

Update on the Australian Wool Industry's Breech Flystrike Prevention Program

January 2011

This report was prepared by a working group comprising wool industry representatives together with Industry & Investment NSW staff. It provides information on what the Australian industry is doing to address the problem of breech flystrike in sheep and meet demand for wool declared in each of the National Wool Declaration categories.

Introduction

Breech flystrike is a key threat to the welfare of Australian sheep and the practice of mulesing has in the past been highly effective in controlling breech flystrike. Concerns about the practice of mulesing have led some buyers of Australian wool to request that practices be changed to reduce industry's reliance on mulesing as a flystrike control technique.

The National Wool Declaration (NWD) has been established with a number of aims, one of which is to enable customers to identify the mulesing status of greasy wool that is offered for sale and particularly to identify wool from non-mulesed sheep.

The Australian wool growing sector has taken significant steps toward meeting the demand for wool sold with an NWD. Statistics from the Australian Wool Exchange (AWEX) show continual growth in the production of wool sold with an NWD in the categories that relate to mulesing: from sheep that were not mulesed (NM); from a property that has ceased the practice of mulesing (CM); and from sheep that were mulesed with pain relief (PR).

The amount of wool declared in these categories in 2009/10 was 36% higher than for the previous year. For the period July to November 2010, the amount of wool declared in these categories increased by 53% compared to the same period in the previous year.

This document details how Australian wool industry groups, stakeholders and government agencies are working to assist and support the Australian wool industry in its efforts to meet the demand for wool declared in each of the NWD categories.

Key messages

- The Australian wool industry proudly strives to maintain high standards of welfare for sheep and to continually improve those standards.

- Breech flystrike remains one of the key threats to the welfare of sheep in Australia.
- Mulesing has been highly effective in protecting sheep from breech flystrike.
- The wool industry is striving to reduce its reliance on mulesing while still protecting sheep from flystrike.
- Strong progress is being achieved as evidenced by the growing volumes of wool declared via the National Wool Declaration.
- The majority of Australian wool growing enterprises are run by farming families who must balance the challenges of flystrike risk, sheep type and environment in ensuring the best welfare outcomes for their sheep.
- The innovations needed to achieve optimal welfare outcomes while operating sustainable and productive farms require continued investment in research, development and extension.
- A great many stakeholders of the Australian wool industry are making significant contributions to and investing in industry's efforts to effectively manage breech flystrike, reduce the reliance on mulesing and improve welfare outcomes for sheep. These contributions are documented under the following headings:
 - Innovations adopted by woolgrowers
 - Research and development
 - Training and extension
 - Monitoring change within the wool growing sector
 - Communicating through the supply chain.



Innovations adopted by woolgrowers

A number of recent innovations are being adopted by woolgrowers to reduce their reliance on mulesing as a means of controlling breech flystrike, to reduce the impact of mulesing on animal welfare and to provide the supply chain with information which cannot be provided by objective assessment of the wool itself, such as whether it is a product of sheep that were not mulesed.

Genetics

Genetic approaches are likely to provide the best long-term solution to breech flystrike. The key predisposing risk factors for breech flystrike are the degree of breech wrinkle and the degree of dag (build up of faecal contamination around the breech), followed by breech cover (the area of bare skin around the breech). It is these risk factors which are so effectively improved by the mules operation and which must be improved for breech strike to be effectively controlled in non-mulesed sheep.

A national approach has developed a standard for scoring sheep for breech wrinkle, dag and breech cover.

Anecdotal evidence suggests there is a concerted effort by Australian woolgrowers to breed plainer (less wrinkled) sheep with less dag. While commercial woolgrowers can breed sheep that are less susceptible to breech flystrike by culling those with the highest (worst) scores for breech wrinkle, dag and breech cover, it is the use of advanced genetic tools by Merino ram breeders that is increasing the rate of genetic change.

Sheep Genetics is the national genetic information and evaluation service for the meat and wool sectors of the sheep industry, delivered as LAMBPLAN and MERINOSELECT. Sheep Genetics produces Australian Sheep Breeding Values (ASBVs) which are an estimate of the genetic advantage a sheep will pass on to its progeny and are available for a range of important traits.

Sheep Genetics has released ASBVs for Early Breech Wrinkle (EBRWR), Late Dag (LDAG) and Early Breech Cover (EBCOV) that will assist in the selection of rams that will breed progeny that are less susceptible to flystrike. Sheep Genetics also provides ASBVs for Worm Egg Count (WEC) to assist in the selection of rams that are resistant to worms that can cause scouring and consequent dag formation.

When EBRWR ASBVs were first made available by Sheep Genetics in September 2009, the database included 15,000 sheep with EBWR ASBVs. By May 2010, this number had doubled to 30,000 animals, indicating the rapid adoption of this innovation by Australian Merino ram breeders.

Ongoing research will see the release of further breeding values for additional indicators of breech fly strike.

For further information:

- www.sheepgenetics.org.au
- www.wool.com/6844.htm

Anti-Flystrike Clips

Following several years of research funded by Australian Wool Innovation (AWI), Anti-Flystrike Clips were commercialised by Leader Products in May 2009.

The clips are applied to the loose folds of skin in the breech and on the tail. Clips fuse the skin edges together. There is no open wound at any time during the process. After approximately one week, the clips can be removed to reveal a smooth scar.

The clips have proven successful in reducing breech wrinkle and enlarging the bare area; however they are less effective than mulesing. The clips are used in conjunction with other management practices to reduce the risk of flystrike in flocks.

Clips currently on the market are reusable, lambs can be yarded after seven days and the clips removed for re-use on the next season's lambs.

The University of Melbourne's Director of the Animal Welfare Science Centre (AWSC), Professor Paul Hemsworth, has assessed the impact of breech and tail clips on the welfare of sheep.

The AWSC specialises in studying the behaviour and welfare of farm and companion animals and the influence of human-animal interactions on animal welfare and productivity. The AWSC has conducted two separate studies of mulesed, clipped and untreated lambs. The first focused on the behavioural responses, and the second study focused on behavioural, physiological and fitness effects to gain an insight to the welfare aspects of the clips.

According to Professor Hemsworth:

The clip treatment has only a mild impact on the biology of lambs and thus the welfare risks are considered relatively minor.

The research included comparisons of key physiological factors in the stress response such as plasma cortisol and haptoglobin levels, and behavioural and fitness factors such as posture, locomotion, and time spent feeding and lying-down – focussing on the period of time from 24 hours to several weeks following the procedure.

Considerable skill is required to apply clips properly. Leader Products is working closely with the Livestock Contractors Association, the current providers of mulesing training, to provide training

and expertise in clip application to contractors and owner/operators.

For further information:

- www.leaderproducts.com.au
- www.wool.com/Grow_Animal-Health_Flystrike-prevention.htm

Use of pain relief (Tri-Solfen) when mulesing

Bayer Animal Health sells Tri-Solfen, the pain relief product commercially available for use at mulesing. This product became available in 2006 and combines two local anaesthetic agents (one with fast onset, the other with prolonged duration), an antiseptic agent (to prevent infection) and an agent to minimise bleeding.

Professor Peter Windsor, Professor of Veterinary Medicine and Livestock Health at Sydney University has overseen a number of trials of the product. His research has shown significant welfare improvements due to a combination of fast and effective pain relief and improved wound healing. The most recent trial examined pain alleviation effects up to 24 hours post mulesing, and concluded: "Topical anaesthesia is effective at alleviating wound pain in lambs and improving recovery up to 24 hours post mulesing".

Many farmers are using pain relief, while longer term breeding programs are under way.

Use of Tri-Solfen has been increasing rapidly, with a 76% increase in the amount of wool sold from sheep that had been mulesed with pain relief in 2009/10 compared with 2008/09. There was an increase of 79% in the five months to November 2010, compared with the same period to November 2009. Information about the amount of wool sold at auction that has been declared to come from sheep that were treated with pain relief can be obtained from AWEX:

- www.awex.com.au

For information about usage rates for Tri-Solfen, contact Bayer Animal Health.

For further information: www.betterchoices.com.au

National Wool Declaration

The National Wool Declaration (NWD) was developed in 2007/08 as a means of providing the market place with information which cannot be provided through objective assessment of the wool itself.

The NWD was developed to consolidate all declared information (declared by the grower). The aims of the NWD are to:

- inform the market by providing the market place with clear and transparent information;
- provide the framework for the development, over time, of market signals;

- provide the buyer and wool grower with information so that they might be able to make informed business decisions;
- be able to put in place credible and sustainable systems of traceability which will provide confidence to buyers of Australian wool.

Information supplied on a NWD is included in Test Certificates produced by the Australian Wool Testing Authority Ltd (AWTA). AWTA Test Certificates accompany wool through the supply chain.

Use of the NWD by woolgrowers is voluntary; however a significant proportion of the Australian wool clip is now sold accompanied by an NWD.

For further information: www.awex.com.au

Research and development

Intradermal treatments

Ongoing research and development conducted by Cobbett Technologies Pty Ltd with support from Australian Wool Innovation is working towards the development of Skintraction™. Skintraction™ involves the needleless, intradermal injection of a formulation based on sodium lauryl sulphate that denatures protein in the skin, leading to the formation of an eschar and eventual increase in the area of bare skin on the breech and tail and removal of skin wrinkles from the treated area.

Cobbett Technologies Pty Ltd has applied to the Australian Pesticides and Veterinary Medicines Authority for registration of Skintraction™. If successful, registration is likely to be finalised in 2011.

For further information:

- www.cobbett.com.au
- www.wool.com/6851.htm

Genetics

Genetic approaches are likely to provide the best long-term solution to breech strike.

Sheep which have a naturally bare and wrinkle-free breech area are being used in the Breeding for Breech Strike Resistance project conducted by CSIRO Livestock Industries at Armidale, NSW, and by the Department of Agriculture and Food Western Australia at Mt Barker. This work is funded by Australian Wool Innovation. The trials are examining whether sheep can be bred for breech strike resistance, and if so, how long it takes and what the trade-offs are with other commercial characteristics such as fleece weight.

The breeding project, which started in 2005, is running over five years. The objectives of the project are to:

- develop industry best practice guidelines for including breech strike resistance in Merino breeding programs;
- evaluate the effect of selection using traits thought to indicate resistance to breech strike;
- estimate heritability of indicator traits, correlations between breech strike and indicator traits, and correlations between indicator traits and production traits.

Results of this project to date are promising with evidence indicating that breeding for breech strike resistance using indicator traits can successfully reduce the reliance on mulesing for the control of breech strike. This will be particularly so if selection is combined with other breech strike management practices such as well timed shearing and crutching, worm control to reduce dag and strategic use of preventative chemical treatments.

Several of the traits under investigation have sufficiently high variability, heritability and correlation with breech strike to enable successful selection for breech strike resistance.

These traits include breech wrinkles, dag and breech cover.

There are antagonistic relationships between some breech traits and production traits, but these are only low to moderate. So, with an appropriately balanced breeding objective, concurrent genetic gain in both wool productivity and flystrike resistance is achievable.

For further information:

- www.csiro.au/science/Breeding-for-Breech-Strike-Resistance.html
- www.agric.wa.gov.au/PC_91855.html
- www.wool.com/Grow_Animal-Health_Flystrike-prevention.htm

The Sheep Cooperative Research Centre (CRC) Information Nucleus Flock project is collecting production and flystrike susceptibility data from non-mulesed progeny in eight flocks across Australia to improve the accuracy and reach of estimated breeding values for sheep. Estimated breeding values are calculated for a range of traits – including breech wrinkle and other important traits for reducing flystrike – and indicate the genetic merit of individual rams and ewes. The use by sheep breeders of estimated breeding values to identify the very best sheep in their flocks enables faster rates of genetic improvement.

For further information: www.sheepcrc.org.au

The National Wool Declaration Integrity Program

A review of the NWD and NWD Integrity Program is conducted annually by the AWEX Industry Services Advisory Committee (ISAC). ISAC consists of a broad representation of industry stakeholders.

Since August 2008, AWEX has conducted random weekly desk-top audits on 5% of lots or 20 lots, whichever is greater, to ensure the documentation is accurate. ISAC is currently developing technical protocols for on-farm inspections.

For further information: www.awex.com.au

FlyBoss

The Sheep CRC launched the FlyBoss website in June 2010 and it provides the most up to date information on the causes of flystrike, managing flystrike outbreaks and reducing the risk of flystrike through management and breeding. It includes a flystrike risk prediction tool that allows woolgrowers to compare the reduction in risk of flystrike achieved by a range of flystrike control strategies.

For further information:

- www.sheepcrc.org.au
- www.flyboss.org.au

Training and extension

Department of Agriculture and Food Western Australia Non-mulesing Network

The Department of Agriculture and Food Western Australia has established the Non-mulesing Network to distribute information about controlling flystrike in non-mulesed sheep and reducing the susceptibility of sheep to flystrike. The network publishes a quarterly newsletter.

For further information:

www.agric.wa.gov.au/PC_91855.html

National Mulesing Assurance Program

The national mulesing training and accreditation program, delivered by KGITraining in conjunction with the Livestock Contractors Association (LCA), offers the most up-to-date mulesing information and techniques available to achieve the highest possible animal health and welfare standards. KGITraining is a Registered Training Organisation.

The training is offered to both sheep producers and contractors and addresses:

- the most efficient and humane mulesing methods;
- shear setting and preparation;
- hygiene;
- occupational health and safety.

For further information:

www.kondinin.com.au/training

Sheep CRC Flystrike Management Extension Program

This training program provides sheep producers with new skills and knowledge to reduce the risk of flystrike in the flock using an integrated

management plan that incorporates both breeding and management. The training program also provides individual producers with strategies for reducing their reliance on or phasing out of mulesing.

For further information: www.sheepcrc.org.au

AWI extension networks

AWI's grower networks are fundamental to the spread of new ideas, continuing education and the adoption of best practice. Community-based education groups are present in each state and open to local woolgrowers.

AWI grower networks operate in each wool growing state and territory. They provide opportunities for woolgrowers and producers to get involved in educational and practical programs that focus on making changes to production and management practices. AWI Grower group networks are an integral part of AWI's strategy for delivering research and development outcomes.

Grower groups are about self directed learning – woolgrowers identify what they would like to focus on and determine the outcome. Grower groups cover a wide range of production and management practices such as grazing management and price risk management.

For further information: www.wool.com/grow

NWD adoption

To increase adoption of the NWD, AWEX is working with industry associations and commercial companies to support the roll-out of the NWD Program. AWEX (Industry Services Advisory Committee) has identified a number of strategies and tools to assist commercial users promote and educate woolgrowers with respect to the NWD Programs.

The review of the NWD is completed with the users in mind to ensure a 'user friendly' document. The roll-out of the programs commenced in June 2010. The programs must be ongoing as it is expected that adoption will plateau. All options and agencies will be used.

For further information: www.awex.com.au

Accreditation and training to apply Anti-Flystrike Clips

Leader Products and the Livestock Contractors Association are offering training and accreditation in the application of anti-flystrike clips, to ensure correct application.

For further information and a list of accredited contractors:

- www.leaderproducts.com.au
- www.livestockcontractors.com

Skintraction™ training

A 'Train the trainers' program is scheduled for commencement in 2010, with training of livestock contractors to commence in 2010/11, pending registration of Skintraction™ by the APVMA. Training for individual sheep producers is likely to commence in 2012. Cobbett Technologies Pty Ltd has developed a comprehensive training program to ensure that Skintraction™ is used to optimal effect. The product will only be available to livestock contractors and sheep producers who have undergone a training program supervised by Cobbett Technologies. *Skintrainers* will be engaged and trained to provide training to those wishing to become *Skintractors* (approved livestock contractors). Skintractors will then have access to Skintraction™ to treat their clients' lambs. Subsequently, training will be provided to individual sheep producers who wish to treat their own lambs.

For further information:

- www.cobbett.com.au
- www.wool.com/6851.htm

Monitoring change within the wool growing sector

Survey of grower intentions

Australian Wool Innovation (AWI) funded a national survey of grower intentions with respect to mulesing, undertaken by the Department of Agriculture and Food Western Australia (DAFWA). Results of the 2009 survey are reported at

www.wool.com/Grow_Animal-Health_Flystrike-prevention.htm

and

www.sheepcrc.org.au/industry-tools-and-information/managing-flystrike.php

Participation in extension activities

Both AWI and the Sheep CRC are supporting extension programs that promote best practice control of breech flystrike and help woolgrowers reduce their reliance on mulesing. Information about woolgrower participation in extension events is available from AWI and the Sheep CRC:

- www.wool.com/Grow_AWI-Grower-Networks.htm
- www.sheepcrc.org.au

Use of the National Wool Declaration and volume of wool in each mulesing category

As the NWD is a traceable and measurable document, statistics and reporting are publicly accessible. The key identification is non-mulesed (NM) wool and this can be measured by volume

(bales/lots) in absolute or percentage terms and, importantly, by price differentiation.

AWEX reports (monthly) statistics on the quantity of wool sold that is declared in each of the National Wool Declaration categories. Statistics are available at www.awex.com.au/market-information/mulesing-status.html

The annual review of the NWD calls for submissions to be considered and in addition all breech modification techniques will be considered. The consideration will be based on commercial relevance to the wool industry.

The NWD is reviewed annually in November–February. Key on-farm flystrike management practices will be identified by ISAC for potential inclusion in the NWD. Any changes are announced in February/March of each year.

For further information contact AWEX:

www.awex.com.au
+61 2 9428 6100

Use of Skintraction™

If Skintraction™ is successfully commercialised, information about usage of this product will be available from AWI.

For further information:

www.wool.com/Grow_Animal-Health_Flystrike-prevention.htm

Use of pain relief (Tri-Solfen) when mulesing

Information about the use of the pain relief product Tri-Solfen is recorded by Bayer Animal Health.

For further information: www.betterchoices.com.au

Communicating through the supply chain

The organisations listed below can provide information to the wool supply chain about the Australian wool industry.

Australian Wool Innovation

Established in 2001, AWI is a not-for-profit company owned by over 29,000 wool levy payers who have registered as AWI shareholders.

AWI's primary role is to manage innovation, marketing, sales, and research and development (R&D) to increase the long term profitability of Australian woolgrowers.

The company invests along the global supply chain for Australian wool – from the fibre to fashion – from woolgrowers through to retailers.

AWI activities include:

- investing in and managing innovation, marketing, sales and R&D to increase demand for wool;
- the communication and commercialisation of research results;
- providing services such as education, on-farm extension and fashion forecasting; and
- a network of staff in overseas markets – AWI's Global Sales Network – working to increase the sale of wool products at retail.

AWI's offices are strategically located to develop direct business relationships with global brands/retailers, textile manufacturers and fashion designers in key markets across Asia, Europe and the Americas.

AWI ensures the Australian industry is informed through a variety of ways. This includes the biannual meetings with the AWI Industry Woolgrower Consultation Committee (ICC). The ICC comprises representatives of the four organisations representing woolgrowers in Australia – WoolProducers Australia, Australian Woolgrowers Association, Australian Association of Stud Merino Breeders and Australian Superfine Woolgrowers Association the Federal Department of Agriculture, Fisheries and Forestry.

www.wool.com
+61 2 8295 3100

Cooperative Research Centre for Sheep Industry Innovation (Sheep CRC)

The Sheep CRC is a partnership of Australia's leading sheep industry organisations and is supported under the Australian Government's Cooperative Research Centres (CRC) Program.

The aim of the CRC Program is to turn Australia's scientific innovations into successful new products, services and technologies, and make the Australian sheep industry more efficient, productive and competitive.

The role of the CRC is to facilitate transformation of the sheep industry through making sheep easier to manage, developing the production and processing of meat and wool to meet increasing consumer expectations and by increasing the uptake of new technologies by the industry.

Based at the Armidale campus of the University of New England, the Sheep CRC draws together experts from its industry participants to improve the profitability and sustainability of the Australian sheep industry.

www.sheepcrc.org.au
+61 2 6773 1317

WoolProducers Australia

WoolProducers Australia (WPA) is the peak national body for the wool producing industry in

Australia, representing farmers whose primary business is growing wool.

WPA is the national voice on behalf of producers, advocating their interests to both the Federal Government and internationally and providing a strong, unified voice that enables woolgrowers to determine policy and drive change in their industry.

WPA is led by a National Executive made up of woolgrowers from around Australia. Each state farmer organisation member is represented on the Executive, while another three members are directly elected by growers Australia-wide.

As the only woolgrower organisation with membership of the National Farmers' Federation, WPA is responsible for providing key policy advice on behalf of their members to Australia's peak farm body. The policy contribution to the National Farmers Federation includes environmental laws and regulations, climate change, water, industrial relations, taxation, international trade issues, economics and training.

www.woolproducers.com.au

+61 2 6227 4455

The Australian Wool Exchange

Commercial interests representing the wool buyers and sellers in Australia established the Australian Wool Exchange (AWEX) as a not-for-profit independent industry organisation limited by guarantee to manage wool marketing arrangements in the Australian wool industry. The Australian Wool Exchange commenced operations in February 1994.

The membership of AWEX represents the majority of first-hand wool traded in Australia each year and includes wool brokers, exporters, private treaty merchants, processor, wool producers and associates. The AWEX Board represents each of these classes of membership and is responsible for policy setting in relation to the implementation of functions.

To fulfil its role, AWEX seeks to add value for the benefit of its stakeholders by providing services and functions for the effective and efficient trading of wool in Australia. Some of these services and functions include:

- providing and managing physical trading facilities in Australia;
- managing wool industry self-regulation through the provision of a framework of business rules governing the trade of wool between buyer and seller members of AWEX;
- the development and maintenance of recognised industry standards and quality assurance and compliance programs;
- providing pre- and post-sale market information.

www.awex.com.au

+61 2 9428 6100

Australian Wool Testing Authority Ltd

The Australian Wool Testing Authority Ltd (AWTA) was established in 1957 to assist or promote the development of the pastoral, agricultural, manufacturing and industrial resources of Australia, in particular by providing independent objective data and information services which will facilitate the efficient production, marketing and processing of wool, other fibres, textile products and related materials.

AWTA Test Certificates accompany wool through the supply chain and provide the means by which information recorded by the woolgrower on the NWD is made available to the supply chain.

www.awta.com.au

+61 3 9371 4100

National Council of Wool Selling Brokers of Australia

The National Council of Wool Selling Brokers of Australia was first established in 1919 to represent the interests of Australian wool brokers. It has continued this role uninterrupted for almost 90 years, ensuring that wool brokers are heard on all major wool industry issues within Australia and internationally.

The NCWSBA is a founding member of the Federation of Australian Wool Organisations (FAWO) and has representatives on key Australian wool industry organisations and committees, including:

- FAWO
- FAWO Technical Committee
- Australian Wool Testing Authority (Board Director and Member Representative)
- Standards Australia TX-12 Committee
- WIEDPUG
- Australian Wool Innovation Wool Production Forecasting Committee
- FAWO Industry Working Group on Compliance and Standards
- AWI Industry Woolgrower Consultative Committee

Its objectives are:

- to promote, foster, develop and assist the Australian wool industry;
- to promote and protect the interests of woolgrowers and wool selling brokers within Australia;
- to act as a channel of co-operation between wool selling brokers in Australia in the sharing of information relating to industrial matters which affect the Australian wool industry generally or the trade, business and interests of wool selling brokers in Australia;
- to consider, discuss, settle and determine the means, methods, procedure and arrangements

- to be used for the sale and disposal of Australian wool;
- to work with government and wool industry bodies and companies on any issue affecting the Australian wool industry;
- to facilitate and support relevant research and development and to encourage the uptake of new technologies likely to enhance the sale of Australian wool;
- to provide an efficient information systems through which to transmit industry data within the broking sector and between brokers and other sectors involved in wool selling; and
- to advance and promote fair, orderly and ethical wool marketing practices and discourage conduct inconsistent with that object.

www.woolbrokers.org
+61 3 9311 0103

Inland Woolbrokers Association

The IWB was formed in 1995 by a group of Independent Wool broker's. The primary aim of the company is provide members with a forum to discuss and resolve wool industry issues. Since inception, the IWB has grown from a state organization to a national broker body with representation on a wide range of industry associations.

Contact Mr John Colley (Chair):
+61 2 9754 2777

Private Treaty Wool Merchants of Australia

The Private Treaty Wool Merchants of Australia was formed in 1972 to further the interests of the private wool buying industry, of the growers who choose to sell privately; and to contribute to the general interest of the Australian wool industry through its Membership of Australian Wool Testing Authority, AWEX and the Federation of Australian Wool Organisations and by participation on *ad hoc* industry committees.

<http://www.woolindustries.org/ptwma.htm>
+61 3 9311 0103

Australian Governments

The Federal, state and territory governments of Australia are responsible for legislation and agreements relating to animal welfare and trade. Animal welfare encompasses all aspects of animal health and well-being. Australia's animal welfare strategies involve:

- government and non-government organisations
- veterinary and community groups
- animal industries
- animal welfare groups, and
- individual animal owners and handlers.

Australia's state and territory governments have primary responsibility for animal welfare and laws to prevent cruelty. The Australian (Federal) Government is responsible for trade and international agreements relating to animal welfare.

The Federal, state and territory governments of Australia are listed below.

Australian Government – Department of Agriculture, Fisheries and Forestry

The Australian Department of Agriculture, Fisheries and Forestry's role is to develop and implement policies and programs that ensure Australia's agricultural, fisheries, food and forestry industries remain competitive, profitable and sustainable.

Our policies and programs:

- encourage and support sustainable natural resource use and management;
- protect the health and safety of plant and animal industries;
- enable industries to adapt to compete in a fast-changing international and economic environment;
- help improve market access and market performance for the agricultural and food sector;
- encourage and assist industries to adopt new technology and practices;
- assist primary producers and the food industry to develop business and marketing skills, and to be financially self-reliant.

The department employs about 4,200 staff in Australia and overseas, including policy officers, program administrators, scientists, economists, meat inspectors, veterinary officers and quarantine inspectors.

www.daff.gov.au
+61 2 6272 3933

Queensland Government – Department of Employment, Economic Development and Innovation

Primary Industries and Fisheries (part of the Department of Employment, Economic Development and Innovation) has a vision of 'profitable primary industries for Queensland', and supports strategic industry development at all stages of the industry life cycle and throughout the entire value chain – from production to consumption.

Their mission is to maximise the economic potential for Queensland's primary industries on a sustainable basis.

www.dpi.qld.gov.au
+61 7 3404 6999

New South Wales Government – Industry & Investment NSW

Industry & Investment NSW (I&I NSW) is the primary economic development agency within the New South Wales Government. The Primary Industries division of I&I NSW acts in partnership with industry and other public sector organisations to foster profitable and sustainable development of primary industries in New South Wales.

The Primary Industries division is the State's largest provider of science, and is in a position to provide the State's primary industries with the technology and partnerships needed for profitable and sustainable production.

Industry & Investment NSW is a leader in research, development and extension of technology designed to assist woolgrowers manage flystrike.

www.industry.nsw.gov.au

+61 2 6391 3100

State Government of Victoria – Department of Primary Industries

The Department of Primary Industries (DPI) is responsible for agriculture, fisheries, earth resources, energy and forestry in Victoria.

The department designs and delivers government policies and programs that enable Victoria's primary and energy industries to sustainably maximise the wealth and wellbeing they generate, by providing essential goods and services, employment, investment and recreational opportunities.

new.dpi.vic.gov.au

+61 3 5332 5000

Tasmanian Government – Department of Primary Industries, Parks, Water and Environment

The Department of Primary Industries, Parks, Water and Environment (DPIPWE) is responsible for the sustainable management and protection of Tasmania's natural and cultural assets for the benefit of Tasmanian communities and the economy.

The department's activities guide and support the use and management of Tasmania's land and water resources and protect and promote its natural, built and cultural assets. The department is also responsible for delivering the services that support primary industry development and for the protection of the State's relative disease and pest-free status.

www.dpiw.tas.gov.au

+61 3 6233 8011

Government of South Australia – Primary Industries and Resources SA

Primary Industries and Resources SA (PIRSA) is a key economic development agency within the South Australian Government.

PIRSA plays a key role in contributing to the sustainable development of South Australia's natural, industrial and community assets. PIRSA works with industry to manage resources sustainably and enhance their value chains.

The efforts of the agency are directed towards:

- reducing barriers to industry investment and exports;
- facilitating the application of new technologies, services, products and knowledge through its strong partnerships with industry sectors, market intelligence and regional communities.

PIRSA's business activities are provided throughout South Australia and include:

- agricultural and horticultural industry and policy development;
- fisheries and aquaculture management and industry development;
- minerals and petroleum exploration and development;
- sustainable resources management including soil, landcare and productive use of water.

www.pir.sa.gov.au

+61 8 8463 3000

Government of Western Australia – Department of Agriculture and Food WA

The Department of Agriculture and Food assists the State's Agriculture, Food and Fibre sectors to be sustainable and profitable, with a clear focus on export-led growth. The department enhances the international competitiveness of the State's agribusiness by working with them to meet the increasingly demanding standards for safety and quality of food and fibre products produced in a sustainable way.

www.agric.wa.gov.au

+61 8 9368 3333

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- Australian Wool Innovation
- Industry & Investment NSW
- Inland Woolbrokers Association
- NSW Farmers Association
- NSW Stud Merino Breeders Association
- CRC for Sheep Industry Innovation

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