

wool production



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AWI's Wool Production portfolio works with woolgrowers to help them compete profitably in the international markets for wool and sheep meat through the adoption of on-farm innovations. The goal of this portfolio is to help woolgrowers increase on-farm productivity by up to 20 per cent.

Key outcomes and achievements

Sustainable Production Systems

TIMERITE®

During the year, woolgrowers in south eastern Australia joined those in Western Australia to protect their pastures from redlegged earth mites with the launch in July 2004 of the new TIMERITE® service that now covers all areas of Australia affected by the mites. TIMERITE® provides a single optimum spray date in spring that most effectively controls the mites until next winter, tailored for specific locations and climates. This year, 3,886 TIMERITE® spray date reports were provided free of charge to woolgrowers from the AWI Helpline or the TIMERITE® website www.timerite.com.au.

Falkiner Memorial Field Station

Major capital works were completed during 2004/05 at the Falkiner Memorial Field Station – the research, development and demonstration facility owned by AWI on behalf of its shareholders. The works included irrigation refurbishment, new fencing and stock water systems. The Sheep Genomics Mapping Flock project, jointly funded by AWI and MLA, was established with Merino, Merino/Border Leicester First Cross, White Suffolk and Poll Dorset ewes joined to 17 industry sires to produce the first drop of 2,700 lambs. These will be DNA sampled and assessed for wool, carcass, reproduction and parasite resistance traits during early life as the first phase of the project.

'Land, Water & Wool'

'Land, Water & Wool' is the wool industry's collaborative research investment in sustaining natural resources. 7,600 woolgrowers have now benefited from the 'Land Water & Wool' sub programs relating to saline land, native vegetation, biodiversity, rivers, pastoral country and climate forecasting. A large range of information products and management guides are being delivered by the sub programs. Publications produced this year include *Productive native pastures in the high and medium rainfall zones* and a series of three practical case studies on wool production and biodiversity. See Appendix C for details of other publications produced during the year.

National Annual Pasture Legume Improvement Program (NAPLIP)

NAPLIP has been successful in providing woolgrowers with new legume cultivars for increased pasture productivity and farm profit. In 2004/05, two cultivars of Hedysarum 'Moonbi' and 'Wilpena' and 'Mintaro' sub clover were developed for commercial release. Moonbi is suitable for grazing in a permanent pasture while Wilpena is suitable for hay production. Both grow in slightly acid to alkaline, well drained soils (loamy sand to clay and heavy textured, red brown earths), particularly alkaline soils with free lime. Mintaro is a more persistent and productive subclover than Rosedale for long-term pasture phase systems (3–5 years) with neutral to acid soils. The *Pasture Legumes for Temperate Farming Systems – Ute Guide* was launched.



Animal Health and Welfare

Internal parasites

A comprehensive information package – ‘WormBoss’ – generated from decades of research and experience of sheep worm management is now available. 10,000 copies of the WormBoss CD-ROM have been produced and are being distributed for free by AWI, the Australian Sheep Industry CRC, Elders Ltd, Landmark Ltd and CRT. The WormBoss website – www.wormboss.com.au – received 12,352 visits in its first two months.

Improved worm management strategies are being developed through the Integrated Parasite Management sheep project, involving 22 commercial demonstration farms, situated in each state across Australia. Each demonstration farm has a focus group to allow other woolgrowers to learn about the strategies. Work has shown that woolgrowers could prevent worm outbreaks if they regularly monitored sheep parasite levels.

Blowflies and mulesing

There was a major focus on mulesing alternatives during 2004/05. The collagenase

technology at the University of Adelaide moved towards commercial reality with various collagenase types tested and dose volume, spacing, and depth parameters finalised. Formulation of the product is in progress. Injection remains the major obstacle but three new injection devices have been demonstrated and will be tested in field trials in late 2005. Other active compounds and applicators are being evaluated as back-ups by AWI, and we are also working with sheep breeders to assess the potential to breed sheep that have reduced susceptibility to breech blowfly strike.

We funded development of a workshop training course for mulesing operators which was launched in 2004/05 to ensure the highest possible standards are maintained throughout the industry.



AWI is putting extra effort into finding alternatives to mulesing.

HIGHLIGHTS

- Two upright posture shearing platforms, to enable shearing to be carried out by a shearer standing upright with the sheep restrained, commenced field trials.
- A worm management package ‘WormBoss’, which aims to maximise the cost effectiveness of drenching and decrease the risk of drench resistance on properties, was launched on CD-ROM and its own website.
- A lure to attract feral dogs and foxes to baits or traps, FeralMone®, was launched in April 2005 and can be purchased from rural resellers.
- The largest sheep genomics trial in the world commenced at Falkiner Memorial Field Station, Deniliquin. The trial will attempt to find gene markers for wool, meat, parasite resistance and reproduction traits.
- Results from the grower driven SARDI Selection Demonstration Flock project show that the ‘measured performance’ line hoggets have increased fleece value by \$19/head, or fifty per cent over the ‘control’ line.
- Two cultivars of Hedysarum ‘Moonbi’ and ‘Wilpena’ for use in slightly acid to alkaline well drained soils and ‘Mintaro’ sub clover for use in neutral to acid soils were developed for commercial release.
- The national network of state woolgrower groups was finalised with the launch of new programs in NSW (Wool4Wealth), WA (The Sheep’s Back) and Queensland (Leading Sheep).

Lice

Field trials of the lice detection test were completed in 2004/05. The test has proven to be highly sensitive and specific, finding very low levels of infestation and giving very few false readings. AWI, together with NSW Department of Primary Industries and CSIRO Livestock Industries, has identified two potential producers of in-shed 'dipstick' tests and they will commence work in early 2005/06.

Pesticide residues

A program with the Department of Agriculture, Fisheries and Forestry to evaluate the proficiency of laboratory testing for pesticide residues on wool was re-established. The program gives buyers and sellers of wool confidence that reported residue results are accurate. This will be increasingly important as the European Union (EU) seeks low-residue wools. The EU's Integrated Pollution and Prevention Control (IPPC) directive

is broad reaching and clamps down on wool scours and emissions into European river systems. The survey of residues on Australian wool continued throughout 2004/05.

Feral dog and fox control

A lure to attract feral dogs and foxes to baits or traps, FeralMone®, was launched in April 2005 and can be purchased from rural resellers. Trial work showed that the lure can be a valuable addition to control programs and trappers have reported successes with problem dogs.

Significant progress was made by AWI and the Pest Animal Control CRC towards a new toxin for control of feral dogs and foxes with a commercial launch on track for 2007. The toxin causes a rapid and humane death and appears not to threaten non-target species such as native wildlife.

Genetic Technologies and Wool Quality

Sheep Genomics program

The joint AWI and MLA Sheep Genomics program is now well established and lays the foundations for the next generation of smart genetic tools. Major achievements in 2004/05 include successful establishment of the world's largest gene mapping flock at Falkiner Memorial Field Station, initiation of an international consortium to complete the Sheep Genome Map by 2006, introduction of two new co-investors in the program, and proof of concept for simple therapeutic alteration



of lamb wool quality. The initial phase of the program, to result in prototype gene markers for a wide range of economically valuable traits, is due to be completed in 2008.

Sheep Genetics Australia

Sheep Genetics Australia (SGA) unites MLA and AWI's sheep genetics initiatives to integrate and maximise genetics knowledge. Through the integration of industry datasets, the establishment of a common language and the standardisation of genetic analysis techniques, Merino breeders will be able to objectively compare the genetic merit of rams for a much wider array of traits and with more confidence, as an adjunct to other selection techniques. The enormous diversity within the Merino breed has provided a large challenge to Australia's geneticists to create reliable and accurate comparisons of all types of Merinos in all environments. Development work is now largely completed and a launch is planned for October 2005.

Top: Genetics is an important part of AWI's approach to finding mulesing alternatives.

Left: FeralMone® helps attract feral dogs and foxes to traps and baits.



SARDI Selection Demonstration Flock

Results for the seventh year of the South Australian Research and Development Institute (SARDI) Selection Demonstration Flock (SDF) were completed and published. The SARDI SDF annual field day attracted 150 attendees to hear the results: a dramatic improvement in fleece value continues in selected lines. The 'measured performance' line hoggets have increased fleece value by \$19/head, or fifty per cent over the 'control' line.

On-Farm Fibre Measurement (OFFM) program

The On-Farm Fibre Measurement (OFFM) program is designed to increase woolgrower understanding of OFFM technologies and to ensure the operators of the technology adopt standard procedures and issue reliable results. During 2004/05, OFFM grower workshops commenced across Australia to improve woolgrowers' understanding of how they can use OFFM to increase the profitability of their sheep flocks. Sixteen workshops had been held by the end of June 2005. The OFFM QA program has attracted 100 per cent participation from operators of OFFM technology with a high proportion receiving full accreditation by the end of June 2005.

Shearing

New shearing technologies

A major goal is to develop low-cost, modular, upright wool harvesting machines to enable shearing to be carried out by a shearer standing upright with the sheep restrained.

Sustainable Grazing on Saline Land Wool Production

CASE STUDY



Sustainable Grazing on Saline Land (SGSL) is the largest of the sub programs within Land, Water & Wool. In total 120 producer groups have joined the SGSL network, with around 1,200 woolgrowers actively involved with scientists in trialling a range of pastures, shrubs and management techniques to improve the productivity of saline and waterlogged areas on their farms.

Woolgrower Michael Lloyd has more than a million saltbush shrubs growing on nearly 600ha of revegetated saltland at his property near Lake Grace, WA.

Early results from SGSL trials at Lake Grace have shown that saltbush can draw down the water table by two metres in saline and waterlogged areas. When saltbush is planted in alleys it can create an environment suitable for annual grasses and legumes. At Lake Grace a 40 per cent

increase in animal production was achieved by rotationally grazing areas with saltbush alleys and pasture.

In NSW, saline and waterlogged areas that were suffering from erosion have been planted with tall wheat grass, puccinellia, fescue, phalaris, ryegrass, cocksfoot, and strawberry and white clover. In conjunction with subdivision and rotational grazing these saltland areas now carry 11 DSE/ha compared to 8 DSE/ha on the rest of the farm.

"Thanks to saltbush we've quadrupled our stocking rate to more than eight DSE per hectare without additional clovers; we produce more wool and the quality has improved. Our experience also shows that costs can be recouped in a short time frame," Mr Lloyd said.

Top: Michael Lloyd (left) used saltbush to increase stocking rates.

Lifetime Wool

Wool Production

CASE STUDY



The Lifetime Wool project aims to provide woolgrowers with optimal feeding solutions to maximise the performance of the ewe and her progeny throughout their lifetimes. Early results show that optimal feeding of the pregnant ewe will result in increased lamb survival and wool production and decreased fibre diameter.

Greater emphasis on ewe nutrition increased weaning percentages by 30 per cent last year on Nareen Station's Merino wool operation in western Victoria where approximately 19,000 Merino ewes are joined to Merino rams.

Station manager Grant Little said a downward trend in lamb marking percentages in his locality had been reversed on Nareen Station after the business became involved in the Lifetime Wool project.

"The project has helped us understand the critical thresholds of ewe nutrition for ewes to deliver a well-developed foetus with a good birth weight and therefore higher survival rate," Mr Little said.

"I can't recall any single piece of research or advice that has been so significant and practically achievable," Mr Dickinson said.

Station owner Gordon Dickinson said that by following the data and recommendations from Lifetime Wool he has in one season been able to lift performance by an average of 30 per cent or 4,000 lambs.

"Without even calculating the lifetime value of the better progeny, this has delivered incremental value of \$200,000 to our business," Mr Dickinson said.

The Lifetime Wool project will release 'best-bet' ewe nutrition guidelines for optimising the lifetime wool production from Merinos in the latter half of 2005.

AWI began funding six companies to develop an upright posture shearing platform (UPSP) that is efficient and safer than conventional shearing. The first two of the four remaining UPSPs under development began extensive field trials mid 2005 with the aim of at least one to be commercially available by the end of 2005.

In addition, we have an 'add on' technology program to achieve small but important improvements to shearing sheds and shearing gear by improving productivity and safety. During 2004/05, the Deadman switch which automatically stops dropped handpieces – a technology that was developed in the Shear Express project – was licensed to Swiss shearing equipment manufacturer Heiniger.

Shearer training

In response to woolgrower and industry concern about shortages of appropriately skilled labour in the shearing industry, AWI invested funds to implement a national shearer and wool handler training





program. Under the instruction of some of Australia's best shearers, the on-the-job training is designed to refine techniques and skills, improving efficiency, work quality and occupational health and safety. In addition to shearer training, experienced wool classers and handlers are coaching wool handlers. A range of training delivery methods will be used to up-skill the existing wool harvesting workforce, including regional coaching for shearers and wool handlers, novice and improver schools for shearers and wool handlers, and industry workshops. During 2004/05, 11 training providers were contracted to provide 208 weeks of regional coaching. In-shed training was delivered to 1,750 shearers and 778 wool handlers in five states. AWI funds were also used to train 215 learners through 15 novice and improver training workshops held in NSW, Victoria and Tasmania.

Top: AWI's shearing strategy includes new and "add-on" shearing technologies.

Left: AWI has implemented a national shearer and wool handler training program.

Bestprac

Wool Production

CASE STUDY



Bestprac is a benchmarking and continuous improvement program designed specifically to support sheep and wool producers in the pastoral zones of Queensland, NSW, SA and WA. Funded by AWI and MLA, the program grew during 2004/05 to involve 287 growers in 31 groups. Evaluation results during the year indicate that:

- 7 per cent of rangelands producers were involved in the program;
 - 79 per cent of participants made changes to their practices as a result of involvement in the program; and
 - 13 per cent of participants reported substantial profit gains as a result of participation.
- South Australian woolgrowers Geoff and Val Power said involvement in Bestprac has helped lift profits on their 6,700 hectare Flinders Ranges farming operation. As a result of ideas developed through Bestprac, the Powers have been able to improve profitability by 10 per cent and farm turnover by 80 per cent.

"From battling to make a profit, and some years not making it, we are now making a very good profit every year and I believe Bestprac has played a big hand in that," Mr Power said.

Top: Involvement in Bestprac has helped Geoff and Val Power lift their profits.

Education and Adoption Strengthening on-farm delivery arrangements

The national network of state woolgrower groups was finalised with the launch of new programs in NSW ('Wool4Wealth'), Queensland ('Leading Sheep') and WA ('The Sheep's Back'). These grower groups will focus on improving the facets of wool and sheep meat producing businesses in each particular state that are most important for profitability and sustainability. The groups help in increasing the uptake of outcomes of AWI projects by woolgrowers. Commercial companies are being used to deliver the programs and participating woolgrowers contribute towards costs. At the end of 2004/05, there were 3,105 woolgrowers involved in 155 groups across Australia. A national target of 4,500 woolgrowers participating in these groups is being approached.

Scholarships and career support

AWI directly funded 20 new scholarships for undergraduate and postgraduate scholars to pursue ongoing education and research in wool and wool science, with a further 35 students receiving grants for training, conference travel and work placements.

AWI also provided scholarship and career support to a further 27 undergraduate and postgraduate scholars through its contribution to the Australian Sheep CRC's education program.

Development of technical information and learning materials

The Future-Fleece CD-ROM was rebuilt into a comprehensive schools resource, ready for release in September 2005. Aimed primarily at year 11–12 students and their teachers, the CD covers all aspects of the wool pipeline and provides activities aligned with each state's school curriculum framework.



Future goals

Key future goals of the portfolio include:

- Provide woolgrowers in the high rainfall and sheep/cereal zone with the means to increase pasture productivity by 20 per cent, and woolgrowers in the pastoral zone with new tools and skills to reduce their cost of production by 5 per cent.
- Development of a cost effective alternative to surgical mulesing for breech blowfly strike control.
- Have Sheep Genetics Australia established by 2006 as a nationally consistent across-flock genetic benchmarking system for commercial and seedstock producers.
- Establish wool harvesting as a highly efficient and highly regarded 21st century farm activity.
- Ensure that the AWI project outputs are adopted by the target sector of the industry and that the monitored rate of adoption improves over time.

