argued that those properties affected by OJD will either go broke or learn to manage the disease. If managers fail to manage then others will take over the properties and manage better. At issue is the potential risk such poor managers represent to their neighbours. Those neighbours can use vaccine as a tool to reduce this risk. In essence, neighbours need to manage the risk on their own behalf.

It was clear that producers have taken active steps to avoid spreading OJD to their neighbours. There have been those who de-stocked. Argument, however, holds that producers who refuse to take action represent ongoing risk. Again neighbours can take steps to protect themselves. Central to that will be the use of vaccine.

Anecdotal evidence was collected as to levels of "non-compliance" with the program. The large number of producers with small holdings and small flocks represent a potential source of spread. Failure to comply with sound disease control principles requires two parties to be

involved, a seller and buyer. Given sound educational activities, producers can be informed of how to manage risk and avoid representing risk. A knowledgeable market has the greatest capacity to manage the disease.

The key to control of spread from area to area is the buyer. It is critical to have sound tools to inform purchasers available to the industry. The tools are data on risk associated with a purchase, vaccine and testing history, an ability to interpret what that data means and a commitment to minimising risk from any trade. This process is one of buyer be informed rather than buyer beware. This will allow the industry to function without allowing paranoia to govern trade.

The proposal to use risk assessment scales was not well supported. The initial risk assessment scale was seen as being onerous and subjective. Producers felt it lacked credibility and was too open to abuse. As a result, use of factual statements was preferred. The example Animal Health Declaration used was well received. It was seen to give the market information on any trade and force producers to think about OJD as an issue. As a result it would have a role in educating producers about OJD.

In practice it is up to producers to determine risk and decide accordingly.

Success or failure will also depend on producers being aware of the risks they either face from, or represent to their neighbours. The history of OJD is one of the disease spreading to an area by way of trade and then spreading in an area by way of lateral spread. Producers have the tools required to manage this risk. It is clear that getting producers to accept their responsibility in this area will lead to effective outcomes. Past avoidance of neighbourhood risks due to the negative impacts of regulations will be overcome with removal of those impacts.

There have been success stories with parts of

the industry managing OJD on their own behalf. Within the Hume RLPB some eighteen property owners got together and agreed to do something about the disease. That was based on open talk about OJD and the necessity for collective action to achieve effective control. Those producers were in a position to pursue alternative enterprises, which lessened the potential impact. This case, however, still represents the capacity of producers to work collectively to manage OJD.

Many producers believed the industry had no choice but to manage on its own behalf. If industry is to actively manage OJD then it needs to own the issue. While the ownership remains with the program and regulators, industry will not own or take responsibility for control.

The process of industry ownership can also be seen at play in the Management Area. The process employed led to ownership of the Management Area concept by producers. Whilst that area will need to maintain pressure to use vaccine the success to date demonstrates capacity to manage at an industry level.

At an industry level there was support for the use of voluntary Animal Health Declarations to underpin trade. That is, a knowledgeable market, given correct data, is in the best position to manage. The development of the Animal Health Declaration as a tear off section to the National Vendor Declaration was seen as being useful. Any system used to quantify risk and used in the Animal Health Declaration has to be simple. As a result concerns were expressed regarding proposed risk scales as well as with the ABC trading credits.

Animal Health Declarations need to be voluntary. If the declaration has value then it will be used. If it does not represent value it will fail. Compulsion will do little to alter that. One major issue for the current program was the lack of resources. Any future actions by

industry must be properly resourced if they are to achieve outcomes. There is minimal will in industry to support the current program. There is willingness amongst those in unaffected areas to fund activities in their locality to avoid OJD.

As previously mentioned the industry saw the National Flock Identification Scheme as a necessary tool to managing OJD. Industry also saw the need for Abattoir Monitoring to continue, as argued above. The provision of negative results from the latter reinforces the point that a picture of incidence and prevalence across the State is being gathered. There is argument as to benefit to be gained from this monitoring. Producers are not confident in current knowledge of incidence, as they are not directly affected by monitoring activities and do not support testing. Producers need to be confident that any prevalence mapping represents a valid picture.

On an industry basis there will be ongoing prejudice against affected areas. It is vital that such prejudices are addressed and that industry has the opportunity to show progression with disease control. Whilst the prejudice will mitigate the spread of disease, the industry needs to regain confidence in trading and breeding activities in order to prosper.

There is growing awareness in industry that flocks in the Management Area that are not vaccinating represent unacceptable risk, whilst flocks in the Control Zone that neither test nor vaccinate also represent such a risk.

There is a need to persuade producers that vaccine is a form of insurance not a sign of infection. AgForce (Queensland farmers association) adopted a specific position that use of Gudair was an admission of infection. Such a view of disease management is counter productive for the industry. Use of vaccines per se is prudent management. If the industry were to view vaccines as being solely curative

then all disease levels will rise. OJD is a disease than can be managed with sound management of both buying and vaccination to avoid risk.

There was also comment that industry is incapable of managing the disease on its own behalf. Such control was better seen as being vested in a program. Given variability of interpretation and implementation of the current program, as well as opposition to measures imposed on the industry, it is difficult to see how external management of OJD will achieve any better outcomes than those to date.

Centralised control of OJD will remain plagued by lack of support from producers, lack of resources to implement regulations and apathy on the part of those not directly affected. It is clear no one believed there were or will be the resources required to police a regulatory program. Proposals to require approval of movements before the event will be no more acceptable than current movement restrictions.

Discussion of capacity to manage the disease needs to consider the minority who refuse to cooperate with any process that addresses OJD. These people do not work with the current program nor are they likely to in the future. Use of peer pressure and education, as a management option, needs to be considered. The first use of regulations will create a victim mentality in these people, which does not lead to high compliance rates.

DEVELOPMENTS IN OTHER JURISDICTIONS

Victoria

Victoria is clearly developing processes to assess trade and management of OJD on an individual flock basis. Explicit paths have been developed to assist affected properties to return to full trade. Producers whose flocks become infected will have a path to return to trade, the absence of which generated much of the problems of the past.

The use of 'brick walls' were seen as being an impediment to the industry and not in the long term interest of producers. Victoria is not committed to zoning per se. Use of zones was seen as being counter productive. Assuming flocks were 'safe' or not on the basis of zone was not well supported, as it did not accurately reflect ability to predict or control infection. As a result individual assessment of a flock's risk was preferred.

Zoning was also held to not reflect true prevalence. Given the detection rate of approximately twenty five percent and the long incubation time, zones were held to lag incidence and to include localities with low prevalence in high prevalence ones. Furthermore some high and medium prevalence flocks could be treated as though they were low prevalence due to the area they were in.

Trade is being viewed on the basis of assurance provided. Trade from affected areas is viewed as being achievable provided appropriate steps had been taken to deal with the disease. As part of that, there is support for use of an Animal Health Declaration. A need for the same Animal Health Declaration to be used across Australia, to achieve consistency and support trade, is apparent.

The development of assured trading is not seen as being free movement. Trade will be based on assurance. That assurance will not be a matter of guesswork, rather on the basis of evidence. Trade will become market based; at issue is ensuring that the market has facts to base judgements on.

What was also clear in the Victorian position was a view that no program will be successful if the fear and implications of being found is greater than fear of the disease. The implications of OJD need to be in line with the seriousness of the disease rather than the impact of regulations.

There is a move to continue the link between testing and vaccine. Vaccine will also be made available to at-risk flocks. That provides for risk reduction in areas, as it is the prudent approach to management.

Victoria is also looking at developing confident knowledge in the prevalence of OJD in flocks and areas. Monitoring activities and testing are not just about scientific control of a disease. It is also about developing knowledge within a market.

The Victorian position is to support Option 2 of the National Ovine Johne's Disease Program discussion paper.

Queensland

AgForce (Queensland farmers association) strongly represented Queensland's position as wishing to prevent any incursion of OJD into their State. Given that desire, their default option was to seek cessation of trade with northern NSW if it did not adhere to certain protocols. Those protocols were:

- "New South Wales to have an exclusion zone with zero tolerance along the Queensland border, with RLPBs having uniform criteria and vendor declarations that are used to a level that controls movement into the exclusion areas of NSW, the only exception being MN3, third generation vaccinated stud stock.
- "That there be a continuation of abattoir testing in this exclusion area, so as to help to demonstrate the low prevalence of the disease in these areas.
- "No vaccination in exclusion zones without the approval of NSW CVO when controlling and eradicating an outbreak.
- "AgForce acknowledge the benefits of vaccine but at this stage questions its effectiveness to control shedding."

Whilst these protocols were presented as preventing risk to Queensland producers it was recognised that producer support would be needed if they were to work. The cost and compliance of enforcement of the protocols, let alone the ability to prevent cross border movements, remains an issue to consider. Queensland has had experience with a producer led approach through the tick program. In that program peer pressure with some regulation to mop up has achieved success.

AgForce furthermore argued for continued use of vaccine till OJD was eradicated from affected properties. Whilst this was seen as being achievable it was recognised that the level of commitment needed to be maintained over an extended period of time in order to be achieved.

What was unclear from AgForce's position was the application of these protocols to all Protected Zone areas. Placing trade restriction on one part of the Protected Zone is questionable. Other parts of that zone are regarded as representing very uncertain risk. Those protocols would need to apply to all of the current Protected Zone if they were to avoid challenge.

AgForce also saw future progression as entailing:

- "We believe that unless vaccination for infected flocks is made somehow mandatory this [control] may not be achieved.
- "We expect that infected areas will come under risk based trading and that some vision and planning will need to be incorporated to encourage reduction and hopefully eradication which would allow demonstrated free areas to be eligible to trade into the exclusion zones at a later date.
- "We would expect a five year review on the effectiveness of vaccination in conjunction with risk based trading outside the exclusion areas to gauge the possibility of improvement in the OJD status of affected areas."

AgForce presented a number of concerns to the review:

- Vaccinating flocks were seen as being infected. Such a view works against long term disease control.
- They could see the future in deregulated environment as being one of low prevalence within flocks but high prevalence in number of flocks infected. The current Management Area was represented as potentially letting OJD smoulder.
- There was concern with movement of sheep by producers unaware of OJD. Such movement could represent an unacceptable risk. AgForce took issue in relation to controlling mavericks who tend to work against regulated disease control.

In essence control of OJD was put as being an issue for NSW producers to control. AgForce was supportive of providing financial support to achieve the level of protection desired. As such they strongly saw the control of OJD as being a national issue that needed to be managed and funded on that basis.

In pragmatic terms the interdependency of Queensland producers with northern NSW producers creates an imperative to trade. What is at issue is how to achieve assured trade so as to ensure confidence in the industry.

Given the general conclusion of the review that markets should set criteria for trade it is in the hands of producers wishing to trade into Queensland to meet any criteria set. It then becomes the responsibility of buyers to ensure those criteria are met, not the responsibility of sellers. Given this scenario it remains that such criteria are uniformly applied to all trades

entering Queensland and not applied in isolation to one area.

What remains unclear is the view held by the Queensland Department of Primary Industry as opposed to AgForce.

Other

The general issue of professional duties of care owed by a producer to their neighbour can contribute to management of OJD spread between jurisdictions as well as within jurisdictions. That duty though would be seen firstly as an educational tool rather than a source for litigation.

It was also intimated that other States were looking for NSW to take a lead. Given the depth of experience of OJD gained in NSW it is possible to provide leadership as to long term management of the disease.

3. OBJECTIVES FOR FUTURE OJD MANAGEMENT

Principal objective – Empowerment of producers

Discussion of management of OJD identified one common theme irrespective of the policy position adopted. That is, if industry is to go forward then industry needs to own the management of OJD. Furthermore it was evident that industry needs to be responsible for any program and held accountable for such a program. A constant criticism of the current program regarded the apparent ownership of it by NSW Agriculture. Whilst this denies the role NSW Farmers and stud Merino breeders played in setting up the program the apparent development and redevelopment of policies was seen as being under Departmental control.

Industry very much wants to control the management of OJD. The work of the Department and Rural Lands Protection Boards should be to empower the industry to manage their own fate. Perceptions that professional bodies deal with industry's responsibilities to manage animal health issues lead to producers being less willing and less able to address their requirements on farm and in their locality. Producers are in the best position to control the management of stock on their properties. Groups of producers are similarly best positioned to address common issues of health management within their locality.

Perceptions as to ultimate control of OJD must be overcome. Those perceptions include the role and representational adequacy of industry bodies set up to address the disease. An understanding of the process used to make decisions about OJD needs to be sought by producers and given by those representing the industry. Time spent arguing through ideas and informing industry of proposals may appear

excessive. Implementation of proposals will be far easier once commitment is generated in industry to any proposal.

Decisions in relation to OJD need to be based on science. Veterinary science can describe the behaviour of OJD; it can describe the efficacy of control mechanisms as well as potential implications on health of animals as a result of strategies adopted. An understanding of behavioural characteristics of the disease does not arbitrate management objectives in relation to OJD nor the strategies used to achieve those objectives. Knowledge informs the decisions and can indicate likely implications of decisions.

Decisions regarding the objectives in managing OJD and strategies used to achieve those objectives must therefore be seen to be placed firmly in the hands of industry. Current decisions will need to be reviewed as experience develops. Industry may need to put in place a strategic committee that undertakes such reviews as both research and field experience broaden our understanding.

Whilst criticism was raised of the rate of change of policy, that criticism can be viewed as addressing the apparent lack of industry input to policy decisions as well as complexity of policy hindering producers' understanding. The industry needs a period of stability with OJD in order to continue the development of producers' commitment to managing OJD and their capacity to achieve outcomes. That, however, does not remove the need for strategic review. When such a review is undertaken it is best left to industry to determine.

Management of OJD as a means to an end

The management of OJD is not an objective in its own right. OJD must be managed in order to assist producers to run their businesses and achieve the general objectives they hold and which drive their involvement in agriculture. The management of OJD is subservient to the producers, not producers being subservient to such management. A constant and universal criticism of the current program was the quarantining of producers without a path to get out of quarantine. Another was the lack of communication with affected producers. A future OJD program must empower producers, not treat producers as objects to control.

A principal driver for using tools to manage OJD is the market. Buyers in unaffected areas have a responsibility to buy wisely. The signals they send regarding criteria applied to purchases will drive strategies to control OJD. Buyers in affected areas, however, will have the greatest impact with market signals. They control the majority of the trade from affected properties and will have the biggest impact.

The end point of controlling OJD is to let trade function and businesses survive. Controlling OJD is a means to an end. The end is an industry with greater confidence, that survives and is in better shape to prosper in the future.

Informed trade

Looking for factually based evidence that sheep have not been exposed to *M. paratuberculosis* and appropriate strategies to mitigate risk, namely a history of use of vaccine, and strategies to reduce incidence, namely use of vaccine and testing over time, will provide buyers with information to safeguard their purchases. As a result the use of an Animal

Health Declaration forms a major element in providing the market with factually based information to inform buying decisions.

Trade must be based on valid data as to risk associated with animals sold. An Animal Health Declaration can provide the vehicle to inform markets as to assurance. Claims based on "to the best of my knowledge" provide no assurance. Objective facts regarding testing, vaccination history as well as absence of OJD in an area can help inform a buyer. It is the buyer's responsibility to use those facts to buy wisely.

Any Animal Health Declaration will survive as long as it provides a market advantage to buyers. Making these declarations mandatory will not improve their uptake or use. Provision of a declaration is secondary to buyers using data to make informed choices. Education of buyers is therefore the critical element of Animal Health Declarations.

Animal Health Declarations can also be seen as triggering the development of a more knowledgeable industry. The data does not exist solely to meet esoteric, scientific requirements. Producers who gain an understanding of OJD incidence and prevalence in their flock, locality and State through time are empowered to contribute to decisions directly and indirectly regarding management of the disease.

Producer commitment and responsibility

No one wants to walk away from the management of OJD. The charge that market based approaches to managing OJD are "do nothing" options is ill founded. Producers carry primary responsibility to manage OJD on their own behalf. Claims of ignorance and wilfulness requiring management of OJD by a select few on behalf of the many leads to producers failing to accept the responsibilities they hold in relation to the disease.

Each and every producer has responsibilities in relation to the stock they introduce onto their property. Each and every producer has responsibility in relation to managing potential risk from neighbours and risks they pose to neighbours through use of vaccine and other management strategies. Each and every producer has responsibility to safeguard the health status of their flock or deal with OJD if found or suspected in their flock. Activities by Boards and the Department should support producers in meeting those responsibilities.

Arguments were repeatedly presented to the review regarding the "recalcitrant few". Use of regulatory powers that impede the many in order to control the few have been and will remain counter productive. Other options including peer pressure, educational input from Boards and pressure from market intermediaries via groups such as agents provide alternative tools to influence producer behaviour. Any regulatory tools need to remain reserve powers.

OJD as an issue of general flock health

OJD is endemic, being prevalent within particular geographic areas. It should be managed as being another endemic disease in similar fashion to footrot or lice. It should no longer be thought of as an exotic disease. It has been shown to be well established in particular areas over a number of decades, despite apparent rapid spread in the last 10 years.

OJD should not be treated as though it is equivalent to either foot and mouth disease or bovine spongiform encephalopathy. During the review it was apparent that many treated OJD as though it was a virulent, exotic disease. This produced adverse outcomes in relation to the handling of producers. OJD is a serious disease that can have major consequences for producers. It is, however, a disease that can be managed using tools now available to producers.

As a result the management of OJD falls under the management of general flock health. The continued isolation of OJD as an issue from general flock health will detract from the management of a number of other disease matters.

Proactive management of OJD

Industry favours a proactive campaign for disease control. Current approaches have been reactive and have been seen to be such. It was evident from preambles developed by industry regarding responsibilities of producers to protect themselves, as well as responsibilities to avoid spreading OJD, that industry is looking at producers to become active rather than wait for policy to direct behaviour.

The current program is based on regulatory control of spread. The desired position is a producer controlled program powered by market signals as to desirability of taking control actions. Furthermore, as already has been stated, it is desirable that producers unaffected by OJD take primary responsibility for not introducing OJD to their property or their area. OJD will not enter an area if producers seek assurance as to absence of OJD or prudent strategies have been used to avoid OJD.

Debate continues regarding approaches to adopt a move from a regulatory program placed on the industry to a producer controlled one, driven by market signals and a sound educational campaign. Representatives of the current Management Area saw the transitional arrangement as being based on regulation to create market advantage for those who followed a sound vaccination program. Those representatives also made it clear that the end point will be a market driven approach. Producers from the Management Area and Control Zone also made it clear that use of

vaccine in those areas will be essential in order to control OJD. Vaccine will, furthermore, need to be used on a long term basis according to prevalence in flock and locality if control is to emerge over time. Producers with flocks unaffected will need to consider whether to only purchase animals that represent at least 2nd generation vaccinates if not 3rd generation. In this case a 2nd generation vaccinate is an animal that is both vaccinated prior to 16 weeks of age as well as born to a flock made up only of animals vaccinated prior to that age.

Management Area representatives also saw an advantage in controlling access to vaccine in order to provide education about OJD. Such an approach would contribute to the spread of knowledge but would be counter productive given antagonism to boards and subsequent avoidance of uptake of vaccine.

Further research needs to be completed to demonstrate the rate at which infection will decline in a single flock once a vaccination program is commenced.

Protecting the unaffected

Much discussion has been centred on producers in the current Protected Zone being protected from the disease. Producers in the current Control Zone and Management Area who are not yet affected have greater interest in protection than those in the Protected Zone. As already argued, trade to the Protected Zone has been limited in the past and will be limited in the future.

Buyers in the affected areas will have the greatest impact in terms of providing market signals. Their buying behaviour will send the clearest signals to the market as they control the majority of trade from affected properties.

Those in the current Protected Zone made it very explicit that having avoided OJD they do

not want to see it enter their area. It is therefore desirable that tools be developed to assist areas unaffected by OJD to remain free of the disease. It is proposed that the notion of an Exclusion Area be created. An Exclusion Area will provide producers within an area to agree to measures to minimise the risk of introducing OJD as well as strategies to respond to any incidence of the disease.

An Exclusion Area will be a producer initiative under the control of those within the area affected by such an implement. In order to create an Exclusion Area producers in an area will, through their Rural Lands Protection Board, achieve agreement amongst affected producers.

Inter-State trade

The management of OJD, on the basis of letting trade function, needs to take account of inter-State trade. Preservation of inter-State trade needs to be based on assurance levels provided with any stock sold. As stated above, producers can meet the criteria set by markets through use of appropriate management tools. Any criteria applied, however, need to be uniformly applied to all sellers. Selective application of criteria will continue divisions in the industry and produce a skewed market.

In setting trading criteria, developing tools to inform trade and creating drivers for proactive management of OJD, there needs to be an accommodation with other States as to what approach will be adopted. Having common Animal Health Declarations will improve trade as producers will develop a common information base that facilitates trade. Similarly promotion of common management strategies will improve industry confidence as producers develop common expectations regarding control of the disease.

Educated producers not just aware ones

It is critical for the future of control that a very strong educational campaign be developed to ensure that producers understand OJD in order to take control on their own behalf. Whilst most producers are aware of OJD very few are knowledgeable about it. Advisory activities need to be increased to ensure that producers' understanding of the behaviour of the disease improves, as well as their understanding of what the vaccine can and can't do.

A central objective for management of OJD is to move from externally imposed control of producers to empowering producers via sound extension and educational activities.

The delivery of educational material needs to make use of a number of different pathways. The Department can play a crucial role in developing common sets of material as well as hosting a centralised site to distribute those materials. In essence the Department's role in extension is as a "train the trainer". Primary delivery of material then can go through the Rural Lands Protection Boards. Additional information can be spread through Stock and Station Agents as well as saleyard operators and rural suppliers.

A concentrated effort needs to be put into educating producers over the next three years. That will ensure the industry has a base level of knowledge. Following that period, extension work with OJD should become a part of extension for general flock health.

Research

There needs to be more focused research, which addresses current issues. That includes developing knowledge of behaviour of OJD in western areas as well as behaviour of vaccine in low prevalence flocks. Furthermore specific

models which reflect rate of decline of infection in a flock once a vaccination program is commenced will greatly improve the market's ability to buy confidently from formerly infected flocks. There is a desire to see validation of tests that are speedy to produce results yet maintain accuracy. Current efforts to approve the use of Direct PCR testing will help overcome opposition to testing driven by delays in PFC procedures.

4 OPTIONS FOR ACHIEVING OBJECTIVES

Options for the future direction of the OJD program can be aligned clearly to the options put forward in the "National Framework for the Future management of OJD in Australia". That report canvassed three options for the control of OJD:

- i) zone risk based control program;
- ii) flock risk based trading program;
- iii) staged introduction over three years of a flock risk based trading program.

A fourth option is to do nothing; to complete the scenario this needs to be canvassed.

Do Nothing Option

The review led to one clear conclusion: a "do nothing" option will not be supported by any sections of the industry. Proponents of a supposed do nothing option did not see ignoring the disease as being a tenable way forward.

The question is who would be doing nothing? The implicit belief that OJD will only be successfully managed when there are regulations and regulators to control the industry (or rather those considered recalcitrant by ignorance or wilfulness), carries far wider implications for the industry than just the future management of OJD.

There was universal agreement that the industry must actively manage OJD.

Deregulation is often referred to as being a "do nothing option". Control, however, is not a synonymous term with regulation. Similarly deregulation is not synonymous with lack of

control. The view that industry is incapable of managing OJD on its own account must be challenged. There is not a select group with greater powers to determine the industry's future and to control producer behaviour to reach that future.

Cost of ignoring OJD would be normalisation of OJD across the Australian flock. Given overseas experience a producer would vaccinate once mortalities rose and stop when deaths stopped. As a result OJD would become epidemic. This would mean flocks would carry a background burden of *M. paratuberculosis* with consequent decline in flock health. Economically margins would be squeezed, selection pressures decline and consequently loss of genetic improvement would occur.

The Hassall and Associates report of August 2003 indicated a cost of \$90.6m for total deregulation.

Zone risk based control program

This option provides an improvement on the current program in providing greater access to vaccine. These improvements are already in place. As the National paper puts it "This option involves a continuation, with some modification, of the existing approach to controlling OJD."

The National paper recognised:

"This option relies on a continuing substantial investment of funds by governments, or on industry funding, of regulatory control activities. The high regulatory impact on affected producers will continue, with non-assessed flocks disengaged from the program but enjoying all the benefits delivered from the program."

This review came to the same general conclusions. The Hassall and Associates report of August 2003 indicated a cost for the continuation of current management and regulation of \$366.5m.

It is clear that there is no support for provision of the funding required to ensure the success of such an approach.

This option would continue a fundamental flaw. That is, a belief that zones will prevent movement of infection between zones. Given the inability to guarantee absence of the disease, movements between zones will carry risk. Majority of input to the review recognised such tools will slow spread but not stop it.

Social impacts created by the current program would be lessened, but not stopped. Continuation of the current program in any form will carry the negative baggage of past experience.

Producers throughout the State have responsibilities to manage avoidance or control of OJD on their own properties. Reliance on regulations as a substitute is unacceptable. Control would also remain with those setting policy. Support for this approach will not improve.

Flock risk based trading program

The agreed end point from the Morris Hussey report and the National Ovine Johne's Disease Program was development of knowledge and tools to manage the disease and giving those to industry so it could manage on its own. Whilst eradication may have once been contemplated, management of risk using the tools available provides a way forward.

Under this option producers would develop individual and collective strategies to manage the particular set of circumstances they faced. Producers carry prime responsibility to manage disease within their flock and contribute to the mitigation of risk within their neighbourhood. Government costs associated with this program are primarily extension costs. Given current antagonism to advisory services, removal of negative impacts in the current program will lead to better utilisation of educational resources.

Potential negative impacts within the unaffected areas may arise due to the perception that infected animals will move into that area. Producers within an area are in a position to manage risk on a collective basis.

The assumed risk of spread to unaffected areas will be governed by buyer behaviour. If producers in unaffected areas take their responsibility to manage their risk and respond decisively if an outbreak occurs then control will be maintained. In similar manner producers in affected areas carry responsibility to lower risk in their areas.

The Hassall and Associates report of August 2003 indicated a cost of \$177.1m for risk based trading with voluntary Animal Health Declaration.

Staged introduction of a flock risk based trading program

This program is based on maintaining regulatory controls whilst an educational program is run to ensure development of a knowledgeable industry. Such a program is a transitional arrangement between zone based management of OJD and risk based management.

This is the highest cost option. Costs of the current program would be maintained whilst benefits of a risk based approach would not be gained. A constant refrain during the review was that producers would not take OJD seriously until they were directly affected. Regulatory barriers provide a convenient way of avoiding responsibility.

If producers are not to be trusted with managing OJD on their own behalf now why will that change in three years time? If behaviour is driven by regulation now why will that behaviour continue once the regulations are removed?

Future directions

1. POTENTIAL ROLES OF GOVERNMENT AND INDUSTRY

Role of Industry

Industry would take the lead role in managing OJD. That would be on an individual producer level, a group approach at either Board or locality level as well as at a State level with a committee to provide strategic oversight and review of progress with the disease.

Producers should carry prime responsibility for managing their risks with OJD. Producers in unaffected areas are responsible for avoiding bringing OJD into their area plus responding in the event of infection being suspected. Producers in affected areas carry responsibility to avoid OJD as well as to reduce its incidence in their area.

Individual producers need to develop strategies to avoid OJD or reduce its impact if they are affected.

The industry will need to provide a strategic review of the progress of OJD through an appropriate committee.

Stock and Station Agents, Rural Suppliers and consultants can play a valuable role in spreading understanding of the disease.

Rural Lands Protection Boards carry a primary responsibility for delivering educational messages. It is essential that producers develop knowledge rather than awareness in order to meet their responsibilities. Education on OJD will form one of the extension activities of Boards in animal health. The Boards are a vehicle for producers to achieve a common approach to managing OJD in an area as well as ensure producers in the area are educated as to the implications of that approach. Processes to seek approval for an Exclusion Area, and manage it, would be best run through Boards.

Recommendation

- **Industry to take the lead role in managing the disease.**

Government role

The government role will be supportive rather than regulatory. That support will be via educational input and support of research, including maintaining the level of knowledge of changing incidence.

Government would provide ongoing support to a producer committee that takes strategic oversight of developments with OJD.

Government would provide supportive instruments for Exclusion Area for use by producers and/or Boards who meet preconditions for an EA.

The role of NSW Agriculture was seen as providing extension services and education, including the promotion of vaccination as a marketing advantage, to produce a knowledgeable industry.

The Department would also develop educational material for use by producers, Boards and other interested groups, that will empower the industry to manage OJD on their own behalf. It would provide a centralised clearing house for that educational material which users can download and use as required.

The Department would oversee Abattoir Monitoring so as to maintain knowledge of

changes in prevalence on a State, area and individual basis (whilst there are technical concerns with the accuracy of such data, it is a tool that is available and can be improved). It would provide negative results from Abattoir Monitoring to producers as part of building a network of knowledge within the market.

The Department would continue support for MAP and Tested Market Standard in order to inform markets and assist managers to decide on their practices to minimise the risk from OJD. Prevalence mapping on a localised area basis so as to provide information to buyers and managers on incidence of OJD within an area over time (the unit area to be defined by producers within a locality or board) would also be the responsibility of the Department.

The Department would also facilitate ongoing research, including enhanced modelling, so as to improve knowledge of the behaviour of OJD in different prevalence areas and knowledge of the vaccine – the latter being seen as vital in relation to declining presence of OJD within a flock undertaking a vaccination program.

The Review did not have available to it precise funding models for the suggested educative and supportive role of the Department compared to the current commitments.

Recommendation

- **The future role of Government is to be educative and supportive rather than regulative.**

2. PREFERRED OPTIONS

The recommended option for the future OJD program in NSW is a risk based trading model. It is proposed that this program should educate producers to assess the flock risk associated with purchases and in determining their management strategies on property and in their locality.

Strategies proposed assume producers' responsibilities in managing OJD. Those responsibilities are met either by avoidance of OJD, through buying assured animals and prudent insurance to manage risk of incursion, or management of incidence, by use of vaccine over the longest term to reduce incidence as well as avoiding spreading OJD to neighbours and customers.

Recommendation

- **The future OJD program in NSW is a risk based trading model. This in essence adopts most of Option 2 from NOJDP's National Framework for the Future Management of OJD in Australia.**

Future Trading

Future trading will be based on an Animal Health Declaration. No regulatory requirement is proposed to require the use of these declarations.

The declaration would be based solely on factual information regarding the stock, vaccination status and testing history. It would not provide for statements based on estimations. The authenticity of the declaration will be supported by increased penalties for false information.

The AHD will incorporate any agreed Assurance Based Credits between participating States. The Review believes that the credits should fit into the factual questions on the draft NSW AHD. The review believes the following draft Animal Health Declaration should be followed.

There was widespread support to have AHD included on the NVD and this should be a long term goal, maybe as a tear-off section. Animal Health Declarations will need to be produced in duplicate books for all sheep producers.

The Review received evidence in support of a "rolled gold" status for flocks with very high assurance. This may be an MN3 V flock with the assurance of both vaccination and ongoing testing. This may be accompanied by a veterinary certificate, including the PDMP strategies employed on the property.

It is envisaged that this would be particularly attractive to stud breeders trading with Western Australia and other equivalent destinations. A suitable rating such as MN4 should be established to identify this concept. This proposal would need to be negotiated with other participating States.

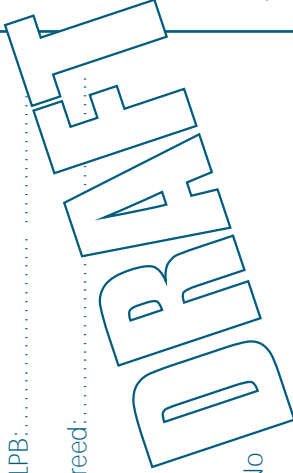
Recommendations



- **Future trading will be based on a factual Animal Health Declaration.**
- **It is proposed that the Animal Health Declaration be included in the National Vendor Declaration.**
- **A high assurance status for flocks to be developed.**

NSW OJD Animal Health Declaration (AHD)

Recommend purchasing sheep at same risk score (or higher) as your own flock.

<p>PROPERTY OF ORIGIN</p> <p>Property of origin: Address: Postcode:</p> <p>PIC: RLPB: Breed:</p> <p>HISTORY OF STOCK</p> <p>These stock were born on this property Yes No If 'no', date when sheep introduced: / / Property of introduction Postcode:</p> <p>RLPB District State:</p>	<p>OJD RISK FACTORS (Mark appropriate boxes & fill in credits)</p> <p>MANAGEMENT OF OJD</p> <p><input type="checkbox"/> Area of low prevalence in locality (As per RLPB Data) 3 <input type="checkbox"/> Active strategies to manage OJD in place 1 (Low risk introductions / Property Disease Management Plan)</p> <p>VACCINATION STATUS</p> <p><input type="checkbox"/> 2nd Generation vaccinated (Lambs vaccinated less than 16 weeks of age from fully vaccinated flock) 3 <input type="checkbox"/> 1st Generation vaccinated (Vaccinated less than 16 weeks) 2 <input type="checkbox"/> Sheep vaccinated prior to exposure (from low prevalence) 1 <input type="checkbox"/> Terminal lambs (For slaughter by 12 mths – not for breeding) NA <input type="checkbox"/> Non vaccinated 0</p> <p>TESTING HISTORY</p> <p><input type="checkbox"/> MAP Status: MN3 = 3 MN2 = 2 MN1 = 1</p> <p>Flock test Pos / Neg (circle one please) Neg = 1 Abattoir test Pos / Neg (circle one please) Neg = 1 Not tested</p> <p style="text-align: right;">Total Trading Credits</p>
<p>DECLARATION</p> <p>As the vendor and/or person responsible for the husbandry of the sheep in this consignment I declare that the information stated in this declaration is true and correct.</p> <p>Signature: Date:</p> <p>Print name: Stock owner / manager</p> <p>Contact phone number/s:</p> <p style="font-size: small;">Declaration under Stock Diseases Act, subject to Fair Trading Act & Trade Practices Act as appropriate.</p>	
<p>Version #01</p>	



No. of Stock	Age	Sex	Ear Marks	Ear Tag Details (Colour, Nos.)
			R 	L
			R 	L

Exclusion Areas

Provision should be made for producers to agree on a collective basis as to strategies to adopt to manage OJD within their area. Exclusion Areas may be established in unaffected areas provided those proposing such an arrangement meet the preconditions listed earlier in this report. Producers in the current Management Area may agree to strategies to reduce the incidence of OJD provided they achieve producer support through appropriate consultation.

Any agreement to create an Exclusion Area will have a life of no more than three years unless producers demonstrate further support.

The following principles should apply to an exclusion area, with the support of a majority of producers agreeing to:

- a. being subject to provisions of the proposed Exclusion Area;
- b. funding activities required;
- c. support that will be provided by local producers to those affected by OJD in their area;
- d. proposed criteria regarding introduction of stock;
- e. a mandatory Property Disease Management Plan if stock are found to be infected or suspected of being infected;
- f. strategies to use vaccine on properties surrounding an infected or suspected infected property or other strategies as found productive in the situation;
- g. strategies to share information on incidences of OJD;
- h. willingness to work with neighbours to control risk within their specific locality.

Furthermore those proposing an Exclusion Area will need to show:

- i. widespread consultation with other parts of the industry (agents, saleyard operators, NSW Farmers' reps etc);
- j. independent technical assessment of surveillance data to show low prevalence in the area;
- k. documented evidence of the consultation process and outcomes;
- l. identification of resources to deliver the strategies required.

The review suggests the Agricultural Services Act provides the mechanism for a ballot to establish an Exclusion Area. Such agreement would need to have a majority vote of producers in the RLPB with at least fifty percent of those producers in the area voting.

The concept of an Exclusion Area will need to be proclaimed by the Minister for Agriculture to enable the relevant sections of the Stock Diseases Act to apply. The Minister will need to be satisfied that a majority of those that vote support each of the protocols proposed by the Rural Lands Protection Board.

It should also be noted that those producers who were either affected or in an affected area made it clear they did not want to spread the disease. Such commitment needs to be encouraged.

The Minister will need to publish protocols which will be a statewide policy template from which individual Rural Lands Protection Boards will design their policy. These may differ between Boards.

Surveillance would be based on statewide abattoir tracing and on property testing together with any additional testing that the Board undertakes. Results, both positive and negative, would be available to producers.

Trade will be based on the vendor declaration with accompanying trade credit points, which is being currently negotiated to attract national support. Vendor Declarations may be mandatory in an exclusion area.

Recommendation

- **Exclusion Area may be established in low prevalence Rural Lands Protection Boards in the State providing majority support is demonstrated.**

Local Exclusion Areas

A group of producers in a catchment area or local area may wish to enter into a voluntary exclusion area to protect their status. This would not apply where a RLPB had already introduced a Board wide exclusion area policy.

Recommendation

- **A group of producers in a catchment area or local area are encouraged to enter into a voluntary exclusion area to protect their status.**

Zones

The Review concluded that zoning should be discontinued as a regulatory mechanism. As canvassed above zoning has not been respected and only belongs in a highly regulated model. Concurrently quarantining will cease and be replaced by an educational and support campaign.

It is important that prevalence mapping be continued. Such mapping would be used to maintain oversight of progression of OJD as well as help inform producers as to incidence and prevalence.

The Exclusion Area concept will be available to

RLPBs or other local groups to locally manage the disease in their area. Similar provision should be made available to Management Area Boards to continue to manage vaccination and education strategies to reduce incidence

Recommendation

- **That zoning be discontinued.**
- **Prevalence mapping be continued on a regional and local basis.**

Vaccine

The overwhelming evidence supported vaccine being available to producers throughout NSW. In a producer driven future direction, vaccination will be important to maintain and build flock assurance.

To facilitate the widespread uptake of the vaccine the Review recommends retail through normal animal health product suppliers, such as stock and station agents. It is important that retailers carry some responsibility for ensuring that the end user is familiar with proper usage, providing the purchaser with pamphlets, instructions for use and some guidance.

A need for a marker within the vaccine to differentiate between vaccinated and infected samples was raised by stud producers as some overseas trade only recognises blood tests, which cannot differentiate. This issue needs to be pursued, providing the manufacturer applies no significant additional cost.

Recommendations

- **Vaccine be available to all producers in NSW.**
- **Vaccine be available through retail outlets handling animal health products.**

Abattoir Monitoring

The Review supports Abattoir Monitoring continuing to be overseen by the Department of Agriculture. Both negative and positive results must be given to producers as part of building a network of knowledge within the market.

There was good support given to the forthcoming National Flock Identification Scheme as a means of speeding up flock identification, particularly in sorting out ownership of mixed mobs in abattoirs. Producers need to be sold the benefits of identification in order to guarantee the future success of the NFIS.

Recommendation

- **Negative and positive results from Abattoir Monitoring must be given to producers.**

The goat industry

The goat industry in NSW has been represented at the Review's hearings and has argued to be part of any future policy changes. Goats are ruled to be susceptible to both OJD and BJD and for this reason have fallen between the respective species' protocols.

There are at the moment only 25 goat herds infected across Australia with 3 being present in NSW, one in each of the current OJD zones.

The Review believes that the goat industry has been ignored for too long. They represent not only a risk to themselves but also threaten the status of adjoining sheep flocks.

It is recommended that the goat industry be identified with the current changes for OJD in NSW and have the following protocols available to it:

- access to the Gudair[®] vaccine;
- access to all testing options currently available for sheep including the forthcoming PCR test;
- use of the Animal Health Declaration and any future Assurance Based Credits;
- MAP and TMS assurance availability.

Recommendation

- **The changes to the NSW program and the ensuing protocols available to sheep producers be made available to goat producers.**

Stock Diseases Act

The overwhelming evidence from the inquiry suggested that OJD should remain notifiable, but without the regulatory impact. Notification would only be to provide information to maintain knowledge of incidence and prevalence. Therefore the Review recommends that OJD remain subject to section 9 of the Stock Diseases Act.

The Review supports increased penalties for false declarations on the new Animal Health Declarations from 100 penalty points to 200 penalty points. This would be available through application of section 20J to OJD.

The regulatory aspects of the current program would be replaced by education of producers affected and working with them on the options available and the future management options.

To support the proposed Exclusion Areas the Review recommends that the Ministerial Proclamation be applied under section 11A. In order to deal with isolated incursions of OJD the Review supports continued application of sections 14 and 20H of the Act to allow the imposition of mandatory Property Disease Management Plans to infected properties.

Recommendations

- OJD to remain subject to section 9 of the Stock Diseases Act.
- OJD to remain subject to section 20J of the Stock Diseases Act and the penalties be increased to 200 points.
- Exclusion Areas be subject to sections 11A, 14 and 20H of the Stock Diseases Act.

Committees

There are currently two committees supporting the OJD program in NSW. They are the OJD Industry Advisory Committee and the NSW OJD Advisory Committee.

The Industry Advisory Committee was established to advise the Minister as to the appropriation of funds collected from the OJD producer's levy. If no future levies are envisaged, the Review recommends that this Committee be wound up.

The OJD Advisory Committee has evolved from the original Steering Committee set up in conjunction with the NSW Farmers' Association. It is the opinion of the Review that this committee be either disestablished or restructured.

If it were to continue then a smaller committee, with a three year sunset, would suffice. A suggested makeup may be:

- 2 representatives from NSW Farmers'
- 2 representatives from stud breeders (1 Merino, 1 British Breeds)
- 1 representative from Rural Lands Protection Boards
- 1 representative from the Australian Veterinary Association

- 1 representative from the Stock and Station Agents
- 1 Independent Chairperson

Recommendations

- That the NSW OJD Industry Advisory Committee be wound up at the conclusion of the current program.
- That the NSW OJD Advisory Committee be wound up or restructured at the conclusion of the current program.

Timetable

Given the need to activate as much as possible of the new program without delay, the Review suggests the following timetable for implementation. This will depend on national negotiations but there are some changes that can be implemented by NSW alone.

Immediately

- Vaccine to be made available throughout the State.
- Vaccine to be released for sale through other rural suppliers.
- Quarantining to be discontinued and replaced with an educational alternative.

1 November 2003

- The criteria for an Exclusion Area and any changes to the Management Area to be published with a concurrent education program commenced.
- Educational material to be made available.
- Education campaign on use of Animal Health Declaration to be commenced.
- Changes required to the "Memorandum of Understanding governing relationship between the Department and the Rural Lands Protection Boards" to be implemented.

1 January 2004

Or as soon as practicable depending on national negotiations,

- Zones cease.
- Trading via the Animal Health Declaration commences.
- Other recommendations to be implemented.
- Commencement of Exclusion Areas.

Recommendation

- That changes be implemented on 1 January, or as soon as practicable depending on national negotiations, following two months of educational campaign and immediate changes to vaccine use and supply.

Acknowledgements

The Review is very appreciative of the organisations, Rural Lands Protection Boards, groups and individuals that have forwarded submissions and letters to the Inquiry. They include the following.

NSW Farmers
AgForce Queensland
Australian Johnes Alliance
Australian Wool Innovation Limited
Eastern Riverina OJD Action Group
Bombala RLPB
Cootamundra OJD Discussion Group
Forbes OJD Action Group
Forbes RLPB
Management Area RLPBs
New England OJD Coordinating Committee
NSW Farmers' Association - Northern Region
NSW Stud Merino Breeders Association Limited
Coonabarabran RLPB
Goulburn RLPB
Stock & Station Agents Association Ltd
Victorian Farmers Federation
Victorian OJD Advisory Committee
Young RLPB
Western Division RLPBs

Trevor Ablett, Wentworth RLPB
Adrian Betts, Coonabarabran
Andrew Biddle, Glenn Innes RLPB
Leo Blanch, Westvale Merino
Patricia Brooks, Walgett RLPB
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JB Burton, Hamilton Luff Burton & Co
Les Carr, Gundagai
John Carter, Australian Johnes Alliance
NG Chapple, Hamilton Luff Burton & Co
Geoff Chase, Nyngan RLPB
Ian Clingan, Gundagai RLPB

GR Coldham, Emmaville
DG Constance, Berridale
BJ Corcoran, Corowa Shire Council
Denise Cunningham, NSW Farmers' Association
Ann Daniel, The University of New South Wales
Godfrey Darling, Breeza
Bob Dick, Coonabarabran RLPB
Trevor Donovan, Corowa
Ann Duryea, Balranald RLPB
Steve Eastwood, Coonabarabran RLPB
Fred Eldering, Crookwell
Jeff Eppleston, Central Tablelands RLPB
John Evers, Young RLPB
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Peter Gleeson, Corowa
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David Kennedy, AusVet
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Geoffrey Langford, Cobar
Don Lawson, Australian Johnes Alliance
Paul Lefebvre, Coonamble
Ronald B Legge, Central West Region, Poll Dorset Association
Ian Lockwood, Deepwater
Bob McCormack, Wagga Wagga RLPB
Jim McDonald, Yass RLPB

Bruce McIsaac, Gulargambone
Jonathon McKeown, NSW Farmers' Association
RR McKinnon, Tamworth RLPB
DJ Milthorpe, Somerset Merino Stud
D Moen, Armidale
Rick Molesworth, Glenn Innes RLPB
Gabe Morrice, Narrandera RLPB
AG Morton, Wagga Wagga RLPB
Anthony O'Brien, Coonamble
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Don Pratley, Peel
Peter Reilly, Forbes
Clive Roberts, Dubbo RLPB
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Allan Ross, Albury
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Harry Suddes, Jerilderie RLPB
Laura Timmins, Gundagai RLPB
Allan Tindall, Casino RLPB
Bruce Tout, Gundagai
Alix Turner, Wayo
Peter Vickory, Armidale
Rodney Watt, Felix Rams
Richard Whittington, University of Sydney

The following Rural Lands Protection Boards were present at the twenty-five meetings held around the State.

Armidale
Bombala
Braidwood
Central Tablelands
Condobolin
Cooma
Coonabarabran
Coonamble
Dubbo
Forbes
Goulburn
Gundagai
Hay
HillstonHume
Molong
Moree
Mudgee–Merriwa
Murray
Narrabri
Narrandera
Northern New England
Northern Slopes
Nyngan
Riverina
Tamworth
Wagga Wagga
Walgett
Yass
Young