

Beyond the bale

ISSUE 75 JUNE 2018

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NEXT GENERATION WILD DOG CONTROL



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MERINO MARATHON



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CHAMPIONING WOOL



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PENGUINS IN
MY PADDOCK!

Beyond thebale

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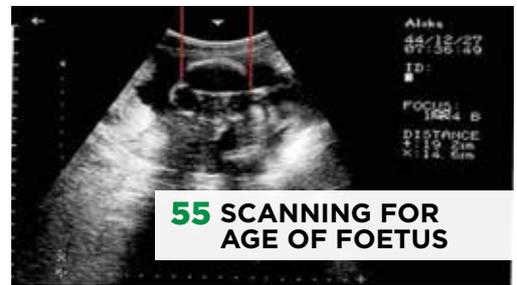
FRONT COVER

Wild Dog Alert to provide woolgrowers with 'first strike' capability

Ground-breaking research and use of innovative technology is being developed to help woolgrowers protect their flocks from wild dog attacks thanks to co-investment from AWI and their partners. Using an automated on-property camera trap device that identifies wild dogs, the Wild Dog Alert system will notify a woolgrower of a wild dog's presence in real-time, to enable the woolgrower to act early and proactively. See page 40. PHOTO: Heath Milne



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AWI INVESTMENT STRATEGIES

- Marketing
- Sheep Production
- Woolgrower Services
- Processing Innovation & Education Extension
- Business Services

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GETTING ON WITH BUSINESS

We are continuing with initiatives to help increase the demand for wool through investments in marketing and R&D – from farm to fashion.



Stuart McCullough
Chief Executive Officer
Australian Wool Innovation

STRONG START TO 2018 CONTINUES

In the previous edition of *Beyond the Bale*, I stated how I believed that Merino is a \$20-fibre. With the EMI at the time of writing now at a record \$19.83 – and 21 micron wool (the average micron of the Australian wool clip) at \$21.88 – my predictions might be eventuating sooner than I expected. With supply having not diminished, I believe these robust prices are fundamentally a result of a strong and consistent demand for our fibre. AWI's marketing in key northern hemisphere markets has been successfully cementing Australian wool as a premium natural fibre for which consumers are willing to pay a premium price. Meanwhile, other competitive fibre prices remain relatively flat. We all hope these prices can be sustained over the long-term to reward the hard work and loyalty that woolgrowers have demonstrated towards the fibre.

MERINO AT BOSTON MARATHON

The performance benefits of Merino wool were highlighted at this year's Boston Marathon – the most prestigious marathon in the world – thanks to a new three-way partnership between global sportswear giant adidas, the Boston Athletic Association and AWI's marketing arm The Woolmark Company. To lift awareness of Merino wool in sportswear, the campaign involved the launch of an adidas Merino T-shirt for leading and influential runners plus a 'replica' version made available to other runners and consumers at stores across Boston and online. It is this type of promotion with high profile brands such as adidas that is helping build the demand for Australian wool.

REGISTER NOW FOR WOOLQ

The first piece of WoolQ functionality, the eSpeci (an alternative to the current paper speci), was made available for woolgrowers in March. The design and build of the next components of WoolQ – including the industry discussion forum and ready reckoner – are under way and scheduled to go live next month. I strongly encourage woolgrowers to register

with WoolQ today – at www.woolq.com. Not only will you be able to use the eSpeci, but you will be kept updated on the release of further WoolQ components, including the Bulletin Board scheduled for release towards the end of the year.

WILD DOG ALERT PROTOTYPE

Ground-breaking research and use of innovative technology is being developed to help woolgrowers protect their flocks from wild dog attacks thanks to co-investment from AWI and their partners. Using an automated on-property camera trap device that identifies wild dogs, the Wild Dog Alert system will notify a woolgrower of a wild dog's presence in real-time, to enable the woolgrower to act early and proactively. The aim is for the research project to build and deliver a prototype Wild Dog Alert Node by June next year, which if successful will then be followed by a commercialisation process. Read more about this project on page 40.

RESULTS IN REPRODUCTION R&D

Reproduction is one of the most important aspects of wool-growing, particularly in the current market for wool, lamb and mutton. AWI-funded research continues to build scientific evidence on how to best manage pregnant ewes. Three different areas of reproduction where AWI has been filling the gap in scientific research are: the use of calcium and magnesium supplements to remedy subclinical metabolic disorders in ewes; the effect of mob size on lamb survival; and scanning for the age of the lamb foetus to help determine the lambing date. Read the results of this AWI-funded research in this edition of *Beyond the Bale*.

TRAINING IMPROVES PRODUCTIVITY

AWI-funded research demonstrates that both wool production and reproductive efficiency can be improved substantially and at relatively low cost through adoption of targeted management practices embodied in the *Lifetime Ewe Management* (LTEM) course,

so it is pleasing to see so many woolgrowers taking part in the course. To complement the LTEM course, AWI also offers a one-day workshop – *Realising Performance Potential* – which is designed to help woolgrowers lift the lifetime performance from their Merino ewes. Two other new AWI-funded one-day workshops are available to woolgrowers: Firstly, *RAMping up Repro*, to improve ram health, performance and longevity in sheep breeding enterprises; and secondly, *Winning With Weaners*, to lift the lifetime performance of young Merino sheep.

AWI PODCAST FOR WOOLGROWERS

AWI's free podcast, *The Yarn*, which was launched 18 months ago, has gone from strength to strength with more than 40 episodes released and a growing audience of Australian woolgrowers listening in on their smartphone or computer. *The Yarn* includes reports from our staff across the world on marketing initiatives to increase the demand for Australian wool, plus our on-farm and off-farm R&D results. All episodes of *The Yarn* are available at www.wool.com/podcast. I recommend that you take a listen.

ARE YOUR CONTACT DETAILS UP TO DATE?

All wool levy payers (regardless of whether or not they are AWI shareholders) are encouraged to ensure that AWI has their up to date contact details. This is especially important this year because it is a WoolPoll year. Wool levy payers can update their details by either completing the 'change of contact details' section on the *Beyond the Bale* address sheet, or with AWI's share registry (Link Market Services) via the link at www.wool.com/shares or the toll free phone number 1800 113 373. Wool levy payers should notify us of any changes in their email address, the same way as they would for a change of physical mailing address. **B**

IT'S YOUR CHOICE VOTE!

? What is WoolPoll?

Every three years AWI is required to conduct a poll asking woolgrowers to determine what percentage of their wool income they would like to invest in research, development (R&D) and marketing undertaken by AWI.

Why vote?

WoolPoll is your opportunity to directly influence how much funding AWI will receive for the next three years to deliver R&D and marketing services for the Australian wool industry.

Who can vote?

If you have paid \$100 or more in wool levies over the past three financial years, you are eligible to vote in WoolPoll.

Your voting entitlement is determined from records of your wool sales. You will be notified of your voting entitlement in August.

How do I vote?

Your Ballot Paper will be sent to you in September. You can vote online, by mail or via fax – as per the instructions that will be sent with the Ballot Paper.

For any questions about the voting process, call the voter assistance line on **1800 990 365**.

When can I vote?

Voting opens on **17 September 2018**.

The poll closes at **5pm (AEDT) on 2 November 2018**.

WOOLPOLL

IT'S YOUR WOOL, IT'S YOUR LEVY, IT'S YOUR CHOICE

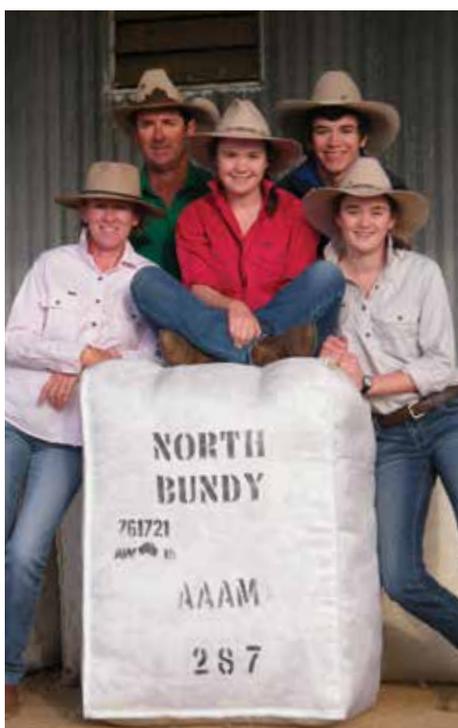
Wool is a conscious choice. You choose to grow wool in your enterprise, just as businesses right across the global supply chain, all the way to consumers at the other end, choose wool.

Your levy works right across the global supply chain through AWI and its marketing arm, The Woolmark Company, to deliver benefits to you. How much you want to continue to invest in R&D and marketing for the industry is **your choice**.

We asked a **woolgrower**, a **manufacturer** and a **brand** why **they choose wool**, what they love about it, and how AWI's R&D and marketing activities have delivered returns for woolgrowers. Here is what they told us, **in their own words**.

PETER MCCRABB

WOOLGROWER, BOOROORBAN, NSW



Peter with his wife Lisa run a large self-replacing Merino flock at 'North Bundy' at Booroorban in the western Riverina district of NSW.

Why do you choose to grow wool as part of your enterprise?

We grow wool as it is the most profitable enterprise to run on our pastoral country.

What do you love about the fibre?

Wool is a sustainable natural fibre that has attributes found in no other natural or manmade fibre.

What AWI-funded programs have you been involved in?

We have participated in a Lifetime Ewe Management (LTEM) course and a hosted a Realising Performance Potential workshop on our farm. I was also sponsored by AWI to complete the Australian Rural Leadership Program.

Why did you choose to get involved in these programs?

All the AWI-funded programs in which we have been involved have been a huge benefit to our business.

"All the AWI-funded programs in which we have been involved have been a huge benefit to our business."

Peter McCrabb, woolgrower

How have you benefited from these programs?

The greatest benefit from these programs has been individual animal performance, mainly increased reproduction rates due to a better understanding of condition scores and nutritional requirements.

Why will you be voting in WoolPoll this year?

We will be voting in WoolPoll this year as we are compulsory levy payers and it is an opportunity we have to give some real feedback on how we feel our wool tax is being spent.

JEREMY SONG

CHAIRMAN, NANSHAN



The Nanshan Group is one of the leading woollen textile enterprises in China, with which AWI has worked for many years in product development.

Why do you chose to manufacture wool?

Firstly, because the wool industry is a 'green' industry, which is an inevitable trend for the future development of the textile industry. Secondly, because wool has good performance, especially Australian Merino wool; the high quality textiles and garments produced from this wool are deeply loved by the market and consumers. Thirdly, the wool industry represents

high-end fashion and is indispensable in high-end products used by well-known apparel and fashion brands around the world.

“If Nanshan represents the demand side of wool and the woolgrowers represent the supplier of wool, then AWI serves as a bridge between supply and demand.”
Jeremy Song, Nanshan Chairman

How are you working with the fibre?

We use wool mostly in the manufacture of worsted fabrics and high-end garments. We are also conducting research on different product segments, making every effort to gradually move wool from the traditional suits to other fashion markets and leading trends, such as the use of wool in sportswear, casual wear and fashion accessories.

Why do you choose to work with AWI?

Firstly, because AWI has been committed to the promotion and use of wool fibres for a long time, it has unparalleled, strong practical experience and professional advantages in this field, whilst Nanshan has the manufacturing advantages of the wool industry. With the advantages of both, Nanshan and AWI complement each other. The cooperation between the two sides can produce good results.

Our extensive cooperation to date has already confirmed this and has laid a good foundation for further cooperation in the future.

Secondly, based on the consideration of promoting the healthy development of the global wool industry, if Nanshan represents the demand side of wool and the woolgrowers represent the supplier of wool, then AWI serves as a bridge between supply and demand, ensuring supply and demand information can be linked across the entire industry chain. On a larger scale, both Nanshan and Australian woolgrowers are suppliers in the wool industry chain, while the consumers are the ultimate experimenter of wool products. AWI cultivates consumers' concept of green and healthy consumption – all the marketing activities and consumer insight work are of great value to Nanshan.

What do you see for the future of wool?

With the development of society, the advancement of science and technology, and the continued deepening of the concept of green environmental protection, the good environmental compatibility and high-end fashionable image of wool will be more recognised by consumers. The wool industry will certainly produce new incremental markets. Continuous innovation and development will certainly give the wool industry a bright future. We are full of confidence in the prospects of the wool industry.

CRAIG VANDEROEF

SENIOR DIRECTOR - RUNNING APPAREL, adidas



adidas is the leading global sportswear brand, founded and headquartered in Germany, that designs and manufactures shoes, clothing and accessories.

Why do you choose to use wool in your collections?

We use wool because it is the fabric and fibre that is often in line with our vision in adidas running to deliver the best of performance and style to the consumer.

Why do you choose to work with AWI?

We work with AWI because they act as partners and innovators on the path to do great things for athletes. Sharing the story of wool has always been an uphill battle and it has been great to have partners working on this. We know that together we can change the view of the fibre for a new generation of athletes and consumers.

What work have you done with AWI?

We have worked together on key projects around knitwear and performance footwear. Most recently, we collaborated to create award T-shirts for the world's oldest and most prestigious annual footrace: the Boston Marathon. The best runners were awarded a beautifully made Merino wool adidas long sleeved T-shirt, so the very best marathoners in the world will now know the benefit and performance of Merino and how the price and value of wool are related. And now they will bring this home to their cities and athletes all over the world.

How have you benefited from this collaboration?

The AWI team has been amazing in helping us tell consumers how wool can improve

performance and elevate comfort in sport and in a life surrounded by sport. The AWI teams in Sydney and London have been the leaders in story telling for the adidas running group and I am always thankful for the vision we share together.

“The AWI team has been amazing in helping us tell consumers how wool can improve performance and elevate comfort in sport.”

Craig Vanderoef, adidas

What do you see for the future of wool?

With Generation Z being focused on environmental issues and performance versatility, wool will play a larger and larger part in the athletic world. We feel as though runners and those that love sport are going to make sure they get value and longevity from their purchases. Wool is a fibre that works in all aspects of their lives and lasts in a way that brings authentic comfort and performance.

BOSTON'S MERINO MARATHON



Boston fireman **Thomas McGrory** training in the 'replica' version of the T-shirt.

The performance benefits of Merino wool were highlighted at this year's Boston Marathon – the most prestigious marathon in the world – thanks to a new three-way partnership between global sportswear giant adidas, the Boston Athletic Association and AWI's marketing arm The Woolmark Company.

"I feel so fortunate to have been introduced to the benefits of wool, especially seeing all the people who couldn't finish the race, and were being pulled off the course and brought into the medical tents," says relieved first-time marathon runner, Amanda Ordway, who wore an adidas long-sleeved wool T-shirt to run in this year's event, which she completed.

This year's Boston Marathon had the worst weather for many years – with consistently heavy rain, blustery winds and temperatures not too far above freezing. The adverse conditions along the route caused many weary runners to drop out.

"It wasn't until after the race that I heard that this was the coldest Boston Marathon in more than 30 years," continues Amanda. "I didn't even realise how cold it was, because I was never cold. I was certainly wet, but never was cold. I honestly credit the wool for keeping me warm and comfortable, in what were the most uncomfortable running conditions. It is truly an amazing product for athletes!"

Amanda was one of four first-time marathon runners who were identified by

The Woolmark Company to take part in a marketing campaign in the lead up to the event in mid-April to promote wool as the perfect fibre for sports and activewear.

THE PRODUCT

The campaign was a partnership with leading sportswear company adidas that involved the launch of an adidas Merino T-shirt and the placing of wool front and centre of the internationally recognised marathon.

Begun in 1897, the Boston Marathon is the world's oldest annual marathon and ranks as one of the world's best-known road racing events. Amateur and professional runners from all over the world compete in the 26.2 mile (42.195km) race each year, and the event now attracts an average of 30,000 registered participants and 500,000 spectators.

The top 20 runners in each of the 13 age-group categories that completed the race this year received a special individually boxed Woolmark-adidas 'Best in Boston' T-shirt, made from 75% Merino wool. This is anticipated to generate more awareness and

interest in wool sportswear amongst the top runners who competed.

A 'replica' Woolmark-adidas version was simultaneously available for other runners and consumers at stores across Boston and online.

The Woolmark Company takes an active role in working with internal adidas teams, connecting the sports brand with the wider wool supply chain and supporting business units on product innovation. Importantly, this project marks the first time adidas has co-branded with the Woolmark brand on a garment.

"Collaborating with an industry leader such as adidas allows us to showcase the natural benefits of Merino wool including thermo-regulation, anti-odour and movement in the context of cutting edge design and innovation," said AWI CEO Stuart McCullough. "The relationship is testament to the versatility of Merino wool and the forward-thinking vision of the adidas product development team."



The adidas, Boston Athletic Association (BAA) and Woolmark 'Best in Boston' wool t-shirt was awarded to the top 20 Boston Marathon finishers across 13 different categories.



The commercially available 'replica' version of the winning T-shirt – branded Woolmark, adidas and BAA.

THE MARKETING

Throughout March and April, the large-scale pre-race marketing campaign was created to build consumer interest in wool and the wool product, centred around the theme 'I Wool Win', followed by a post-race 'Won with Wool' theme. The campaign, co-branded with adidas, ran across social media channels, in the *Boston Globe* newspaper and outdoor advertising including billboards.

The advertising promoted the Woolmark brand and championed the performance benefits of Merino wool, breaking misconceptions that the fibre is only for heavier knits in the colder months.

A key part of the campaign was the promotion of the four Boston-based first-time marathon runners – see box right – who trained in the adidas Merino gear in the lead-up to the marathon.

All four participants shared their training journey and were heavily promoted via The Woolmark Company's social media channels and on www.boston.com. They all went on to achieve their goal of completing this year's particularly grueling race.

There was another runner at Boston this year who has a very special connection to wool. The Woolmark Company's Product and Education Extension Manager for the UK, Louise Campbell, completed her first Boston marathon (her second marathon). She too wore the Woolmark-adidas Boston Marathon T-shirt along with wool-rich shorts and 100% Merino wool socks.

Louise battled the atrocious weather conditions to cross the finish line in a personal victory. "The weather was really brutal, but having Merino wool next to my skin as a base-layer kept me warm and mostly dry despite the awful conditions," she said at the finish line.

The Woolmark Company's three-way partnership at the Boston Marathon will continue in 2019 and 2020.

www.woolmark.com/boston

OUR FOUR FIRST-TIME MARATHONERS RUNNING IN WOOL

Four first-time marathon runners teamed up with The Woolmark Company to showcase their experience of training for the Boston Marathon wearing adidas wool running gear. This is what they said of their experience of wool.



AMANDA ORDWAY – Events manager

"Before, I'd been using synthetic sportswear to train in but after training in wool I have been so impressed by the wool sportswear; it's so comfortable, light, and it almost feels like cotton, but it has so much better absorbency, wicking away, and odour resistance."



JOSEPH DUSSELDORP – Boston-based ear specialist

"I had never thought of wearing wool as running gear, but I have been very impressed by how lightweight yet durable the clothes feel, and there does seem to be a resistance to smell which most of my other synthetic running gear fails to hide."



DANIELLE MACCINI – Pre-school teacher

"When I think of wool I think of heavy, warm clothing, not something you wear for sweating while training, but these pieces are light and easy to move in."



THOMAS MCGRORY – Fireman

"Before this I didn't know much about wool – I thought it was heavy and itchy, but after training in wool, I realised it's the complete opposite, and after trying to train in cotton for the first month, wool is the only fibre I'll train in now."



Listen to AWI's pre-race interview with Amanda, Joseph, Danielle and Thomas on episode 36 of The Yarn available at www.wool.com/podcast



Thomas McGrory in a pre-race billboard, pictured here outside the home of the Boston Red Sox baseball team, Fenway Park.



Joe Dusseldorp in a post-race advert in the *Boston Globe* newspaper.



AWI CEO **Stuart McCullough** presenting the Woolmark-adidas 'Best in Boston' t-shirt to the 2018 men's race winner **Yuki Kawauchi**.



Wade Carmichael competing at the Quiksilver Pro Gold Coast in March. PHOTO: WSL / Kelly Cestari

A fresh range of Australian Merino wool surfwear made in partnership with the World Surf League will be launched in July, with support from AWI.

A WI's marketing subsidiary The Woolmark Company has joined the World Surf League (WSL) family, partnering with the professional surf tour to showcase an exclusive range of lifestyle and performance products, crafted from Australian Merino wool.

The Woolmark x WSL apparel range includes long and short sleeve T-shirts, base layers and hoodies all for men and women, as well as a beanie – all of which have gained Woolmark certification signifying the quality and authenticity of the products.

The wool and wool-rich range will be available for purchase online next month via WSL's online store at www.wslstore.com, as well as on the sand at the Vans US Open of Surfing in California, starting 28 July.

"We are very excited to welcome The Woolmark Company as a partner to the WSL," said Sophie Goldschmidt, CEO of WSL. "Surfing is more than sport, it's a lifestyle, and our new partnership brings together a great combination of style and function for surfers and fans to enjoy."

To help promote the release of the new product offering, WSL filmed a short film at the Rip Curl Pro at the iconic Bells Beach in Australia – the same country where the world's finest Merino wool is produced. Featuring pro Australian surfer Wade Carmichael, the film explores the surfside communities surrounding Bells Beach and the tightknit culture found in

the surf community, whilst showcasing the versatility of the latest product offering.

A technical performance fibre, Australian Merino wool is loved by athletes of all levels worldwide. Wool's naturally inherent benefits, such as resistance to odour and effective moisture management are just some of the key reasons why wool rides the wave of success in sports and outdoor-wear.

Wool garments also reduce the severity of post-exercise chill, which can range from uncomfortable to dangerous. When you stop exercising in very cold conditions or after water sports such as surfing, you can experience three times more chilling in synthetic garments than when wearing wool garments.

"Australia is one of the world's best surfing destinations and is the world's best producer of beautiful Merino wool," says AWI CEO Stuart McCullough. "This partnership is a perfect fit as two iconic cultures ride together to celebrate the natural versatility of the fibre and the natural talent of the world's best surfers. The range of apparel created in collaboration with the World Surf League offers all surfers across the world the opportunity to experience the best in sports and surfwear." **B**

More information
www.worldsurfleague.com
www.wslstore.com



Australian surfer **Wade Carmichael** shows off the new range of Woolmark-certified apparel for the World Surf League.



The range includes men's and women's base-layers, a zip-up hoodie, a men's long-sleeve crew neck T-shirt, a women's T-shirt, and a cosy beanie – all made from Australian Merino wool.

KYNETON'S 150TH COMMEMORATIVE WOOL JUMPERS MAKE THEIR MARK

The local footy club at **Kyneton in the Macedon Ranges region of Victoria** has produced a **retro football jumper** made from Merino wool, with support from AWI.

To mark its milestone 150th anniversary, the Kyneton Football Netball Club has produced a limited edition all-Australian retro football jumper made from 100 per cent Australian Merino wool.

Hand made in Melbourne with the traditional long sleeves and collar, the black and yellow jumpers are numbered 1-44, with a small selection to be framed featuring the Club's Premiership sides since 1966.

"For those lucky enough to purchase the jumpers, they will own a very special memento that will be treasured for years," said Club President Karen O'Sullivan. "We are grateful to Noel Henderson from Avington Merino Stud at Sidonia, who has made it possible for the jumpers to be produced, along with AWI."

Local wool trader Billy White ran with the original idea by Ron Rutledge to have a commemorative jumper. His family has grown wool in the local area for five generations, and his son Monte plays in the Kyneton Tigers Under 14s. The limited-edition jumpers (1-44) featured on WIN Television News and were auctioned at the end of May.

The re-entry of wool into footy merchandise comes as a result of AWI's 'Fibre of Football' initiative that was launched four years ago to celebrate the rich heritage of the



Australian wool industry and Australian Football. AWI worked alongside AFL merchandise licensee PlayCorp together with Australian manufacturers.

While retro woollen footy jumpers and other supporter gear for the AFL Premiership clubs have been available for the past few seasons (at www.shop.afl.com.au), AWI is delighted to see the uptake of woollen apparel in grass roots football clubs like Kyneton.



Top: Members of the Kyneton senior football team showcasing the woollen retro football jumpers. **Bottom:** Noel Henderson, the principal of nearby Avington Merino Stud, who supported the manufacturing of the Kyneton woollen football jumpers.

WAGIN BULLDOGS DON WOOL PLAYING GUERNSEYS

The local footy club at **Wagin in the Great Southern region of Western Australia** is this season **playing in guernseys containing Merino wool**, with support from AWI.

The Wagin Football Club, based in a prime wool-growing region of Western Australia, is this season wearing wool on the footy field.

The Upper Great Southern Football League team has donned a lightweight wool-synthetic blend jumper, comprising a composite fabric of a machine-washable superfine Merino wool next to the skin and polyester on the outside.

The club's new coach is former Fremantle Dockers defender Paul Duffield, who three years ago returned to his farming roots as a woolgrower at nearby Darkan.

Paul said the team has been delighted with their new wool footy tops, especially as about three quarters of the team are local woolgrowers.

"The wool tops have turned out fantastic, we're really happy with them," said Paul. "They have a different, more comfortable, feel than our previous tops and they have performed very well in the hot conditions we've been having."

"Most of our players are woolgrowers so they are pleased to see their fibre back in footy playing gear. We're grateful to the support that we've received from AWI in helping us out in this way."

The collaboration came about after the coordinators of AWI's The Sheep's Back network in Western Australia, Andrew Ritchie and Mark Allington of Icon Agriculture, attended an AWI network meeting in Sydney and were given a presentation about AWI's Fibre of Football

campaign. As keen footy fans themselves, they pursued getting wool back into their local side's playing gear, which resulted in AWI supporting the production of the guernseys through JS Sports of Adelaide, South Australia.



The **Wagin Football Club** wearing their wool playing tops.

Hugo and Ross Turner are British identical twin brothers which provides them with a special ability to **test how early 20th century expedition clothing made from natural fibres compares with modern-day expedition clothing.**



OLD AND NEW EXPEDITION CLOTHING GO HEAD TO HEAD

On an overcast evening in June 2007, 17-year-old Hugo Turner dived into the sea off the Cornish coast, hit an unseen sand bank under the water and instantly broke his neck.

Three hospitals, a neck reconstruction and many months of recovery later, Hugo was back walking again. In the mix of emotions that followed this near catastrophic accident came an overwhelming drive for Hugo, and his twin brother Ross, to push some boundaries and challenge themselves in the world's harshest environments.

During the following decade they have followed an unconventional path in life, undertaking epic world-first expeditions which combine pioneering medical research and unique studies of historic expeditions.

The fact that they are identical twins also

provides them with a unique opportunity to directly compare modern expedition clothing (made principally from synthetic fibres) with those of bygone years (made exclusively from natural fibres, including wool).

"Being twins means that we can compare kit and equipment from 100 years ago with no bias as we're genetically identical," explained Hugo. "No one has compared kit and equipment in this scientific way before."

In 2014 the twins attempted to trek across the polar ice cap of Greenland, with Ross wearing a replica of clothing that Sir Ernest Shackleton used a century previously on his famous 'Endurance' expedition in Antarctica, while Hugo used modern clothing.

"2014 was the 100-year anniversary of Shackleton's trans-Antarctic attempt so it was very apt that we should undertake a polar

expedition," Hugo said. "Greenland for us was a cheaper option than Antarctica but it was still representative of the conditions found at the very bottom of the world."

The following year, the twins climbed Mt Elbrus in Russia, which at 8,642m is the highest mountain in Europe. Hugo tested the traditional clothing and equipment that George Mallory would have used on his fateful Mt Everest expedition in 1924, while Ross wore today's modern mountaineering equivalent.

"For us to head up Everest in old kit would have been very naïve as we're not professional mountaineers. So we selected Mt Elbrus as a good mountain to learn more about the old kit and ourselves."

THE OLD EXPEDITION KIT

The old style kit for both expeditions was sourced from the same companies that made the clothing, shoes and equipment for Shackleton and Mallory a century ago. Replicas of some pieces had to be made. The clothing used by Mallory was very similar to that used by Shackleton, because the mountaineers of the day adapted the polar clothing slightly to suit their needs.

"My kit in Greenland was fantastic," Ross said. "I wore Merino wool base-layers with buttons, tweed trousers and leather braces, a couple of mid-layer jumpers, some large cable knit jumpers, wool gloves, a cotton outer jacket and trousers, and a hat soaked in sheep's lanoline from Burberry. I also had a fur hat, wooden skis and sled, bamboo poles, and leather shoes with extra insulated soles.



Ross and Hugo in Greenland, their faces covered in ice which demonstrates how quickly moisture vapour can freeze in these conditions.

"The big cable knit jumper made by Sunspel of Nottingham was outstanding. Trekking across an ice cap in the summer can actually be quite hot work, but the jumper was able to wick away my moisture to the surface. Every 15 minutes or so, I turned to my twin brother who would brush off all the frost and ice of my sweat on the shaded side of my back. It worked very well at keeping me dry.

"The old clothing could cope with temperature ranges down to about -15°C to -25°C, but then I'd have to put on another layer if the temperature dropped further."

Hugo said the old style clothing he used on Mt Elbrus wasn't much different to what his brother Ross used in Greenland.

"We added a silk scarf and shirts, felt hat, gabardine outer jacket and trousers made to a Burberry design by Barrington Ayre tailors of Cirencester, and putties like they used in World War 1.

"Natural fibres, such as wool, are much better than synthetic fibres because nature has designed and made them to cope with natural environments.

ADVENTURER ROSS TURNER

"After our experience in Greenland, the performance of the Elbrus kit was no surprise. It was very breathable, comfortable to wear, and fairly lightweight even compared to the modern equivalent.

"On Mt Elbrus, the normal temperature was around -10°C or -15°C. It wasn't too cold, but proved that simple layers of wool jumpers, silk shirts and wool outers were perfect for mountaineers in the 1920s."

OLD VERSUS NEW: THE VERDICT

Ross said although explorers 100 years ago had to survive horrendous hardships, their traditional clothing made from natural fibres was certainly good enough for the task.

"The main requirements for our clothing in Greenland and on Mt Elbrus were breathability, mobility and comfort, and of course the ability to keep us warm when resting or camping.

"Natural fibres, such as wool, are much better than synthetic fibres because nature has designed and made them to cope with natural environments.

"Both snow-trekking and climbing require you to work hard and this in turn generates body heat and sweat. Natural fibres, especially wool, are very good at wicking away moisture vapour.

"To maximise the performance of old style clothing made from natural fibres, it's important to understand how to layer the clothing, but when that's sorted, the clothing has equal functionality to the modern kit.

"The main drawback with the old kit was that it is generally about double the weight of the modern equivalent. However, modern spinning and knitting techniques have created wool garments that are nowadays much better fitting, far more durable, lighter, softer and more comfortable."

In fact, recent research shows that under certain conditions you can dress 20-25% lighter with wool than with synthetic apparel and still get the same insulation and comfort.

Hugo said the courageous explorers of the early 20th century set the standard for polar



Ross and a stylishly dressed Hugo about to climb Mt Elbrus in Russia. PHOTO: Oksana Danilova

and mountaineering clothing and equipment for the next 50 years, up until plastics became easier to make and more 'fashionable' than natural materials.

"But I think there is a wonderful lesson to be learnt from the past; utilise the best technologies with the best natural fibres to produce a product that combines the best of both worlds.

"Even on these two expeditions, Ross and I both used modern Merino wool base-layers and down jackets when setting up camp which reflects how good people still find natural materials on expeditions.

"Nowadays, as well as wool hats and socks, we always wear Merino wool base-layers – they are the best."

More information
www.theturnertwins.co.uk

TO THE RED CENTRE OF AUSTRALIA

In 2016, the Turner twins travelled on an expedition to Australia's 'continental pole of inaccessibility' – the most distant point (920km) from the coastline – using powered paragliders called paramotors.

The twins started near Adelaide and three weeks later reached the centre of Australia, near the small indigenous community of Papyuna, 161 km west-northwest of Alice Springs.

"Rural Australia is absolutely epic. The vastness of the land was very evident when flying at around 5,000ft," Ross said. "The outback is by far the most adventurous place we've been in Australia. Meeting the amazing local people and seeing the beautiful country was very special."

100% MERINO WOOL

JACKET WINS ECO AND SUSTAINABILITY AWARDS



Linus Zetterlund from RÖJK Superwear wearing the award winning 100% Merino wool Badland jacket. It is designed for the general outdoors and activities such as hiking, trekking and outdoor lifestyle.

Swedish outdoor company RÖJK Superwear's Badland jacket has won three awards presented earlier this year at the ISPO sports and outdoor trade show in Munich.

RÖJK Superwear is a young, Swedish brand established in 2010, dedicated to creating highly sustainable, innovative and functional products for outdoor enthusiasts.

With the company's focus on "products made with love for the planet", it was very apt that RÖJK's Badland jacket won the 2018 ISPO Eco Achievement Apparel Award and the Scandinavian Outdoor Group's Sustainability Award. It also won an ISPO Award for Outer Layers in the outdoor segment.

The Badland jacket uses the water and wind resistant Neulana Protect fabric, which is a result of development by the Wool Development Centre set up in 2013 by AWI and Chinese company Nanshan. The fabric is made with Optim™ technology from 100% Merino wool and without any chemical treatments.

RÖJK announced six months ago that it will be making its entire product range 100% biodegradable and natural by 2020.

"Other brands fight over who can bark the loudest about using recycled synthetics, and sure, they may be better than non-recycled ones, but they are neither biodegradable nor natural and they still contribute to demand from the supply chain. This is not the way to rid our oceans and forests, or even food, of microplastics," said RÖJK marketing director Linus Zetterlund. "Unlike our competitors, we are fully determined to do whatever we can for the benefit of our planet, even if it costs us a little profit."

THE ECO AND SUSTAINABILITY AWARDS

In awarding RÖJK the ISPO Eco Achievement Apparel Award, the jury stated: "A small company challenges an entire industry by going into 100% sustainable innovation. RÖJK Superwear's focus on bio-based and biodegradable parts is a great example that creativity paired with a sustainable mindset and profound design knowledge can result in desirable products for ambitious athletes."

Consumers seem to like the product too. Launched in March, the Badland jacket was virtually sold out in a just a few weeks.

In presenting the Badland jacket with the Scandinavian Outdoor Group Sustainability Award, the jury stated:

"RÖJK Superwear presents a wind and water-resistant shell made from chemical-free, super tightly woven and supple Merino wool. It is very impressive how well the fabric sheds moisture without the use of water-repellent chemicals. The testers were also excited about how well the Badland Jacket regulated the body temperature while cross-country skiing and snow-shoeing. It is a great alternative to softshells made from petroleum-based fabrics."

WATER AND WIND RESISTANT FABRIC

The fabric is constructed at very high levels of thread density in warp and weft using fine Merino wool yarns that have been stretched, but not set, during Optim processing. It is only when the fabric is wet-finished that the stretch is released causing the yarns to contract, thus leading to an extreme tightening of the fabric structure and the creation of the immensely dense fabric.

After optimising the spinning, weaving and finishing processes, the fabrics made from these elastic Merino wool fibres have enhanced water and wind resistant properties (while retaining all Merino wool's fine properties such as breathability), without any chemical treatments. **B**

More information
www.rojksuperwear.com



NEW ONLINE EXPERIENCE FOR WOOL'S CUSTOMERS



The new Woolmark.com website is optimised to be read on desktop/laptop, tablet and mobile devices.

Through the **relaunch of its flagship website Woolmark.com**, AWI's marketing arm, The Woolmark Company, is offering both trade and consumer audiences **a content-rich digital experience of Australian wool to help increase demand for the fibre.**

The upgraded website presents the full farm-to-fashion spectrum of The Woolmark Company's marketing and R&D activities across the globe.

The aim of the Woolmark.com website is to, firstly, inspire companies along the textile production chain to choose wool, in preference to other fibres, in the manufacture of their products – and secondly, provide an engaging place for consumers to learn about the true substance of Australian wool and thereby increase demand for the fibre.

The new website is split into several key categories that represent different aspects of the business:

- **Innovation** – including key seasonal developments, and manufacturing systems and processes
- **Education** – programs for students, seminars and events, washing and care instructions, and fibre provenance
- **Collaboration** – fashion, sports, interiors and Woolmark licensing.

The viewer is presented with an abundance of engaging multimedia experiences, including articles, fact sheets, videos, image galleries, and custom-built technological functions.

ENGAGING CONTENT AND FEATURES

Innovative and engaging ways that the information is displayed include:

- **an interactive traceability map** – whereby visitors can 'visit online' wool-growing properties to learn more about the work being done within the areas of sustainability, animal welfare and conservation
- **a stain removal 'slider'** – presenting visitors with an animated step-by-step guide to washing their wool garments
- **optical zoom features** – presenting The Woolmark Company's latest fibre and manufacturing innovations in hyper-detail.

According to The Woolmark Company's Global Content & Creative Manager, Mitchell Oakley Smith, the relaunch of the company's flagship website was a logical step in encouraging worldwide consumer reappraisal of the fibre.

"Our company undertakes significant projects within the fashion and textiles space, both at a consumer-facing marketing level and at the R&D stage, but digital design has evolved at such a rate that our existing website was capable of telling only half the story," he said.

"Now, we can truly educate and inspire audiences, no matter their location, language or specific point of interest in our supply chain. The past year has seen a major refinement of wool's brand image in the consumer market, particularly with the global discussion around the sustainability of fashion, and our new website appropriately reflects that shift."

WORLD CLASS

The new website is built to offer content in seven languages – simplified and traditional Chinese, Japanese, Korean, Italian and French accompany English – based on the viewer's geographical location. The second phase of the new website will include audience profiling to personalise content to the viewer's specific interests.

"It was important to us to unify our digital offering into a single platform that would underpin and connect everything we did going forward," said the company's Global Digital Manager, Damian Madden.

"More than just a website refresh, we wanted to create a world-class digital offering that told the wool story in a way that would connect with our many customers, regardless of their need or place in the industry.

"The new website features a simplified structure, personalisation and targeted connection to our offices, meaning we can not only now more effectively tell the story of wool but that we are set up to ensure we are ready to engage with the next generation of customers."

More information
www.woolmark.com

RISING TIDE OF MICROPLASTIC POLLUTION FROM TEXTILES

As much as 20-35% of microplastics in the marine environment are fibres from synthetic clothing and this amount is increasing. **In contrast, natural fibres such as wool readily biodegrade and do not accumulate in the environment.**

Studies have estimated there to be **1.4 million trillion microfibrers** currently in the world's oceans – that's 1,400,000,000,000,000 microfibrers!

If you Google 'plastic pollution' or 'microplastic pollution' your search result will bring up a worrying series of images. Look at your own peril.

Microplastic particles, including microfibrers, are now ubiquitous in aquatic and land-based ecosystems globally. It is estimated that 0.6-1.7 million tons of microfibrers are released into the ocean every year.

Without active intervention, the abundance of these <5mm in diameter particles will increase as consumption of plastics and man-made fibres in clothing expands to meet demand from a rising world population and increasing regional incomes.

Microfibrers can enter the environment through sources such as fibres shed from synthetic apparel during use and washing, or through other secondary sources, predominantly degradation and fragmentation of larger pieces of synthetic textile waste.

NEW REVIEW BACKS WOOL

A new review into microplastic pollution from textiles recommends an increased use of natural non-synthetic materials, such as wool, in global textile markets, because wool biodegrades in marine as well as land environments and therefore does not cause microfibre pollution.

The review, published in February by Consumption Research Norway (SIFO), was conducted by Adjunct Associate Professor Beverley Henry of the Queensland University of Technology (QUT) and researchers from SIFO, with support from AWI and the Cotton Research and Development Corporation.

"An effective strategy for consumers to reduce their contribution to microfibre pollution would be to choose garments made from natural fibres which are biodegradable and do not contribute to the build-up of microplastics in the environment," Dr Henry said.

"Additionally, the positive attributes of wool in terms of durability, recyclability and low

impact care (less frequent washing, at lower temperatures with less detergent/conditioner) are consistent with strategies to minimise shedding of microfibrers to the environment."

"The proportion of natural fibre in global textile products should be maximised since there is evidence that these biodegrade relatively rapidly and do not accumulate in the environment in the same way as synthetics such as polyester and nylon."

Dr Beverley Henry, QUT

The review is a part of a larger work by AWI towards better accounting for the use phase in Life Cycle Assessment (LCA) of apparel (see page 16). There have been no LCA studies that have yet attempted to include impacts of microplastic pollution.

Angus Ireland, AWI's Program Manager for Fibre Advocacy and Eco Credentials, says the review helps demonstrate the eco-credentials of natural fibres in a world where there is increasing concern about the effect on the environment of synthetic textiles.

"Natural fibres such as wool readily biodegrade and consequently don't amass in the environment. This important difference between natural and synthetic fibres needs to be accounted for in Life Cycle Assessment for the LCA to be credible and scientifically defensible."

NEGATIVE IMPACT OF MICROPLASTICS

While the full extent of the negative impacts of microplastic pollution on aquatic habitats and organisms is yet to be fully understood, the current research suggests physical, chemical and biological impacts occur throughout the food chain including leaching of toxic chemicals and starvation in affected organisms.

Fibre-shaped microplastics appear to be of greater environmental consequence than more regular shaped particles due to a tendency for entanglement in the digestive tract that can lead to blockages and a higher

chance of compromised growth, reproduction or even starvation.

Chemical impacts may also be enhanced since the larger surface area of fibres potentially allows greater sorption of harmful compounds and a higher retention in the gut allows more time for leakage of plastic additives.

The full extent of the impact on human health is yet to be known. However, the review states microplastics may enter the human body through the food chain and drinking water.

Furthermore, chemicals from surrounding water are attracted to the surface of the microfibrers, raising the risk of human exposure to carcinogenic and non-carcinogenic compounds when consuming seafood. Microplastics can also host bacteria linked with human gastrointestinal infections.

More information

The report *Microplastic pollution from textiles: A literature review* is available free from www.hioa.no/eng



When you 'throw away' plastic, there isn't really an 'away', it just accumulates somewhere else such as in our oceans and on our beaches – there are warnings that there will be more waste plastic in the sea than fish by 2050. PHOTO: Phonix_a

CUSTODIANS OF THE LAND

A new short film produced by sustainability consultancy agency **Eco-Age**, fronted by Livia Firth, celebrates the fine woolgrowers of Australia and their unique ties to the land on which they live.

The new short film celebrating the source of Merino wool and the woolgrowers who produce it was released by global sustainability champion Livia Firth and her team at Eco-Age on 22 April, to coincide with Earth Day.

The film has featured at premier events and on global news platforms such as Vogue USA, and been highlighted on panel discussions in New York, London and Milan. So far, the film has generated \$2.5 million editorial value.

Marrying ethics with aesthetics, Eco-Age is a globally respected brand consultancy working at the cutting edge of sustainability. It has become well known across the past decade for championing sustainable production and for telling the ecological and human stories behind the clothes we wear.

"All too often we're witnessing production travelling in the wrong direction. Increased volumes and the use of vast quantities of petroleum-based, synthetic fibres suggest this model is consequence-free. It isn't," Livia said in the film.

Supported by AWI's marketing arm The Woolmark Company, the film, titled *Forever Tasmania*, follows Livia across the Bass Strait to learn about the low impact wool has on the animals, on the land and on the environment.

"I found growers producing fine wool for the global apparel industry with a deep understanding of the need to work within the earth's biological capacity," Livia said.

"They were clear that their role was not just as fibre producers, but equally as custodians of this incredible landscape. When [a woolgrower] has changed across 20 years to embrace sustainability so deeply, that is very moving – not to mention, instructive."

WOOLGROWERS COMMITTED TO THE ENVIRONMENT

Seventh generation woolgrowers Matt and Vanessa Dunbabin know all too well the importance of conserving the natural environment. Their property 'Bangor' is home to every one of Tasmania's native animals – meaning they manage more native animals on their land than they do sheep.

"We see ourselves as custodians – we're the current custodians of the land," they said. "We have all the generations who have come before us, and many more to come after, so we really need to care for and nurture the land during our generation, so it will still be here in another seven generations."

Fellow Tasmanian woolgrower Roderic O'Connor echoes this sentiment. His property



Founder and Creative Director of **Eco-Age**, Livia Firth, excited about discovering the natural credentials of wool.

'Connorville' has been in his family since the early-1800s, yet he sees himself as a caretaker, rather than an owner.

"If you take the view that you don't own it, and that you're a custodian, it makes it a lot easier," he tells Livia. "Being a custodian gives you the freedom to say 'what should I do' and 'what does your heart tell you to do.'"

Humbled and amazed by her journey to this remote wool-growing region of Australia – and keen to inspire consumers to choose well and cherish each item they buy – Livia says: "What I found here in Tasmania are producers of fine wool who are not just taking a long-term view, but who are deeply committed to landscape restoration and who see themselves as much as stewards of this natural habitat as producers. Above all, they are letting the planet set the limits."

This initiative with Eco-Age follows on from the partnership between The Woolmark Company and Eco-Age at the Commonwealth Fashion Exchange during which wool was showcased as the green thread in sustainable fashion at a special event held at Buckingham Palace (as reported in the March edition of *Beyond the Bale*). **B**

More information
Watch the film at
www.youtube.com/EcoAgeTV



Woolgrower **Matt Dunbabin** on his property 'Bangor', which features in the new film.

ESTABLISHING WOOL'S ENVIRONMENTAL CREDENTIALS



AWI funds scientific research into wool's environmental footprint, to enable the wool industry to market Australian wool to the fashion and textile trades – and consumers – as the 'planet-friendly' fibre of choice.

THE KEY POINTS

- Wool is natural, renewable and biodegradable** – and therefore well placed to take advantage of the increasing consumer demand for more earth-friendly products.
- But the wool industry faces an issue.** Environmental ratings agencies have historically rated wool poorly against synthetics, which puts wool at a disadvantage, particularly as these ratings are used by brands to help choose what fibre to use in their products.
- Why do the ratings agencies rate wool poorly?** Agencies use Life Cycle Assessment (LCA) methods to assess a fibre's environmental impact. However, LCA is a young science that is not yet robust. To date, assessments have looked only at the *production* part of the supply chain, not *all* the supply chain. This means that, for example, wool's 100% biodegradability is not taken into account by the agencies.
- What is AWI doing about it?** AWI is funding research to improve the current body of LCA studies and improve the methodology for applying LCA, for a more accurate analysis of wool's environmental benefits.
- Can you give me an example of the research?** A new AWI-funded review into consumers' 'use phase' of apparel establishes wool as an environmentally responsible fibre, because in comparison to synthetic garments: wool clothes are washed at lower temperatures, washed less often, and are less likely to be tumble-dried (and therefore use less energy, water and detergent); and have on average a longer life-span, don't contribute to microplastic pollution and are more likely to be recycled.

Picture a designer at a large premium fashion brand in Europe. Let's call her Claudia. Claudia lives in a nice apartment in the centre of the city. She spends her summer holidays in Tuscany and used to ski at St Moritz each year, until her daughter arrived. She likes yoga, her favourite cuisine is Thai and her husband Thomas is a professional fashion photographer.

Claudia has never seen a Merino sheep, never touched raw greasy wool, and never visited rural Australia. She is far removed from the day to day realities of wool-growing, but nevertheless, she is an important person for Australian woolgrowers because it is Claudia who makes the decision as to what fibre to use in the fashion brand's clothes.

At Claudia's work, wool has never been a large part of the brand's collections, but in recent seasons Claudia has noticed that the brand's competitors are using more Merino wool in their collections and she has become interested in using the fibre herself. She likes its handle and drape, its breathability and its versatility.

The brand for which she works has rightly identified the preference for environmentally sustainable products as a key trend amongst premium consumers, and one that is likely to become even more important, so Claudia is keen to find out more about the eco-credentials of wool.

She knows wool is natural, renewable and biodegradable – and she fondly recalls seeing sheep grazing in the beautiful countryside of Tuscany. But when reading up on the subject, she discovers that environmental ratings agencies (such as the Sustainable Apparel Coalition and MADE-BY) have historically rated wool poorly against competing synthetic fibres.

Claudia wants to do the right thing, for her company, for the planet and for her children's future. But she is confused by these ratings – they seem counter-intuitive. Like most people, she is not an expert in either wool or environmental sustainability, so she asks herself: "Should I rely on the ratings from these environmental agencies?"

How Claudia, and others like her in the fashion industry, answer that question is vital for the wool industry, because brands, similar to the one that employs Claudia, *do* use these ratings to help choose which type of fibre to include in their products.

So what is the answer to Claudia's question; should she rely on the current ratings? The short answer is "no" – and AWI is funding studies that are progressively correcting the weaknesses and flaws in the rating tools. Read on...

WOOL'S LIFE CYCLE ASSESSMENT



LIFE CYCLE ASSESSMENT EXPLAINED

There is actually little agreement scientifically on what a 'sustainable product' is. There are many ways to assess environmental sustainability, but one popular method is Life Cycle Assessment (LCA).

LCA is a tool that attempts to tell in technical terms the environmental story of products across their *entire supply chain* (see diagram below left) – from raw material production; through processing, manufacturing and distribution; to a product's use, repair and recycling; and finally to a product's end-of-life and disposal. All these phases of a garment's supply chain affect the environment in some way.

However, LCA is a young science and there are severe shortcomings to current ratings because they consider only a *limited part of the supply chain* and only consider some environmental impacts.

AWI's Program Manager for Fibre Advocacy and Eco Credentials, Angus Ireland, says comparisons between fibres should only be made when the full life cycle impacts are known, but the apparel ratings agencies have not yet done this.

"The environmental impact of producing wool is more significant at the earlier end of the supply chain; but it's a superior fibre that lasts longer, requires less washing and is frequently recycled to extend the use phase even further, plus it's 100% biodegradable," he explained. "However, apparel ratings agencies only assess the first part of the supply chain up to fibre production and exclude the use phase and the product's end of life, resulting in an incomplete analysis."

AWI is therefore funding technically sound scientific studies to establish wool's true environmental credentials and thereby correct the weaknesses in the environmental agencies' rating tools.

"The wool industry is continuing to invest strongly in an accurate and scientifically credible assessment of wool's environmental footprint from its beginning on the farm, through all life stages to wool's ultimate biodegradation back into the soil," Angus said. "By working with the apparel ratings agencies, through the provision of contemporary data and sound methodology, we are seeking to improve the accuracy of the ratings."

THE CONSUMER 'USE PHASE' OF THE SUPPLY CHAIN

An example of an AWI-funded study into wool's environmental footprint is a new review into the 'use phase' of garments (see the fourth phase in the LCA diagram left), which was published in February by Consumption Research Norway (SIFO).

It was conducted by researchers from SIFO and Adjunct Associate Professor Beverley Henry of the Queensland University of Technology with support from AWI.

The consumer 'use phase' in a garment life cycle is known to impact substantially on the environment. But the review showed that clothing made from different materials are used and reused in different ways, and therefore have different environmental impacts. In summary:

- Wool is washed differently, at about ten degrees lower washing temperature than the average laundry in Europe.
- Wool is also more likely to be either dry-cleaned or washed by hand than other textiles. Moreover, when dried, it is less likely to be tumble-dried.
- People are likely to use their woollen products about twice as long between washes compared to their equivalent cotton products.
- Woollen products have a longer average lifespan and are more likely to be reused or recycled.

Dr Henry says the study showed that the use phase of wool has less environmental impacts than the use phase of other fibres.

"Consideration of the use phase in LCA should be critical as it strongly affects a fibre's overall environmental impact," she said.

"A longer life and less washing mean a smaller footprint as garments have to be replaced less often and require less inputs (water, energy and detergents) during use. For wool, this will provide a more accurate and fair ranking result.

"Furthermore, we found there is a lot of research-based information available concerning the use and re-use of clothing, and we believe there are sufficient results available for ratings agencies to include in LCA studies."



Wool garments are washed less and on lower temperatures, which means a smaller environmental footprint due to the need for less energy, water and detergent for laundering. PHOTO: Nick White

AWI's Angus Ireland said this work undertaken for AWI contributes to the understanding of wool as an environmentally responsible fibre in comparison to its synthetic counterpart.

"The review helps demonstrate the eco-credentials of natural fibres in a world where there is increasing concern about society's trend towards 'fast fashion' or disposable clothing, and the effect on the environment of synthetic textiles," he said.

The use phase also includes the worrying environmental impacts of synthetic microfibres that are released during laundering – see separate article on page 14.

More information:
The report *Use phase of apparel: Literature review for Life Cycle Assessment with focus on wool* is available free from www.hioa.no/eng

POSTSCRIPT FROM CLAUDIA

Let's revisit our designer, Claudia who we met at the beginning of our story. Since we last saw her, she has been doing some further research into wool's environmental footprint and... she has made her decision about whether to incorporate wool in the new fashion collection at work.

Right now, she is sitting in her kitchen at home on a warm evening in June after a long and tiring day in the studio. She has put her daughter to bed and has just finished a plate of Pad Thai.

In her adjacent laundry, she can hear the tumble-drier – and feel the heat from it blowing into the already hot kitchen. She

wishes that the laundry didn't need doing so often. If only all her clothes could be like her Merino wool suit, or her wool yoga gear, which do not need laundering very often.

She then glances through to the hall and sees the beautifully embroidered wool shawl that she inherited from her grandmother – it has lasted well – and hanging next to the shawl she sees the wool coat that she bought all those years ago on her first trip to St Moritz soon after she first met Thomas.

Reflecting on her own experiences of owning and using wool, she is very glad she indeed has chosen wool for the upcoming collection she is designing.

SLOWING DOWN FAST FASHION



Every 10 minutes in Australia, **6,000 kg of clothes** (mostly synthetics) are thrown out and go straight to landfill. PHOTO: Ray Van Eng Photography

The *Slowing Down Fast Fashion* documentary explores the detrimental effects on the environment of fast fashion, encouraging consumers to choose natural fibres that biodegrade, such as wool, instead of synthetics.

The award-winning 2016 documentary *Slowing Down Fast Fashion* about the world's unsustainable addiction to fast (mainly synthetic) fashion continues to receive screenings across the world, and indeed is becoming more and more relevant.

In the documentary, the presenter, Alex James (well known as the bassist of 90s Britpop sensation Blur), takes a critical look at the fast fashion industry and its enormous environmental cost.

"In Britain we discard a million tons of clothes every year and replace those with two million tons of new clothing, an equation that means we're not just running out of space but also time; 50% of what we cast aside ends up in landfill," Alex says. "These cheaply made, environmentally unfriendly plastic clothes are part of an epidemic – a cycle of consumer behaviour in which short-term satisfaction has become a threat to our long-term survival."

And it's not just landfill that is a problem; synthetic apparel also makes its way into the marine environment in the form of plastic microfibres (see page 14).

However, far from predicting the apocalypse, *Slowing Down Fast Fashion* seeks to provide solutions. By talking to designers, activists, and

high street brands the film shows that there is a wide-ranging and ever-growing thirst for change.

"If we act now and start to think for ourselves then the solution might be close at hand," Alex says. "[In the film] we wanted to give people an opportunity to see their options when it comes to choosing long lasting biodegradable clothes made from fibres such as wool and silk, which unlike man-made materials, break down quickly and don't clog up landfill sites indefinitely."

Slowing Down Fast Fashion won Best Fashion Documentary at London Fashion Film Festival in 2016. The documentary was supported by AWI, The Campaign For Wool and Fashion Revolution.

Nicholas Coleridge, Chairman of The Campaign for Wool said at the time: "This is a profoundly important film which must be watched by anyone who cares about the future of planet Earth. Alex James builds a compelling case for sustainability, and the crucial part that wool can play in the cycle of survival."

More information

The hour-long documentary is available to view on Amazon Prime at www.amazon.com

WOOLMARK STUDIO: 'SUSTAINABILITY IN FASHION'

The second edition of Woolmark Studio at Shanghai Fashion Week brought together industry experts to discuss wool's eco-credentials.

Merino wool had a high profile at Shanghai Fashion Week in March, with The Woolmark Company once again rolling out its Woolmark Studio initiative to highlight the benefits of Australian Merino wool to the Chinese textile trade and media. The theme of Woolmark Studio this time around was 'Sustainability in Fashion'.

A highlight was the China premiere of the *Slowing Down Fast Fashion* documentary (see left). After the film's screening The Woolmark Company Global Strategic Advisor and Campaign for Wool COO Peter Ackroyd outlined to the audience his views on the social responsibility that retailers and suppliers should have to protect the environment and maintain more stringent standards. Other guest speakers offered their insights and expertise about sustainability in fashion, and discussed the trends, progress, and challenges of sustainability in China.

Associate Professor of Beijing Institute of Fashion Technology Guo Ruiping also led a forum titled 'Sustainability in Design and Education', encouraging fashion students to embrace sustainability in the fashion industry in their future works.

Woolmark Studio, launched for the first time at Shanghai Fashion Week in October 2017, presents a new concept in trade show engagement – combining exhibitions, forums, training and education all in one space to inspire, educate and connect. By creating a unified platform, Woolmark Studio brings together all the partners in the supply chain – from vendors to retailers, designers and brands to the media and consumers. **B**



The Woolmark Company Global Strategic Advisor Peter Ackroyd with the panel of speakers at Shanghai Fashion Week.

MERINO FOR YOGA AND A SUSTAINABLE LIFESTYLE

AWI has once again partnered with activewear brand [sn]super.natural to highlight the natural benefits of Merino wool.



To build demand for Merino wool in the Japanese yoga market, AWI's Japan office recently collaborated with Swiss brand [sn]super.natural to exhibit at the Organic Life yoga festival in Tokyo.

To build demand for Merino wool in the Japanese yoga market, AWI in Japan joined forces with Swiss-based Merino wool activewear brand sn[super.natural] at the Organic Life yoga festival held in Tokyo during three days in April. The event aims to promote a sustainable lifestyle mainly through yoga, running, and healthy food dietary choices.

Viewings of the documentary **Slowing Down Fast Fashion** (see far left) were organised on two evenings, preceded by a discussion between an influential yoga instructor and AWI staff to provide the audience with an opportunity to think about wool, yoga and lifestyle.

As well as being a natural and biodegradable fibre, Merino wool is ideal for stretch-related garments for use in yoga, and as Merino wool fibres are so fine, they feel luxuriously soft next to the skin.

AWI's support of the expansion of sn[super.natural] in the yoga and active lifestyle segments in Japan followed a very successful joint presence at the Yogafest festival in September last year.

At April's event, AWI had a stand next to the sn[super.natural] booth to link the positive messages about wool with a call to action to purchase the partner's Merino wool garments.

More information
www.sn-supernatural.com

HRH RENEWS CALL FOR WOOL

Granted rare access to HRH The Prince of Wales at home, *The Australian Financial Review Magazine* in April ran a feature article on HRH's thoughts on how the fashion industry needs to tackle its greatest challenge: sustainability.

"Who better to feature in the AFR Magazine's fashion issue, given Australia has 72 million sheep, than a passionate advocate for wool and other natural fibres?" writes renowned fashion journalist Marion Hume in her article.

Indeed, who better?

HRH The Prince of Wales is a committed environmentalist, who, recognising the plight sheep farmers were facing around the world a decade ago in the face of plummeting wool prices, convened experts from across the agricultural, wool textile and retail sectors to reverse the trend towards petrochemical fibres.

As readers will know, the global Campaign for Wool was consequently established in 2010, with HRH as patron, to raise awareness amongst consumers about the unique, natural, renewable and biodegradable benefits offered by the fibre.

"As the major wool-consuming nations began to emerge from the global financial crisis, it was clear that the time was right to reposition wool as the only real, ecological fibre option in fashion that would give consumers a return on capital invested," he says in the AFR interview.

"Australian woolgrowers across the nation enthusiastically supported the campaign in cash and in kind, and Merino wool is now enjoying an unprecedented global revival, which gives me great pride."

The Campaign, supported by AWI, has been instrumental in educating consumers about the versatility of wool, and reconnecting them with its myriad uses – from luxurious fine Merino wool apparel through to beautiful hardwearing interior products for the home.

While Marion's interview with The Prince of Wales covers several aspects of sustainability, at the heart of the article is his ongoing call for the fashion industry and consumers to return to wool.

"I believe consumers are increasingly rediscovering there are genuine alternatives, particularly wool, that may cost a little more, but which last considerably longer. I have been persistent in my belief that natural solutions are readily available, a message which seems to be getting through," HRH says.

"It is extraordinary how fashions change, and, speaking as someone who, on the whole, hates throwing away things without finding another use for them or mending them, I couldn't be more delighted if, at last, there is a growing awareness of the urgent need to

get away from the 'throwaway society' and to move towards a more 'circular' type of economy."

"Merino wool is now enjoying an unprecedented global revival, which gives me great pride."

HRH The Prince of Wales

HRH remains actively involved in spreading the message that wool is a precious natural, renewable and biodegradable resource that offers many technical and ecological benefits over synthetics.

"I happen to mind deeply about the poisoned legacy we are leaving our children and grandchildren and have been attempting to invest in their futures through reminding people of the urgent need to work in harmony with nature, rather than against her," HRH continues in the AFR interview.

"Wool lasts, and as my campaign has demonstrated on many occasions, at the end of its life, it will biodegrade and enrich the soil in which it is buried."

Marion Hume's 5-page feature article was published in, and featured on the cover of, the 6 April edition of the influential *The Australian Financial Review Magazine* which has a circulation of 50,000. This was the first time in five years that an interview has been granted by HRH to an Australian media outlet.

More information

The article is available in full at www.afr.com



The April front cover of *The Australian Financial Review Magazine*. PHOTO: Nadav Kander

THIS IS HOW WE WINTER

Australian wool is the ultimate fibre of choice this winter according to Westfield shopping centres, who have once again collaborated with AWI for its winter retail campaign, celebrating the natural fibre and encouraging shoppers to incorporate Australian wool into their everyday life.



Westfield Sydney shopping centre – one of the 40 Westfield centres across Australia and New Zealand that is actively promoting wool this winter.



An image from Westfield's winter campaign, shot at Dave and Skye Ward's wool-growing property near Goulburn, NSW.

Walk into any Westfield centre in Australia and New Zealand this winter and you'll notice that many parts have been turned into a woolly wonderland. For the second year, Westfield has partnered with AWI's subsidiary The Woolmark Company for its major winter campaign, placing wool front and centre of customers' minds.

'Enjoy not endure winter' is the underlying theme of Westfield's campaign – if you have the right clothes, you can embrace the cooler months, and the right clothes are made from Australian Merino wool.

Shot at Dave and Skye Ward's wool-growing property 'Spring Ponds' near Goulburn, NSW, the campaign takes customers back to the source of the natural fibre as the Ward family kindly opens up their home.

"Following the success of last year's campaign, which strengthened the Westfield-Woolmark partnership, we are once again celebrating wool this winter," explains Westfield Senior Brand Experience Manager Tanya Green.

WOOLGROWERS HERO THE PROMOTION

For Skye and Dave, along with their son Digby, 7, and daughter Harriet, 3, filming the campaign was a day they will never forget, showing off new-season wool fashion from various Australian and international brands.

"We feel so lucky to be able to showcase our product and it's a great collaboration between AWI and Westfield to tell the wonderful story of wool to consumers," said Skye. "We're so lucky to live on the family property and bring up our children here, continuing to do what our family has done for more than 100 years. It holds a very special place in our heart and we love living here, growing wool and continuing the family legacy."

The Wards run 2,500 Merinos at 'Spring Ponds', with another 2,500 sheep on a family

property at Cooma. Averaging 17 micron, their wool is no doubt used by some of the world's leading fashion apparel brands.

"Traceability is becoming increasingly important," said Dave of the growing trend for brands to promote the complete farm to fashion journey. "Consumers are wanting to know the source of their product and one day we'd love to see in store a woollen garment made from the wool grown here at 'Spring Ponds'."

Like so many woolgrowers across the country, the Wards see themselves as custodians of the land. "We'd love our grandchildren to live here too and we hope to leave it in even better shape for future generations," said Skye. "Wool is coming into its own; consumers are becoming more concerned with environmental and

sustainability issues. Other than keeping you warm, wool is a naturally grown fibre and we feel these factors lend themselves to consumer wants and needs."

Both Skye and Dave agree that it's a great time to be in the wool industry and promotions such as the Westfield winter campaign help bridge the city-country divide.

"If you're happy doing what you're doing and get home invigorated, looking forward to the next day, then you've got life made – and that's where we're at," said Dave. "Wool is a beautiful product to grow: it's natural and sustainable. Every day is really enjoyable and I look forward to the next. To bring our children up on a sheep property – how lucky are we."



"For Westfield's 2018 winter campaign, we are shooting a series of vibrant moments that showcase the different ways in which wool can be a part of our customers' lives. We will capture this through still photography and motion, which will be promoted across all of Westfield's channels – from our digital screen network in all 40 centres in Australia and New Zealand, to social media, westfield.com.au and email.

"We have a breadth of retailers who sell and promote Merino wool in fashion, activewear and homeware and it's something our customers look for, so this collaboration with The Woolmark Company is perfect for our customers as well."

Brands with wool products featuring in the Westfield winter campaign include:

- Sportscraft
- Country Road
- Kookai
- R.M. Williams
- Gorman
- Viktoria & Woods
- Paul Smith
- Stella McCartney
- Ted Baker
- Bianca Spender
- Max Mara
- UGG
- Uniqlo
- Humphrey Law
- Kathmandu
- Icebreaker

The Wards also featured in the **Westfield campaign.**

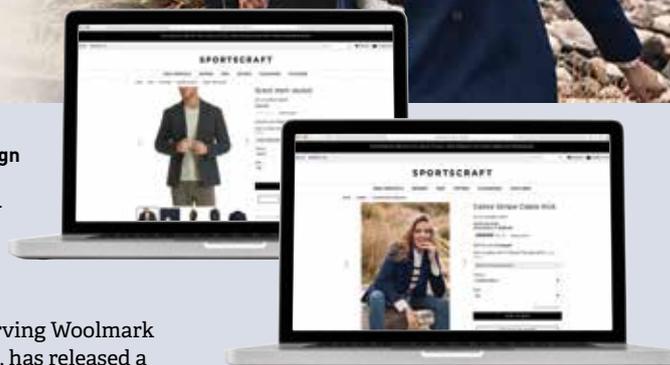


SPORTSCRAFT PROMOTES THE FIBRE OF OUR LAND

Australian fashion brand **Sportscraft** produced a stunning winter campaign with **more than 150,000 items of wool clothing hitting Sportscraft's 246 stores** and concessions and online.



A campaign shot from **Sportscraft's winter campaign** featuring wool apparel available in-store and online.



Australia's longest-serving Woolmark licensee, Sportscraft, has released a stunning winter collection highlighting the quality of Australian wool as well as Sportscraft's 54-year relationship with the Woolmark brand.

The winter campaign plays to the raw, textural qualities of wool and its connection to the Australian landscape, exploring the idea that wool is woven into the fabric of the land.

Sportscraft General Manager of Product, Elisha Hopkinson, said: "As a brand that's always focused on providing quality for our customers, and having a longstanding and proud relationship to our Australian heritage and Woolmark, it's the obvious choice of yarn for Sportscraft."

The campaign includes a video beautifully illustrating the journey of wool – from humble beginnings to premium apparel. Sportscraft distributed this via an electronic newsletter to its database of 851,000 customers across Australia and it also featured on the home page of Sportscraft's website www.sportscraft.com.au.

A mixture of menswear and womenswear pieces make up this year's winter collection,

Left: The 100% wool Grant Item Jacket is one of many Woolmark-certified men's products available for purchase on the Sportscraft website.

Right: The wool blend Calise Stripe Cable Knit is one of many Woolmark-certified women's products available for purchase on the Sportscraft website.

with more than 150,000 items of wool and wool-rich clothing hitting Sportscraft's 246 stores and concessions.

Items include a selection of womenswear jumpers including V-neck, turtleneck and cable knit styles, long-sleeve tops, three coats and a waterfall cardigan. Menswear includes a variety of jumpers, long-sleeve tops, vests, a cardigan and a knitted zip-up hoodie.

As well as being available to purchase online, wool products also took over the main window of every Sportscraft store, with installations featuring large balls of wool, oversized knitting needles and hero images from the winter campaign. **B**

More information
www.sportscraft.com.au

COUNTRY ROAD'S 'AUSTRALIAN TRACEABLE MERINO' COLLECTION

The launch of the winter campaign for Australian fashion brand Country Road sees a strong focus on the provenance of Australian wool.

Merino wool from **Rodger Kelly's 'Corringle'** property in the Southern Tablelands of NSW is proudly used in Country Road's new Australian Traceable Merino Collection.

Country Road has launched an Australian Traceable Merino Collection, which includes 29,000 traceable wool items across its men and women's ranges. The wool used in these ranges can be traced back to 25 Australian farms that practice sustainable farming.

"Traceability gives us more visibility on where and how raw materials are farmed," Country Road states in its marketing to consumers. "When we can trace the fibres used in creating woollen garments, we can ensure that the wool has been sourced responsibly. Country Road is working to increase the amount of traceable wool across the business."

The initiative is a result of increasing consumer demand to know more about the origin of the fibre in apparel products. To bridge this gap between the producer and the consumer, and to showcase the unique provenance and natural benefits of Australian Merino wool, Country Road visited Rodger Kelly and his wife Elizabeth, woolgrowers who have contributed to the wool used in the collection.

Rodger and Elizabeth Kelly have been woolgrowers for the majority of their lives and their property 'Corringle', located at Rugby in the Southern Tablelands region of NSW, has been in the Kelly family for more than 100

years. As Rodger proudly says, "we care about our animals, in fact everything we do is for their benefit." This commitment to animal welfare is one of the aspects of wool-growing that's important to Country Road's customers.

"Australian Merino wool is considered a luxurious yarn across the globe. An ideal fabric year-round, the soft-to-touch fibres have a natural ability to keep you warm, regulate body temperature through its breathability and soak up moisture to keep you dry," Country Road states in its recent marketing.

This campaign is part of a long-term partnership between Country Road and Australian woolgrowers, which has contributed to the increase of Australian Merino wool sold in Australian stores for local consumption.

"Our partnership with The Woolmark Company began in the 1980s and is still going strong," said Country Road's Managing Director, Darren Todd. "Every year we collaborate to create beautifully crafted knitwear with Woolmark-certified Australian Merino wool."

In addition to the Australian Traceable Merino Collection, Country Road is retailing in store and online more than 180 woollen designs, ranging from apparel, accessories and home styles.



29,000 woollen items from Country Road this season can be traced back to 25 Australian farms.

"Country Road is one of our most valued partners," AWI CEO Stuart McCullough said. "AWI works closely with the Country Road team and their continued commitment to the wool industry always helps see a large volume of Australian wool consumed locally."

Country Road has 69 retail stores and 43 concessions in David Jones stores across Australia. The wool styles from the 2018 winter campaign will be stocked in all stores. **B**

More information
www.countryroad.com.au



Country Road is promoting the traceability of the wool in all its retail stores across Australia, as well as online. Pictured is a Country Road window at Pitt Street Mall in Sydney.

AUSTRALIAN VISIT INSPIRES WINNING DESIGNERS



Woolgrower Sam Picker explaining the production of superfine Australian Merino wool with 2016/17 International Woolmark Prize winners Ben Cottrell and Matt Dainty of COTTWEILER.

From arguably the largest granite rock in the Southern Hemisphere, the Picker family showed Ben and Matt the view of the Bigga region.

A study trip to Australia for designers Ben Cottrell and Matt Dainty of COTTWEILER saw the **International Woolmark Prize 2016/17 winners visit a wool-growing property to find out more about the source of Australian Merino wool.**

A world away from their homes in London, Ben and Matt recently came Down Under – via a visit to AWI's Wool Resource Centre in Hong Kong – to see an Australian wool-growing property and get an in-depth understanding of Merino wool production.

The design duo were hosted by the Picker family from Bigga in the Southern Tablelands of NSW – and cousins Sam, Ben and Cameron Picker gladly showed the designers around their family property 'Hillcreston' and the process of growing superfine Merino wool.

They were shown the natural beauty of the property and the vastness of the surrounding landscape – quite different to what the designers are used to in London. Back at the shearing shed, Sam described for the designers what attributes the Pickers are looking for when selecting Merino sheep and explained how woolgrowers assess the quality of Merino wool.

Matt and Ben said the trip was incredibly informative in providing them with an understanding of where and how Merino wool fibre is grown and its suitability for premium apparel.

"This trip, from London to Hong Kong to Australia, was about educating ourselves about wool from the raw product right through to the fabric; it was about finding the source; and it's been really inspiring to see the whole process," Matt said.

But the farm visit also had a very practical side to it for the designers. COTTWEILER will next month launch in London a new Merino base-layer collection, and the designers wanted to capture video footage of the Australian landscape and the Pickers working in their daily lives, to accompany the launch of the collection – showcasing, literally, the inspiring link of Merino wool fibre from farm to fashion.

"Traditionally the brand has used a lot of technical synthetic fibres but since we won the International Woolmark Prize we have explored and educated ourselves more on wool and introduced technical wool fabrics into our collections."

Matt Dainty, Cottweiler designer

"Although we are very excited about the popularity our brand has garnered around the world, we want to focus on the longevity of COTTWEILER and so for us, the inspiration for the collections and the production of the design is paramount," Matt said.

COTTWEILER'S INTERNATIONAL WOOLMARK PRIZE WIN

COTTWEILER is well known for its clash of sportswear and streetwear with the use of highly technical material. For its winning 2016/17 International Woolmark Prize menswear collection, the design duo incorporated Merino

wool into its clothing for the first time.

The collection comprised sheer Merino wool base-layers, windproof mid-layers and quilted waterproof outerwear, with wool-blend fabrics ranging from 18.5 microns through to 19.5 microns, and recycled wool scraps used for insulation.

The International Woolmark Prize is designed to generate long-term incremental demand for Australian Merino wool by increasing the knowledge of and lifetime loyalty to the fibre amongst the competition's designers and alumni around the globe. This seems to certainly be the case with COTTWEILER.

"Winning the International Woolmark Prize has made us expand our collections to incorporate a lot more wool. Traditionally the brand has used a lot of technical synthetic fibres but since we won the Prize we have explored and educated ourselves more on wool and introduced technical wool fabrics into our collections," Matt said.

Their 2016/17 International Woolmark Prize collection was stocked in retail stores across the world, including David Jones in Sydney and Harvey Nichols in London. Since winning the Prize, the brand has gone from strength to strength; over the past year COTTWEILER's collections have been bought by more than sixty retailers across Asia and the Northern Hemisphere.

AUSTRALIAN WOOL IN CHINA – 50 YEARS

Times have changed in China, and quickly. Even as recently as the 1980s, when Australian wool trade delegations visited China they would arrive – via Chinese state airline – at Shanghai Hongqiao airport situated in the middle of the countryside and surrounded by paddy fields. Today, the airport is in the same place but is surrounded by modern skyscrapers and high-speed bullet trains.

AWI MARKS HISTORY OF AUSTRALIAN WOOL IN CHINA

In a series of initiatives this year, AWI is marking more than half a century of a cross-cultural partnership between Australia and China – spanning the wool trade through to design creativity.

By not only looking back at China's astonishing growth, but more importantly looking to the future, AWI aims to secure Merino wool's position as the fibre of choice for China's burgeoning middle class and thereby increase awareness and demand for the fibre.

A delegation of Chinese media visited Australia at the end of May, to not only experience the origin of this fine fibre but also celebrate the special bond between the two countries.

Utilising its strong position in the market, AWI's subsidiary The Woolmark Company will also present a selection of China's established designers who have achieved success and recognition, locally and internationally, at a special event in China. It will showcase Australian Merino wool as a modern and innovative fibre used by the most important designers of the new world.

The AWI initiatives will be reported in *Beyond the Bale* later this year.

The China we know today is not the China of 50 years ago, or 25 years ago, or even just 10 years ago. With 1.4 billion people driving a new consumer culture and an economy growing at more than 7% per year, today it seems that the only constant in China is change.

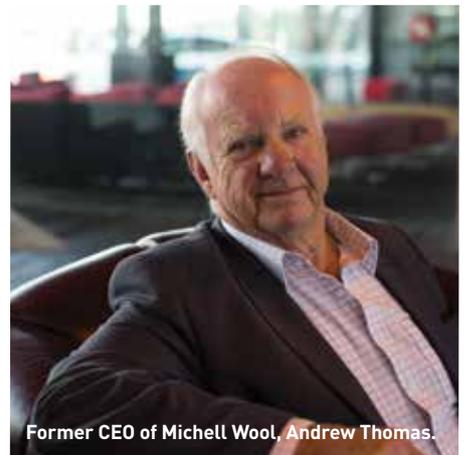
But one thing that has endured is the country's vast appetite and passion for Australian Merino wool and its deeply committed relationship with Australian woolgrowers.

The first exports of wool to China started more than half a century ago, with some records dating back to the 1920s. Today China is Australia's largest customer, buying about 75% of its total wool exports. The exports have risen markedly since 1980, from 21 million kilograms (mkg) greasy to 271 mkg greasy in 2017 (worth \$2,759 million).

As the Chinese economy rapidly expands and consumer tastes mature faster than anyone had imagined, China's relationship with Australian Merino wool has now grown to encompass luxury and mainstream retail, high-tech processing facilities and, above all else, a higher demand for the fibre – which is good news for Australian woolgrowers.

THE RELATIONSHIP WASN'T ALWAYS SO EASY...

Visits to China 50 years ago (in the midst of the Cultural Revolution) were not permitted and wool trade negotiations instead took



Former CEO of Michell Wool, Andrew Thomas.

place at the twice-yearly Canton Trade Fair – not that it was any easier to get there, despite being just 100km over the border from Hong Kong.

"To today's visitor to Canton (Guangzhou) the entry problems of the 1960s would sound impossible," said Ian McIvor AM, who visited Canton twice-yearly as a wool buyer in the southern markets. Firstly, visitors such as Mr McIvor had to apply for an invitation to attend from a contact organisation in China, after which they proceeded to Hong Kong, where they applied for a visa at the China Tourist Centre. They then had to wait two to three days until the visa was issued, before taking the train to Lo Wu and entering China. "At this stage, your passport and luggage were taken from you, a hotel room was allocated and you were issued with a ticket on the next train to Canton," he said.

On arrival in Canton a bus dropped people at an allocated hotel, where their luggage had been delivered to their room. But even once they arrived, travel in Canton was difficult due to the presence and influence of the Red Guards, who restricted movements and accompanied bus journeys to and from the fair.

However, everything improved significantly after Australia's recognition of China in 1972 and a period of economic liberalisation under People's Republic of China leader Deng Xiaoping, who also modernised the industries of agriculture, science and technology.



Wool buyer Ian McIvor on one of his early visits to China.

DRAMATIC GROWTH IN CHINA AND ITS WOOL PROCESSING

From the early 1980s, there was an increased growth in exports of Australian wool to China and trade visits to China became more regular.

"The China of today compared with the China we saw on some of those early visits is like comparing chalk and cheese," said Andrew Thomas, the former CEO and board member of Michell Wool in Adelaide and former president of Australian Wool Processors Council.

"It was just a completely different country in those days. I recall that the first time I went there everybody was riding pushbikes everywhere, as there was essentially no form of motorised transport. You went back two years later and everyone is on motorbikes. And then I was there in the year they purchased 400 taxi-cabs from Japan, training people to drive them. And today you go there and it's the one of the biggest markets for luxury cars in the world – and that's really impressed me: how fast, and how dramatically, it changes.

"The Chinese wool processing industry has been very well planned and absolutely correct in everything they've done, and it's evident in their market strength today.

"One of the great qualities of the Chinese that I really admire is their desire to build relationships, something that they've invested in for a long time and put a lot of work into. They have always wanted to be friends as well as colleagues."

Earlier in his career, AWI General Manager for the Eastern Hemisphere, John Roberts, spent three years based in Shanghai.

"I was always so impressed at how quickly the Chinese wool industry was able to learn, improvise, adapt and ultimately satisfy the highly quality-conscious consumers from around the world," he said.

"They transitioned from buying and processing broad micron wools for domestic consumption to sourcing some of the highest quality ultrafine Merino wool on the planet which needed to be caressed through the supply chain, and then produced into the highest quality garments in the world.

"Wool processing techniques were coming under increasing commercial pressure globally against a backdrop of highly industrial and low-cost mass production of synthetics that was on a rapid ascendancy from the early 1990s onwards. China was able to breathe life back into the art of wool processing. Their immense and dedicated workforce and a passion to learn allowed the Chinese to reinvigorate wool processing and soon they were converting raw wool into semi-finished and finished products at the most competitive cost ever seen in the industry."

LOOKING TO THE FUTURE

Once a manufacturing hub, China in recent years has also fast become a large consumer of luxury apparel. The finished high-end garments that were previously made for export have begun to find a domestic market thanks to the rise of middle income earners and the birth of a new Chinese fashion consumer.

With increased affluence and a tendency towards leading healthier lifestyles, discerning Chinese consumers are now favouring natural, long-lasting garments, more so than following the latest trends perpetuated by fast fashion. As a premium and luxurious natural fibre, Merino wool is therefore one of the most coveted fibres in high fashion in China.

Until recently, China's fashion consumption market was dominated by the big luxury brands and their logos, but as a more sophisticated and nuanced Chinese consumer has emerged so too have home-grown Chinese designer brands, many of which AWI has been working with.

As China stakes its claim as one of the world's most dynamic fashion capitals, it has also become the global centre for wool research and development.

The Wool Development Centre and International Wool Education Centre were established in China in 2013 and 2014 by AWI and leading woollen textile enterprise The Nanshan Group, to develop innovative, high-value woven fabrics produced from



AWI General Manager for the Eastern Hemisphere, John Roberts.

Australian Merino wool and educate university students on wool manufacturing. Knitwear manufacturing giant Xinao opened an innovative Knitwear Development Centre in collaboration with AWI in 2016.

As China's population has swelled, the cultural and commercial ties between China and Australia have strengthened – and the unique bond between the Australian wool industry and a future-facing China has spawned countless individual stories of business and friendship.

The next chapter in the relationship is now being written by a new generation who are eager to build on the ties between the two countries first forged half a century ago. **B**

See overleaf to read about the experiences of two young Australian woolgrowers who visited China earlier this year as part of a self-funded study tour of the country's manufacturing sector, organised by AWI.

TIANYU WOOL INDUSTRY

Founded nearly 20 years ago, Tianyu Wool Industry Co Ltd is the world's largest importer of Australian wool. The company has five wool scouring lines and 12 sliver production lines, two of which are specially designed for domestic and foreign customers to produce ultra-fine Merino wools.

"I have devoted my life to doing just one thing, and that is making wool!" said Chairman of Tianyu Wool Industry, Wen Qingnan.

"From 1979, I worked with my older brother in a small wool and apparel production factory. In 1995, I opened a wool trading company. The company grew very quickly due to the demand for wool. Then, in 1999, we set up a wool factory at the Zhangjiagang Free Trade Zone. From wool clothes, fabrics, yarns to tops, I have come into contact with every aspect of the woollen textile industry chain.

"More than 80% of our tops are from Merino wool purchased in Australia. In 2017, the purchase volume reached 30,000 tons of Australian wool.



Wen Qingnan, Chairman of Tianyu Wool Industry.

"Technology updates have not changed the [top making] process that much, however quality and service are at the core of our business. The advanced equipment from eight factories acquired in Europe have raised the company's capacity by two-thirds, which has now reached 20,000 tons per year."

CHINA'S WOOL INDUSTRY IMPRESSES YOUNG WOOLGROWERS

Young woolgrowers from across Australia saw wool's manufacturing process first-hand during a recent self-funded study trip organised by AWI to China and Hong Kong.



The young woolgrowers seeing the processing and dyeing of wool top at leading Chinese textile enterprise **Nanshan**.



The young Australian woolgrowers were warmly welcomed in China, such as at early stage processor **Red Sun**.



Floyd Legge from **Cudal** in the Central West of NSW, with **Kevin** who was the tour mascot, and a bale of wool from his family's farm which he happened upon by chance at a mill in China during the recent study tour.

More information
Hear more from the young woolgrowers on the tour in Episode 39 of AWI's The Yarn podcast at www.wool.com/podcast

Young woolgrowers from across Australia have returned from a tour of China with a new, global perspective of their industry.

The self-funded trip, organised by AWI, involved 12 young woolgrowers visiting a number of China's biggest manufacturers and AWI offices in the region to gain a greater understanding of the journey Australian wool takes once exported.

Close to 80 per cent of Australia's raw wool production is exported to China for early-stage processing, equating to 271 million kilograms of the fibre. Once predominately a manufacturing hub, China in recent years has also fast become a large consumer of luxury apparel.

The first manufacturer the group visited was an early stage processing operation, **Red Sun**. Here raw wool is scoured and carded through an automated operation.

The group then visited the spinning processing plant **Xinao**, where the AWI/Woolmark-Xinao Development Centre is located, encouraging innovation in knitwear.

Next was a visit to circular knitting mill **Mengdi** and well-known fully vertically integrated fabric processing operation **Nanshan**.

The group also visited AWI's Shanghai office and Wool Resource Centre in Hong Kong.

Encouraging the next generation of wool industry workforce participants is critical to the prosperity of the Australian wool industry.

AWI aims to help improve the engagement of young people interested in the wool industry, thereby developing and retaining the skills the wool industry needs to be innovative in response to new challenges.

The young woolgrowers on the tour were:

QLD Felicity Brumpton,
Thomas Perkins,
Amy MacIntosh.

NSW Jackie Chapman,
William MacAlpine,
Edith Gregory,
Floyd Legge.

VIC Alexander Lewis,
Brent Flood.

TAS Nicholas Weeding.

WA Andrew Rintoul.



Q&A with woolgrowers Felicity and Nick



Felicity Brumpton is fourth generation on the family's property at Mt Ascot, which is also the name of the Brumptons' Merino stud. They currently have about 16,000 sheep averaging 19.5 micron.



Nicholas Weeding is seventh generation at his family's Tasmanian property 'Weedington', running 5,300 breeding ewes which produce an average of 18.5 micron wool.

increase brings higher demand for products containing wool, primarily in the form of suits, sports and activewear, and next-to-skin apparel.

What is your opinion of the work being done by AWI's marketing subsidiary The Woolmark Company in Hong Kong and China?

FB: The Woolmark Company has improved China's wool industry from very basic beginnings, to making it amongst the best in the world. AWI has done well at promoting wool as producers are even seeing the results with an increased demand for wool leading to higher wool prices. The Woolmark Company is working closely with the industry to change the image of traditional wool and help develop innovative products including fabrics that are water resistant, machine washable, wool denim and wool blends.

NW: Half of the wool bought by China is consumed in China at retail, so this is obviously very important to the wool industry. AWI along with Woolmark are doing a really good job of targeting this emerging middle class in China, informing them about the benefits of wool, and in turn working with processors and brands to make fashionable garments that champion the natural benefits of wool.

A classic example would be a conversation we had with a young Chinese woman in a restaurant about wool. She had no idea where wool came from but was aware of The Woolmark Company and the benefits of wearing wool and why you should buy it. So, the main part of the message to 'buy wool' is there.

Having been on this trip, do you as a young woolgrower, feel more confident about the future of the Australian wool industry?

FB: I definitely feel a lot more confident about the future of the Australian wool industry after visiting China and hearing their perceptions of the world's wool industry. About 75% of Australian wool is exported to China now for early-stage processing, and with an increasing demand for a natural fibre that is recyclable and biodegradable, the wool industry should have a good, stable future. Currently wool makes up only 1.2% of global fibre supply, with Australian wool sitting at 0.34%. I think that we, as young woolgrowers, have the perfect opportunity to aim to increase our supply of quality wool to this growing industry.

NW: Yes. There is increasing confidence from woolgrowers mainly due to price rises, and it was pleasing to see this confidence being reflected by those paying the higher prices at the other end of the supply chain.

Has this trip given you a greater understanding of what it takes to convert raw wool into a final product?

Felicity Brumpton (FB): As a producer, we shear the sheep and send the wool on a truck and that is about the last we see of it until we find it hanging on a rack in the shops. So this trip has definitely filled in the gap from auction floor to retail that many people don't get the opportunity to see. I knew of the different stages of the process, but to follow the raw product through to garment making definitely put the long but efficient process into perspective.

Nick Weeding (NW): Yes, I am probably pretty typical of a lot of wool producers, who didn't have a very good understanding of what happened to wool in the processing phase of the supply chain. Touring the wool mills in China gave me a great insight into processes involved from raw wool right through to the end wearable product, and importantly what factors of the raw wool and the industry in general matter most to the processors and consumers.

Were you impressed by what you saw by the Chinese wool industry?

FB: I was impressed to see the potential that exists for the Chinese wool industry, particularly through the amount of money that is invested in wool processing (eg machinery in the mills) over there. Many of the mills are planning to increase their production, which gives us confidence to produce and supply as much wool to them as we can. They are working hard to promote Merino wool and are benefiting from an increasing demand for wool products. I was also impressed by the amount of wool garments being produced – Nanshan makes about 80,000 suits for M.J. Bale each year and that is only a small order.

NW: Yes, the massive scale of the operations is hard to comprehend, but the impressive part is the level of investment by the processors in modern machines and technology. This all improves the viability

of the mills, and the quality and range of the end products available to the consumer, which essentially flows back to the potential demand and return to growers.

What are the Chinese mills' opinions of Australian wool at the moment?

FB: Australian wool is known to be top quality worldwide, therefore the Chinese want us to continue to produce a quality wool with lower fibre diameter. Many mills are interested in starting direct contracts for wool from Australian farms to satisfy the demand of the consumers who are wanting to know the story of where the wool came from. Several mills also want us to be more cautious with our wool preparation during shearing to lower the amount of contamination they are receiving when the bales arrive in China.

NW: We had lengthy meetings and dinners with those in charge of various wool mills, and it was great to see they had very positive attitudes and opinions towards the Australian wool industry, which is reflected in their continued large-scale investment. The main concerns for them were not the current relatively high prices, but the volatility within the market, and concerns about supply into the future.

What is driving demand at retail in China?

FB: Many of the Chinese want a natural and biodegradable product, which is increasing the demand for wool at retail in China. Sportswear is currently a major focus in China as people become educated on the properties and benefits that wool clothing has to offer. Consumers are also wanting a product they can wear next to skin and that's easy to care for. AWI is doing a great job at promoting wool and educating people in China through social media channels such as WeChat and Weibo.

NW: The middle class within China's population of 1.4 billion people is increasing at a substantial rate; luckily for us this

WOOL IN DESIGNER'S GOOD BOOKS

It's not often you see a fashion show held in a historic bookstore or iconic music hall, but that's exactly where the innovative young **KOCHÉ** brand launched its latest wool-rich collections in partnership with The Woolmark Company.

With its apparel sold in 15 countries across the world and in luxury stores such as Selfridges in London and Barneys New York, and having also been shortlisted for the LVMH Fashion Prize and the ANDAM Fashion Award, the Paris-based brand **KOCHÉ** has certainly made its mark on the fashion scene since it was launched in 2014.

The Woolmark Company has partnered with **KOCHÉ** for the past two seasons with the aim to extend the reach of wool to the Y-generation and Millennials who follow the flourishing brand. The initiative is also helping promote Merino wool as the luxurious and technical fabric of choice for a young and innovative generation of French designers.

Millennials do things differently, so it should come as no surprise that the settings for the



An innovative Merino wool look from **KOCHÉ's** Pre-Fall collection, unveiled at the historic **Strand bookstore in New York City**.

launch of the two collections were a bit out of the ordinary.

Presented in the historic Strand bookstore in New York, the Pre-Fall 2018 men's and women's ready-to-wear collection blended

sportswear mainstays with couture techniques that included 21 Merino wool pieces that were embroidered or printed, tying in exceptional craftsmanship.

"For the collection, I worked with Woolmark to source wool for a very casual street-inspired style and crafted pieces – such as a coat where the wool is completely reworked with appliqué of vinyl and re-embroidered with crystals (see image left)," said **KOCHÉ** designer and founder, Christelle Kocher. "There are also several hand-knitted wool pieces."

KOCHÉ's Fall 2018 wool-rich collection was launched against the unique backdrop of Casino de Paris – a historic music hall in Paris dating back to the 18th Century. The collection comprised a variety of offbeat looks such as a wool tailored coat with artisanal camouflage prints, jersey knit turtlenecks, mixed material dresses, and loosely fitted sweaters composed of a stunning blend of knit techniques.

"Wool is a fibre that I love enormously," Christelle said after the show. "For this collection, we used it in different aspects: stretch, jersey or knitted, printed, embroidered and draped. As a result, the wool silhouettes create poetic-like dresses." **B**

MORE INFORMATION
www.koche.fr

WOOL THE ULTIMATE FOR WINTER SPORTS

The models that showcased the latest wool-rich collection from **British fashion brand Band of Outsiders** were not the usual sort of models. For this launch event, they ranged from international ice hockey players to a German national figure skating champion.



The latest wool-rich collection from **Band of Outsiders** was launched in front of the media at a **central London ice rink**. PHOTO: Micaela McLucas

Readers might recall that fashion brand **Band of Outsiders** launched its Spring/Summer 2018 collection, rather hilariously, at a comedy show in central London. You might have thought that that launch was skating on thin ice. Well the launch of their follow-up Autumn/Winter collection was quite literally... skating on thin ice.

Unveiled at an outdoor London ice-rink, ice skating models unveiled the brand's latest wool-rich collection, which took inspiration from the idyllic winter sports holiday.

Partnering with The Woolmark Company, Daniel Hettmann and Angelo Van Mol of **Band of Outsiders** once again turned to

Merino wool as their fibre of choice. The Woolmark Company connected the brand to the world's leading fabric and yarn suppliers, via the wool sourcing guide The Wool Lab.

A variety of lush materials fit for winter were present in this collection, with a big focus on outerwear and high-quality wool knitwear. It featured a variety of wool and wool-rich items including coats, jumpers, scarves and caps. The colour palette was named after iconic ski-resorts across the world, such as Verbier Grey, Aspen White, Telluride Red and Zermatt Beige.

With *Vogue* stating that this was "Hettmann and Van Mol's best collection yet – full of idiosyncratic but wearable pieces", one could say the brand is snowballing into something big. **B**

MORE INFORMATION
www.bandofoutsiders.com/woolmark

MAGNIFIQUE MERINO

The fresh Autumn/Winter 2018/19 **Le Souk** collection of Jacquemus, showcased at the Petit Palais art museum in Paris.



Showcasing wool as a fibre for all seasons, AWI has partnered with one of the hottest French fashion labels, Jacquemus, for Spring/Summer 2018 and Autumn/Winter 2018/19.



Titled 'La Bomba', the Spring/Summer collection has the feel of the South of France – le Midi – which is where the designer was born and grew up. The pieces comprise a series of lightweight, breathable, sexy dresses, skirts, jackets, trousers and knits which perfectly highlight the superb drape of wool fabrics, positioning the fibre as the ultimate ingredient for luxury apparel.

To promote the launch of the collection, Jacquemus created a stunning short film, directed by British-Canadian fashion filmmaker Gordon von Steiner. Filmed in a *single* shot in Tenerife on the Canary Islands, the film stages a diverse range of personalities: models, dancers, an acrobat and even the 28-year-old designer's cousin Jean.

Like the collection, the film has that feeling of warm summer days that drift into late balmy evenings. It is well worth a look – check it out now at www.jacquemus.com.



Credited with bringing freshness to the French fashion scene and considered by many as its brightest new star, celebrated French fashion designer Simon Porte Jacquemus, of the label Jacquemus, has always been passionate about working with pure, natural materials.

Jacquemus' strong positioning as a young, fresh, edgy and contemporary French brand aligns with AWI's desire to position wool as an innovative and premium fashion fibre. AWI has therefore collaborated with the label – for its latest Spring/Summer and Autumn/Winter collections, reinforcing the trans-seasonal properties of lightweight Merino wool.

"Working with The Woolmark Company came naturally, considering how much I love wool and use it in all my collections, even in summer," said the designer.



Three radiant wool pieces from the Spring/Summer 2018 **La Bomba** collection of Jacquemus, showcased at the Musée Picasso in Paris.

As part of the two-season collaboration, Jacquemus' following Autumn/Winter 2018/19 collection, 'Le Souk', was also predominately wool. The brand worked closely with The Woolmark Company to source the most innovative wool fabrics that would most closely fit with the collection's themes: sun and warmth in winter.

The collection reflects the sensation of light and physical comfort in winter that the designer experiences in the course of his regular travels in Morocco.

Both La Bomba and Le Souk were presented as part of Paris Fashion Week with the Spring/Summer collection now available to buy at leading global retailers along with www.jacquemus.com.

MORE INFORMATION
www.jacquemus.com

MERINO SHOWS ITS FLEXIBLE NATURE

Three emerging brands from Asia have launched their Merino wool capsule collections in a unique fashion design and dance performance – titled ‘Merino Landscapes’ – showcasing the dynamic versatility of Merino wool.

To broaden the demand for Australian Merino wool, The Woolmark Company in Hong Kong showcased the fibre in an artistic and innovative way in March, with 300 fashion industry and media guests attending a dance presentation with the performers wearing Merino wool pieces.

Merino Landscapes brought together three emerging fashion designers from Asia who had been finalists in the International Woolmark Prize – FFIXXED STUDIOS, TOTON and Münn – and 16 Australian Merino wool outfits.

“Merino Landscapes was a novel and highly effective way to showcase wool in a contemporary way, changing people’s perceptions about the fibre and what it is capable of,” said AWI General Manager for the Eastern Hemisphere, John Roberts.

“Dance is one of the hottest mediums in the current market and combining this beautiful movement with specifically designed wool garments pulled together all the wonderful wool attributes of drape, flow, shape retention, comfort and of course unrivalled luxury.”

The designers of TOTON, from Indonesia, said the invite to present at Merino Landscapes gave them the opportunity to explore Merino wool in a new way.

“Presenting a collection through dance requires the clothes to be flexible and moveable, well-made but also light enough for the dancers to move freely in them,” they said. “It gave us the opportunity to explore wool yarn and fabric further, to manipulate the fabric treatments and cuts of the clothes to



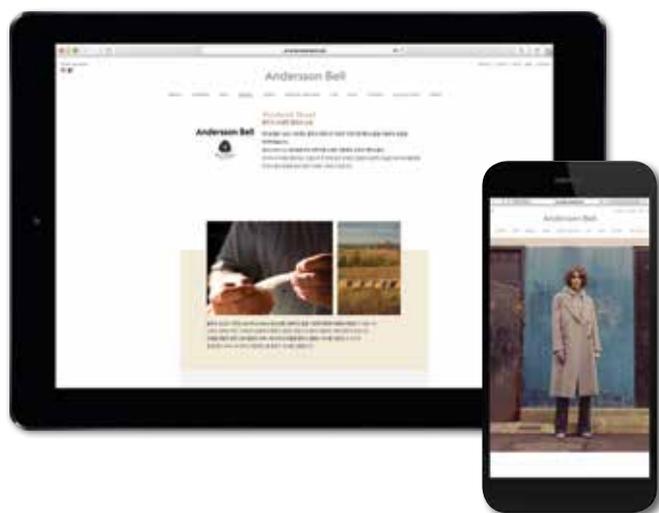
TOTON's Fall/Winter 2018 pieces in the performance by the Hong Kong City Contemporary Dance Company that highlighted the next-to-skin comfort and superior handle and drape of Australian Merino wool.

accommodate the dynamic movement.

“The energy of the show was fantastic; it was a different vibe than a regular runway show. We got great exposure from the press in the region, and the chance to introduce our brand to different parts of the world.” **B**

ONLINE RETAIL PARTNERSHIP SUCCESS IN KOREA

AWI partnered with **leading contemporary Korean brand Andersson Bell** to help sell its **Autumn/Winter Merino wool collection** through its mobile/online platforms to a young customer segment.



Left: The Andersson Bell website contained information about the provenance of Australian Merino wool.

Right: The Large Collar Check Worsted Maxi Coat, retailing for \$460 on the Andersson Bell website, was of many wool items in the collection that was sold out.

There is a growing trend worldwide for consumers to purchase their apparel via online stores, as opposed to in the traditional bricks and mortar shops. In Korea, purchasing online has grown sharply by 30% each year for the past three years.

To help educate young audiences in Korea about Merino wool’s benefits and increase demand for the fibre, AWI recently partnered with a leading Korean contemporary online brand, Andersson Bell. Launched in 2014, the company has already attained a large market

presence in Korea. As well as 19 retail outlets in Korea and 25 overseas (including Harrods in London), the company has extensive online retail platforms.

For the company’s Autumn/Winter collection, AWI helped the company sell 16 Merino styles (coats, jackets, knitwear) for men and women, comprising 16,000 items, through the Andersson Bell website and two major online fashion malls.

A special ‘Wool collection’ section was created on the Andersson Bell website that not only provided customers with an easy pathway to purchase, but also contained information about the provenance of the fibre, and how Woolmark certification provides customers with an assurance of quality.

Two short promotional films, one for autumn distribution and one for winter, were also created about the collection and were broadcast via online and social media, including *Vogue*, *GQ* and *W* magazine channels. **B**

MORE INFORMATION
www.anderssonbell.co.kr

WOOLMARK WINS TOP MARKETING AWARD IN INDIA

A major retail marketing award has been awarded to The Woolmark Company in India for its 'Grown in Australia, Made in India' campaign that highlights the farm-to-fashion journey of Merino wool – from the production of the fibre in Australia to its manufacture into unique fashion pieces in India.

AWI's marketing arm The Woolmark Company has won this year's 'Retail Marketing Campaign of the Year' category at the Global Awards for Retail Excellence. The campaign was presented at the Asia Retail Congress in Mumbai in February by ET Now, part of India's leading business media group.

In an impressive double win for The Woolmark Company, Country Manager for India Arti Gudal took out the 'Young Retail Leadership Award'.

"The Woolmark Company's winning marketing campaign, 'Grown in Australia, Made in India', positions Australian Merino wool as the ultimate ingredient in luxury fashion," Arti said. "It champions both the woolgrowers of Australia and also honours India's traditional, artisanal craftsmanship – all with the aim of increasing consumption of Australian Merino wool products made in India.

"The campaign also aims to further connect brands, manufacturers and the Government of India across the wool supply chain. There were 20 brands and fashion designers involved in the campaign selling approximately 3 million pieces of apparel containing wool."

FROM MUDGEES TO MUMBAI

And it all began on Tim and Judy Rohr's 'Eastwood' wool-growing property at Mudgee.

At the farm and amongst the sheep, renowned Indian actor and wool ambassador Shравan Reddy was filmed for the campaign showcasing a range of commercially available Merino wool styles, from the classic to the contemporary. He was accompanied in the filming and photoshoot by the winner of Australia's Next Top Model, Aleyana FitzGerald.

As well as featuring the stylish Merino wool apparel, the campaign film captured the stunning views and landscape of the sheep farm, highlighting the farm to fashion journey.

The expanding relationship between brands in India and Australian woolgrowers is a key highlight of the campaign, with many Indian brands and fashion labels contributing fashion pieces for the campaign shoot and video.

Print advertisements for the campaign were rolled out from September to December last year in leading magazines, such as *Vogue India* and *GQ India*. Billboards were run for 10

days in December in 15 major cities of India, with an estimated 5½ million people seeing them each day. The campaign video was shown in 55 cinemas, with 368,000 watching it during 15 days of screening; and the video also aired on TV for 12 days in November during some of the most popular shows in India.

"We were very proud that our property was used as a backdrop to the filming and photoshoot. It was interesting to see the whole process and how professional the team was. Shравan showed a genuine curiosity and appreciation for the sheep, the landscape and the wool-growing process."

**Woolgrower Tim Rohr,
'Eastwood', Mudgee NSW**

The face of the campaign, Shравan Reddy, was announced as The Woolmark Company's ambassador for Australian wool in India at India Fashion Forum in April 2017. Since then, his strong fan base and digital following in conjunction with his youth appeal had led to a growing awareness of the benefits of Merino wool in India – and him becoming almost synonymous with Merino wool in the country.

Other high points of the 'Grown in Australia, Made in India' campaign included:

- A collaboration with handloom weaver society Bhuttico – based at Kullu in the foothills of the Himalayas in northern India – to showcase Merino wool looks that not only promoted the wool industry in India but also created awareness of the versatility and trans-seasonal benefits of Merino wool.
- A promotional campaign 'WoolFest 2017' in collaboration with India's largest lifestyle retail chain Shoppers Stop Limited that ran across 30 of its selected stores. A lucky draw contest was held for shoppers that bought wool apparel worth Rs5000, giving them a chance to win a trip for two to Kullu.
- The launch of a 'Khadi in Wool' initiative with large fashion manufacturer and retailer Raymond. Khadi is a popular type of cloth in India usually made from cotton. A new collection of designs has been produced using pure Merino wool and blended wool which are available from Raymond stores across India.



BENEFITS TO SKIN HEALTH BY WEARING MERINO WOOL

Wearing Merino wool base-layers is beneficial to skin health compared to wearing polyester, according to a new AWI-funded study. The aim of the research is to ultimately open doors to new high value markets for wool.

PHOTO: PhotoAlto/Frederic Cirou

Did you know skin is the human body's largest single organ, covering an area of up to 2m²?

It acts as a physical barrier against the external environment, minimises water loss, regulates our body temperature, has antibacterial capacity, contributes to innate immunity and is key for sensory perception. Talk about multi-tasking!

With such a wide range of functions, the health of our skin is essential. And since our skin is generally in direct contact with fabrics, skin health is influenced by the fibre type of the fabric as well as the fabric's structure.

NEW STUDY BACKS WOOL OVER POLYESTER

In a new study funded by AWI, researchers are shedding new light on this connection between what people wear and the health of their skin. Scientists from AgResearch tested human skin reactions to different fabrics – and initial findings show benefits for skin health from wearing the natural fibres Merino wool or cotton compared to the synthetic fibre polyester.

"We set out with our 32 volunteers – 16 men and 16 women ranging in age from 25 to 63 – to look at how their healthy skin reacted to different close-fitting fabrics," said AgResearch scientist Dr Alex Hodgson.

"Part of the experiment involved the

volunteers wearing Merino wool base-layer shirts, with a patch of polyester on one side of their upper back area, for a minimum of six hours during the day.

"We discovered that polyester tended to reduce the hydration of the wearers' skin and also – especially for men – resulted in increased redness or inflammation of the skin. By comparison, the skin covered with wool did not show any negative effects during the study. From this we can see that wool promoted the maintenance of healthy skin whilst polyester had a drying effect with some inflammation."

Merino wool and cotton performed similarly in this pilot trial. The findings support the premise that wearing natural fibres such as Merino wool next to the skin leads to improved skin health, and have encouraged the researchers to proceed with a second phase of the study. This involves a 'long-term' wear study in which the volunteers wear the trial garments continuously for five days and nights. Extending the time that garments are worn may differentiate the skin hydration effects of Merino wool and cotton.

R&D BOLSTERS MARKETING

"Ultimately this work is about providing guidance or reassurance for consumers. Our aim is that people will be able to make informed choices about what they wear, and what that might mean for the health of their skin," Dr Hodgson said.

This will be music to the ears of Australian woolgrowers. It certainly is for AWI's Program Manager, Fibre Advocacy & Eco Credentials, Angus Ireland, who says the new research results lend significant weight to AWI's 'Fibre Advocacy' investment program which aims to validate and communicate the health and wellbeing benefits of wool products.

"There is huge potential for Merino wool because of the strong trend in consumer markets towards healthy and environmentally friendly products," he said.

"The work undertaken by AgResearch follows on from previous studies funded by AWI at the Queensland Institute of Dermatology and the Murdoch Children's Research Institute that showed significant reductions in sufferers' eczema symptoms by wearing superfine Merino wool garments against the skin.

New analysis has also found no evidence that wool is an allergen, thanks to separate AWI-funded work.

"All these new research results will help enormously with our marketing, especially in sectors such as babywear, sleepwear and underwear, as well as base-layer activewear," Angus added. "These are relatively new markets for wool, containing products that are used every day and can command a high retail price per kilogram of fibre used – which is good news for Australian woolgrowers."

SCIENCE AGAIN BACKS SLEEPING IN WOOL

COMPREHENSIVE BODY OF RESEARCH

With older adults willing to spend above average on products that will maintain their health, the big characteristic of these products that these people want is quality – ‘less but better’ – which is perfect for wool.

Furthermore, higher average summer temperatures and the frequency and intensity of hot days are now observed in Australia and globally. The use of air-conditioning to control temperature has financial and environmental costs and is also associated with negative effects on human health.

“It is therefore of interest to investigate alternative healthy, environmentally-friendly and cost-effective strategies for older adults to cope with sleeping under warm ambient conditions,” says AWI Program Manager, Fibre Advocacy & Eco Credentials, Angus Ireland.

“A previous AWI-funded study undertaken by the University of Sydney investigated the influence of sleepwear on the sleep quality of healthy young participants – it found that wearing Merino wool sleepwear significantly reduced the time for the participants to fall asleep, thereby tending to increase total sleep time.

“And this new study, focused on older adults, has also shown that wool sleepwear promoted higher quality of sleep than either cotton or polyester sleepwear.

“The great value of these research investments on behalf of Australian woolgrowers is that we are now building a very solid and contemporary body of scientific evidence which supports claims that wool is beneficial to a good night’s sleep, which should help build consumer demand for wool.”

While this study has shown wool sleepwear promotes better sleep at the higher ambient temperature, particularly in older adults and poor sleepers, future studies may also identify benefits of sleeping in wool for people such as menopausal women who often experience hot flushes and disturbed sleep, and shift workers who have disrupted circadian timing. **E**

A new AWI-funded study has investigated the effect that wool, cotton and polyester sleepwear each have on the sleep quality of older adults (aged 50-70) under warm conditions. Consistent with previous research in relation to younger adults, the new research found that a better night’s sleep is achieved when sleeping in wool.

Shifts in global demographics are working in favour of the wool industry. One aspect of this is the growth of the ‘working age empty nester’ segment – those older adults who are maintaining income (by working later in life) but have fewer dependents (their kids have left home) and hence have higher than average disposable income.

As their bodies get older, people in this segment have changed their consumption patterns towards things like fitness and health care. As we all know, there are plenty of negatives associated with an aging body (many of them involving gravity!) but one aspect of note for this article is that quality of sleep tends to decrease with age.

The sleep of older adults compared to younger adults is more fragmented and lighter with reduced duration of deep sleep. Furthermore, warm environments easily disrupt sleep and this is especially the case in older adults, who have been shown to have poorer thermoregulation than younger adults.

Sleepwear plays several crucial roles in thermoregulation. Fabrics made from natural fibres allow higher rates of heat and moisture transfer than synthetic fibres thereby promoting thermal comfort. A dry wool fibre, for example, absorbs moisture vapour up to about 35% of its dry weight in saturated air, whereas cotton can absorb around 24% and polyester fibres below 1%.

The effects of sleepwear fibre type on the sleep of older adults have never previously

been studied. AWI therefore recently funded a study by the University of Sydney to compare the effect on sleep quality of wool, cotton and polyester sleepwear, in warm conditions (30°C and 50% humidity) for participants aged 50-70 years old.

Thirty-six healthy participants (18 males and 18 females) participated in the trial with polysomnography, skin temperature, microclimate temperature and relative humidity measured. They completed four nights of study. Sleepwear fabrics of either single jersey Merino wool, cotton or polyester were used. The sleepwear was long sleeve tops and long pants – participants slept without a blanket or a sheet.

THE RESEARCH RESULTS

Sleep benefits for wool compared to cotton and polyester sleepwear were observed during the study. The key findings were:

- Sleeping in wool resulted in less fragmented sleep compared to sleeping in other fabrics, especially between wool and polyester sleepwear.
- Sleeping in wool reduced the time taken to get to sleep compared with sleeping in cotton and polyester for older participants aged ≥65 years.
- Sleeping in wool resulted in less total wake time for poor sleepers after sleep onset, compared to sleeping in cotton.

Overall, wool performed better than cotton and polyester for the majority of sleep quality parameters.





A mood board from the entry of Wool4School winner **Daisy Lines** who created a design for American singer **Melanie Martinez**.

Australia's number one student design competition, Wool4School has successfully completed its inaugural year in England, with students learning about the inherent benefits and versatility of Australian Merino wool.

WOOL4SCHOOL A HIT IN ENGLAND

Lunched in Australia in 2012, AWI's Wool4School student design competition has gone on to involve more than 75,000 students across Australia, Hong Kong and now England.

Wool4School England invited students to design an outfit for their favourite musician to wear on stage. The outfit had to be designed with Merino wool as the main fabric. With more than 4,500 registrations, the first Wool4School England competition was clearly a hit, with winning students designing for musicians Melanie Martinez, Kim Taeyung and Florence Welch.

Winner Daisy Lines from Kesteven and Sleaford High School in Lincolnshire has won a one-week course at the London College of Fashion for her design for Melanie Martinez, which comprised a floral bra, high-waisted shorts, a halter neck net dress and a holographic skirt with a corset-style belt – all made using Merino wool.

In addition, she will also attend an in-depth wool workshop and her design will be brought to life by Australian fashion designer Jonathan Ward, who has made each winning design for Australia and Hong Kong since the competition's launch.

"I realised that there were so many opportunities for using wool beyond the traditional image of knitwear," said Daisy.

"I learnt much more about the properties and benefits of using wool – many of which I hadn't been aware of before entering this competition. I'm thrilled about all the prizes but particularly the opportunity to spend a week at The London College of Fashion. I'm also really looking forward to the Wool Workshop and being able to share this experience with all my class." **B**

More information
View the winning entries at www.wool4school.com

WOVEN WOOL A WINNER AT BRADFORD AWARDS

AWI promotes Merino wool to tertiary textile students in the UK, through for example sponsorship of the prestigious Bradford Textile Society Awards.

Textile student Youngye Cho of the Royal College of Art (RCA) has won this year's The Woolmark Company Award as part of the renowned Bradford Textile Society Awards.

Entrants must create an innovative wool-rich fabric which can be used for fashion/accessories or for interior furnishings. The fabric must contain a minimum of 60% Merino wool and highlight the versatility and natural benefits of the luxury fibre.

Originally from South Korea, Youngye created a woven fabric with a particular pattern of different small squares and colour gradients that give the fabric a suggestion of fluidity. The innovative effect of fluidity is heightened when the fabric is worn in a garment and actually does move.

"Youngye demonstrated a professional and mature eye for pattern and colour creating a very commercial design that enhanced Merino wool's natural hand feel and lustrous drape," said The Woolmark Company's Product and Education Extension Manager for the UK, Louise Campbell.

The Woolmark Company sponsors the award to promote Merino wool amongst the next generation of designers. The awards offer an excellent opportunity for future textile designers to have their work recognised by the most important people within the industry.

"I am really delighted to be awarded the prize from The Woolmark Company as it will provide opportunities for me to further investigate wool materials," Youngye said.



Youngye Cho and her award-winning entry showing the pattern that provides an illusion of movement.

"Currently, I am preparing a wearable woven fabric collection for the final show at the RCA and this competition has helped my research into various textures, weights and drape. I was especially pleased weaving with the outstanding Merino wools which are well-suited for creating the textiles for my collection."

As part of the prize, Youngye has the opportunity to complete one week's work experience with the menswear winner of the 2017/18 International Woolmark Prize, Matthew Miller. **B**

JAPANESE STUDENTS LEARN ABOUT WOOL

In collaboration with AWI, Japanese student designers from a leading fashion university in Japan created graduate collections using Merino wool, with one lucky student given the opportunity to visit a wool-growing property in Australia.

AWI has once again partnered with the prestigious Bunka Fashion Graduate University (BFGU) in Japan to foster the wool education of emerging fashion designers in this important market for Australian wool.

Students at BFGU were treated to a Wool Appreciation Course by AWI and collateral highlighting AWI activities and the versatility of wool was promoted around campus throughout the year. During the BFGU Fashion Week earlier this year, AWI also sponsored the Next Generation Award, with students encouraged to incorporate Australian Merino wool into their graduation collections.

The winning student, Daniel Hirozawa, was awarded a trip to Australia last month, where he met with key AWI staff to further broaden his knowledge of wool, and visited 'Bohara', the property of Rod Edwards and Jenny Bell at Breadalbane near Goulburn in NSW to discover the source of the fibre.

"Going to Australia to visit AWI's headquarters, I expected to learn a lot about wool, its technologies and innovations – which I did – but what impressed me the most was how

passionate every person I met was about the woolgrowers and the sheep," Daniel said.

"Visiting the farm, seeing the animals and talking to the woolgrowers made me realise how much effort and how many people are involved before my work as a designer even begins. Going forward, I want to make sure my work is both environmentally correct and supportive of the community behind the materials I use. I believe that to continue working with wool will help me achieve that goal."

More information
www.instagram.com/danielhirozawa



Daniel Hirozawa with woolgrower **Rod Edwards** during his visit to 'Bohara' in May. The garment that Daniel is wearing is one of his winning wool designs.

INDIAN FASHION STUDENTS SHOW WOOL ON THE RUNWAY

AWI's Wool Runway project is educating and inspiring the next generation of fashion designers in India about the natural benefits of Australian Merino wool.



Models wearing the finalists' wool creations (back row) and designers (front row).

More than 700 tertiary fashion students from 15 campuses across India have learned about the benefits of Australian Merino wool, by taking part in the second edition of AWI's Wool Runway initiative.

India's three main fashion universities – National Institute of Fashion Technology, Pearl Academy and the National Institute of Design – joined the AWI program, with students attending AWI's Wool Appreciation Course, experiencing The Wool Lab sourcing

guide and learning about the eco-credentials and natural benefits of the fibre.

A jury panel from each campus selected a finalist in the Wool Runway competition based on their design sketches. Finalists then had two months to create their wool look, which was presented during a fashion show in front of a judging panel of industry experts.

"The designs were a breath of fresh air and it was amazing to see the efforts the students have put in to showcase Merino



The winning design of **Ravi Manil Prakash**.

wool at its finest," said AWI Country Manager India, Arti Gudal.

The program also connects the next generation of designers in India with leaders from the fashion and textile industries.

"Wool Runway has given me a chance to share my learning and experience in working with the intricacies of Merino wool," said Rahul Mishra, who won the 2013/14 International Woolmark Prize and was one of the judges of Wool Runway.



Wool classer Caitlin Heppner from Nuriootpa, South Australia, pictured with her pet kelpie Ella, loves the career she has working in the sheds.

A YOUNG CHAMPION CHAMPIONING WOOL

Barossa born and bred **Caitlin Heppner** grew up surrounded by viticulture, but she is pursuing a career not in wine but wool – a love for which she is keen to share with other young people.

At the age of 10, Caitlin Heppner visited Portee Station at nearby Blanchetown with her parents to watch the Australian shearing and wool handling team train. She had never set foot inside a working shearing shed before – and little did she know how much she was about to fall in love with wool.

Caitlin says in the shed that day were shearers Shannon Warnest, Jason Wingfield and John Dalla and wool handlers Mel Morris and Debbie Chandler.

“I remember sitting on the catching pen rails, watching everyone, totally engrossed in the atmosphere, when suddenly I couldn’t see anything.. Jason had thrown a fleece over me,

and the feel of the wool and the aroma of the lanolin felt like home. In that moment I knew my life would revolve around the wool industry.”

Caitlin began working as a wool handler in local sheds. At 14 she learnt to shear and started to compete in shearing and wool handling competitions – and at just 18, she fulfilled her dream and became a registered Australian Wool Classer.

“I had attended Nuriootpa High School and completed my secondary schooling in 2016 through a full-time school-based traineeship in Certificate IV Wool Classing, working with a shearing contractor in outback SA and NSW. I worked as a wool handler under

Master Classer Jared Phillips.

“Leaving home at the beginning of 2016 was a massive step but choosing to complete my secondary education the way I did was the best decision I ever made. I not only got a head start in my career, but I made many industry contacts and got the chance to live and work in some amazing parts of the country.”

FLEECE JUDGING CHAMPION

Soon after receiving her AW stencil, Caitlin decided to try out fleece judging competitions, starting at the Crystal Brook Show which duly she won. Never did she



Caitlin (second right) with the other five 2017 Young Farming Champions sponsored by AWI to promote the wool industry: Katherine Bain, Sam Wan, Lucy Collingridge, Hamish McGrath, Caitlin and Deanna Johnston (see article opposite).



Caitlin on the way to winning the 2017 National Merino Fleece Young Judges Championship which is funded by AWI.

imagine that this would lead her to winning her state's 2016 Merino Fleece Young Judges Championship and then go on to compete at the National Finals in 2017 at the Royal Melbourne Show.

The competition, for people aged between 15 and 25, involved judging two lines of four Merino fleeces (eight in total) on style, uniformity of length, staple strength, handle, colour, crimp formation, density and fleece weight. She competed against the other state champions and the New Zealand champion.

Using all the skills and experience she'd learnt wool classing, Caitlin expertly continued an unbeaten run of six wins from six fleece judging competitions by winning the title ahead of Amy Hoogenboom of New Zealand and Tessa Runting of Victoria.

AWI helps fund the National Finals (along with the corresponding National Merino Sheep Young Judges Championship) to further young people's skills through visual selection and appraisal of wool and sheep. By providing the opportunity to broaden their experiences and knowledge base through competition, the finalists become ambassadors for the wool industry.

And Caitlin has certainly become a stellar ambassador for wool. Read on...

PROMOTING THE WOOL INDUSTRY

Caitlin selflessly instigated – and sponsored – a Merino Fleece Junior Judging Competition at her local Mount Pleasant Show in March, encouraging young people interested in agriculture to step up and “have a go”. Caitlin is also generously sponsoring prizes at this year's State Championship in Adelaide in September.

“I wanted to give back to the industry from which I have benefited and love so much,” she said.

Last year, Caitlin also became one of six new Young Farming Champions sponsored by AWI, to help promote the wool industry to students participating in Art4Agriculture's school program who might never have considered a career in agriculture.

Young Farming Champions provide a network of enthusiastic young professionals who share a passion about teaching others how Australian agriculture is a dynamic, innovative, rewarding and vibrant industry.

“Essentially my aim is to close the gap between producers and consumers and create a better understanding and appreciation of what really happens in the wool industry,” Caitlin said.

“I am only 19 years old, but while I know that my future lies with wool – I hope to continue as a wool classer and eventually run my own Merino stud – I am also very keen in helping and encouraging more youth into the wool industry and helping bridge the gap between the producer and the consumer.” E



AWI-sponsored Young Farming Champions Deanna Johnston and Lucy Collingridge promoting wool to school children at the Sydney Royal Easter Show.

YOUNG CHAMPIONS PROMOTE WOOL AT THE SYDNEY SHOW

Two AWI-sponsored Young Farming Champions recently shared the story of wool with more than 1,000 school students at the Sydney Royal Easter Show.

Deanna Johnston, a shearer and wool classer from Longreach, and Lucy Collingridge, a biosecurity officer with Local Land Services in Narrabri, teamed up at this year's Sydney Royal Easter Show Primary Preview Day to present 15-minute sessions about wool to students and teachers.

The two Young Farming Champions are part of a network of young agricultural professionals, developed by Art4Agriculture, who have a passion for sharing the good news stories of their industry and teaching others about the pivotal role Australian farmers have in feeding and clothing the world.

2018 represents the sixth year AWI has been involved with the program, to help educate the broader community on the importance of the Australian wool industry and develop young industry talent.

Held prior to the official opening of the Sydney Royal Easter Show, the Primary School Preview Day invited students from Years 4-6 to meet the faces of Australian agriculture.

The aim of the workshop was to raise awareness of the unique and diverse properties of wool as well as an appreciation for the high quality of wool that is produced on Australian farms.

“We had a quick slideshow to show the kids where we were from and explained what we do in our day jobs,” Lucy said. “We then had an interactive questionnaire game where we were able to improve students' knowledge

of the Australian wool industry and wool products. Then we had a few activities using wool products. Students were able to handle examples of greasy wool, wool top and lanolin.

“We had a 100% wool jacket with four kids holding a corner each. Deanna poured water on it to show its water repellent properties. It was a fun game. The students were confident the jacket would absorb the water and of course were fascinated when the water went everywhere. We also had Sam the Lamb and material sample books from AWI for the kids to take home, which they loved.”

With more than 1,000 students passing through their presentation, Lucy and Deanna were exhausted by day's end, but also inspired by the students (and teachers) and their willingness to learn.

“The kid's enthusiasm was great,” Deanna said. “They were so excited and so happy to learn, and amazed wool could make soft garments that can be worn by everyone from babies to people playing sport, as well as insulating and carpeting your house. For me it was a massive learning curve. I didn't realise how hard it was to get a primary school kid's attention and keep it!”

“We had a very special moment with some school kids with disability who were mostly non-verbal but we were able to use the samples of greasy fleece, wool top and wool clothing for a very tactile experience,” Lucy adds. E

More information
www.wool.com/YFC

PRACTICAL TRAINING FOR YOUNGSTERS

Continuing its support of the **Monaro Farming Systems (MFS) Agricultural Traineeship Program**, AWI is helping fund participation in wool-related training courses for this year's trainee Livinia Evans.



Livinia Evans gaining practical experience on one of the **Monaro Farming Systems Agricultural Traineeship Program** host farms – 'Springvale' which is owned/operated by Tintagel Pastoral Company at Bombala.

A local girl from Cooma, Livinia completed Year 12 last year at Monaro High School having chosen an agricultural focus in her subjects over the last four years. As well as completing a Cert II in Agriculture during school, she has worked casually on properties, in shearing sheds and the Cooma sale yards for many years.

Livinia is planning a long term career in agriculture and is hoping to use this year as a stepping stone to study Agriculture at Marcus Oldham agricultural college next year.

"I've always had a passion for agriculture – my father is a livestock agent in Cooma and I have several relatives who are shearers," Livinia said. "I have a particular interest in genetics and I am keen to make a real difference to the world through improved agricultural productivity. I love living on the Monaro though and it would be nice to settle on a property here."

But her focus at present remains on the Monaro Farming Systems (MFS) traineeship during which she is enjoying gaining invaluable practical skills by working on a variety of farms across the Monaro.

The MFS Agricultural Traineeships Program was initiated in 2012 by woolgrower Craig Mitchell of 'Gaerloch' at Numeralla, east of Cooma, to address the growing concern of retaining and attracting local young people to choose a career in the agricultural industry as well as the increasing age of the average farmer.

The trainee is 'shared' across a group of 8-9 host farmers on the Monaro and spends 12 months learning the practical side of farming like drenching, pregnancy scanning, fencing, general property maintenance and working in the shed.

"The practical side of the traineeship has been awesome; I've been learning so many useful skills," Livinia said. "Although I've been around agriculture for most of my life, the traineeship has broadened my experience and really opened my eyes."

"The traineeship also includes a formal qualification and I will receive a Certificate III in Agriculture after completing my year."

AWI has helped support the annual MFS traineeship program for the past five years.

MONARO TRAINEESHIP LINKS WITH RIVERINA

This is the second year that the MFS trainee has also attended the AWI-supported Hay Inc Rural Education Program – an example of AWI's training investments in two important wool-growing regions working together.

Livinia has joined 14 other agricultural focused youths on rural properties in the Hay district, learning practical skills such as sheep handling and yard work, fence construction, stock water maintenance, shed management and wool handling, small engine and motorbike maintenance, working dog training and many other areas.

AWI funding of the MFS traineeship has helped enable Livinia to attend the shearing and woolhandling portion of the Hay Inc program. This was held in March at Paraway Pastoral's 'Steam Plains' station under the guidance of AWI trainers Brian Sullivan and Mike Pora.

"I've really loved the practical nature of the Hay Inc program," Livinia said. "Learning with the other likeminded young people on the course was very useful and a lot of fun."

"Although I'd already got previous shed experience, at Steam Plains I got to learn new skills such as how to crutch look after the handpiece. The facilities were excellent and the AWI instructors were really experienced and helpful."

The Hay Inc program concludes on 16 June 2018 at the Hay Merino Sheep Show. **B**

More information
www.monarofarmingsystems.com.au
www.hayinc.com.au

Livinia (ninth from left) and the participants on the **AWI-supported Hay Inc Rural Education Program**.



EXCLUSION FENCING ACROSS WATERWAYS



Woolgrower **David Owens** of 'Somerset' at Longreach explaining in the new video the construction of his exclusion fencing across a floodway.

Rain falling near Longreach, Queensland. It might not rain very often here, but when it does it can damage exclusion fencing unless it is properly planned and constructed.

Gullies, waterways and floodways can be difficult to protect with exclusion fencing due to varying water levels and the risk of flood, but Queensland woolgrowers Ben Banks, David Owens and Will Roberts provide some tips for other producers.

Waterways are high-risk areas for wild dog incursions because effective exclusion fencing can be tricky to build in such volatile areas. Many woolgrowers fence waterways independently of the rest of their fences using separate end assemblies and materials that are designed to lay-down, fold-over or even break away in the event of a flood.

In a 4½ minute video from AWI's state network in Queensland, Leading Sheep, woolgrowers Ben Banks of 'Rivington' at Blackall and David Owens of 'Somerset' at Longreach provide some tips for successful planning and erection of an exclusion fence. In particular they talk about the importance of preparation and fencing across creeks and watercourses.

"When erecting a fence, if we get to a creek or waterway, we'll stop the fence and put in a double-end assembly and then restart the fence again until we get to the other side of the water – therefore we keep that section of the fence on the waterway separate, so if and when it washes away it doesn't affect the rest of our fence," Ben explained. "We'll swing netting under the main line of fence over the

waterway and on the upstream side we'll put a light poly-belt to act as a float."

At 'Somerset', David said: "We put 1800mm chicken wire netting on the bottom of the flood fencing and made sure it overlapped 450mm on the ground – it swings up when you get a normal flood and lets all the debris through. We have also put up an 8-line wire at the top of the fence that will swing on the odd occasion when there is a really big flood."

In a separate 3½ minute video from Leading Sheep, woolgrower Will Roberts of 'Victoria Downs' at Morven also provides some exclusion fencing tips and tricks – and emphasises having structural integrity in the fence over floodways.

"We've driven a drill stem into the ground at least 1.7 metres and screwed the top of the post onto that," he said. "It's terribly important on the floodway to keep the top of the fence as straight as you possibly can so you are not putting pressure on the posts. Then we've hung three sections of the fence one on top of the other to the bottom which has allowed us to have an apron on the bottom of about a metre – this still gives the fence integrity regarding keeping out wild dogs, while also allowing the fence to swing as freely as it possibly can for when the bigger flow of water comes along the creek."

Further information and photos of successful exclusion fences across waterways are available in AWI's free practical guide to wild dog exclusion fencing – see right. **B**

More information

For more tips, view the videos on the Leading Sheep website at www.leadingsheep.com.au

AWI PRACTICAL GUIDE TO WILD DOG EXCLUSION FENCING



AWI's practical guide to wild dog exclusion fencing – available free from AWI.

To help woolgrowers who are considering, planning, building or maintaining wild dog exclusion fencing, AWI has produced a guide that provides an overview and photos of successful exclusion fences already built by woolgrowers on other properties.

The 36-page guide covers various types of exclusion fencing, including prefabricated exclusion fencing, plain wire electric fencing and electric offsets. It also provides advice on protecting weak spots – such as gateways, grids, public roadways, gullies and waterways – which are particularly vulnerable as wild dog access points.

To complement the AWI guide, AWI is also making available the 14-page Kondinin Group Research Report *Exclusion Fencing, Fighting Ferals* that was produced in January 2016. **B**

More information

Both publications are available for free on the AWI website at www.wool.com/exclusionfencing. Hard copies are also available by calling the AWI Helpline on 1800 070 099.



The prototype **Wild Dog Alert camera trap device** under development. PHOTO: Heath Milne

WILD DOG ALERT

TO PROVIDE WOOLGROWERS WITH 'FIRST STRIKE' CAPABILITY

Ground-breaking research and use of innovative technology is being developed to help woolgrowers protect their flocks from wild dog attacks thanks to co-investment from AWI and their partners. Using an automated on-property camera trap device that identifies wild dogs, the Wild Dog Alert system will notify a woolgrower of a wild dog's presence in real-time, to enable the woolgrower to act early and proactively.

“It's the terrible feeling of being defenceless, the not knowing if wild dogs are around the property, the not knowing when they might attack the flock.”

This is a familiar comment from woolgrowers and other sheep producers in areas affected by wild dogs – and it is a demonstration of how wild dogs can affect the emotional well-being of farmers as well as their financial bottom line.

However, the development of a prototype new tool is well under way that aims to firmly place woolgrowers and other land managers on the front foot to manage wild dogs. The Wild Dog Alert Node is a 'camera trap' with advanced computer software, capable of satellite communication, that can visually identify wild dogs and then send a real-time alert to a landholder's mobile phone or other device.

It will therefore enable landholders to receive immediate information about the location of individual wild dogs and allow the landholders (and cooperating landholders and wild dog controllers in the local area) to take instant action to disrupt and discourage wild dog attacks.

The system will also provide wild dog control groups with an unprecedented opportunity

to monitor wild dog activity and efficiently guide the development and review of strategic regional wild dog management plans.

“Often, wild dog control has necessarily been reactive and expensive, with woolgrowers and contractors effectively forced to 'chase' dogs after sheep have been maimed and killed,” said AWI Program Manager Vertebrate Pests, Ian Evans.

“In chronic cases this can go on for weeks, months or even years, taking a heavy toll on enterprises, families and communities.

“But if sheep producers could reliably detect dogs before they attack, at any hour and at even the most distant locations of their property, then there could be an opportunity to thwart a dog attack.

“Early warning technology could therefore allow woolgrowers to take the initiative back from the dogs and allow growers to protect their stock.

“There are also more strategic benefits of using this new system, such as woolgrowers and other land managers following wild dog movements to help in the planning of more effective bait campaigns and measurement of their effectiveness.”

DEVELOPING WILD DOG ALERT

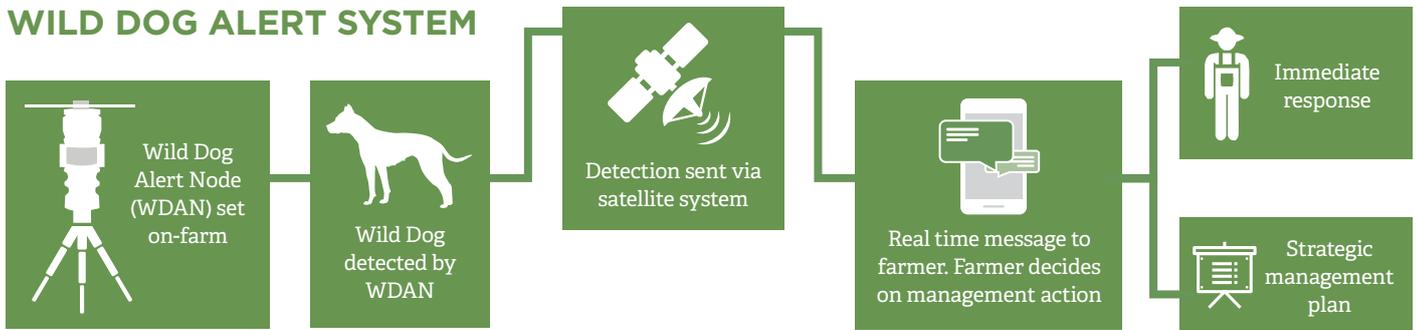
The development of the Wild Dog Alert system is being undertaken by researchers at the University of New England (UNE) and the NSW Department of Primary Industries (DPI) with support from AWI along with the Department of Agriculture & Water Resources and Meat & Livestock Australia, through the Centre for Invasive Species Solutions.

The aim is for the research project to build and deliver a prototype Wild Dog Alert Node by June next year, which if successful will then be followed by a commercialisation process.

Researcher Paul Meek of NSW DPI and UNE said Wild Dog Alert will bring together significant developments in automated recognition technology and remote satellite communication.

“Our initial field evaluations confirmed that using current off-the-shelf technology to detect, capture, identify and transmit image data as a foundation for the Wild Dog Alert was inadequate and did not meet the team's technological expectations or requirements for a robust and reliable real-time alert system,” Paul said.

WILD DOG ALERT SYSTEM



“The off-the-shelf camera traps are unreliable; they miss detections depending on the time of day, the placement of the camera and the direction the animal walks in proximity to the camera trap. As a result, the research team took the decision to build another device from the ground up, using the latest cutting-edge technology.

“What we are designing and testing now is a unique prototype with more capacity and capability than any known technology of its kind in the world.”

The ground-breaking standalone camera trap device that the team has built to detect wild dogs is currently being field tested in Australian environments, from the tablelands to the rangelands, under realistic conditions representative of where the devices will be deployed, such as sheep properties.

WILD DOG ALERT COMPONENTS

CAMERA TRAP

Notably, the camera trap has a tri-sensor system to detect animal presence, unlike most conventional camera traps that just rely on a PIR (passive infrared) sensor. This means that detection is optimised. It has 360-degree sensor and camera coverage so that the camera device can track and capture imagery of a wild dog on a 360-degree axis. At night the wild dog is illuminated by infrared flashes.

“To the best of our knowledge it is the first

camera trap device in the world to have 360-degree sensor and camera coverage so that the device can detect a dog approaching from any direction, then take a photo, process the image and send an alert using both 3G and satellite communication systems,” Paul said.

Field testing during daytime and night includes evaluating the detector’s range, efficiency and interference from the sun or other environmental effects (such as bugs on the camera lens and shadows from trees that might give ‘false detections’).

Another important consideration is to ensure the system is robust under operational field conditions, such that the device can cope with wind, dust, frost, torrential rain and extreme heat.

SOLAR POWER

A camera trap system of this kind requires significant battery power, so the team has custom-developed a solar panel and battery system to ensure image detection and processing can be done at any time of day.

One significant consideration of the battery design is that unlike other remote monitoring systems it is designed to greatly minimise the risk of over-heat that could potentially start a bushfire.

RECOGNITION SOFTWARE

“There is some seriously complex artificial intelligence incorporated into the Wild Dog

Alert Node too,” says Greg Falzon, the brains trust behind the device.

“We have incorporated algorithms that can recognise and differentiate dogs from other animals, and that also know when a moving subject (like a shadow, which can trigger off-the-shelf camera traps) is not a dog.

“We have an algorithm that uses facial recognition to uniquely identify with a high degree of accuracy individual wild dogs. So our team is really on the cutting edge of global technology.

“The Wild Dog Alert Node is our prototype of future technology. We’ve pushed ourselves to do this because we are ultra-motivated and extremely keen to help fix some of the challenges faced by Australian woolgrowers.”

SATELLITE COMMUNICATION

Another important function of the Wild Dog Alert system is the capacity to transmit a message of a dog detection where no telecommunication network exists. To solve this issue the team has built a satellite transmission component into the device so that remoteness is not a limiting factor to adoption and use.

“The team has been testing satellite transmission from different locations in Australia to see whether there are any black-holes in landscapes like gorges and deep rainforest where satellite signals may be impeded. So far, the results have been extremely encouraging, with few locations, even in the gorge country, not transmitting signals,” Paul said.

After the prototype is suitably field tested, commercialised and is available for production, it is anticipated that Wild Dog Alert will provide landholders with real-time notification on devices such as a smartphone, tablet, computer or other remote connection device.

BROADER APPLICATIONS

“The technology built and now incorporated into the Wild Dog Alert is pioneering and has much broader applications for future technological tools,” Paul added. “Interestingly, the device can be programmed to recognise other species, such as foxes.

“In developing a prototype system for Wild Dog Alert, the team has also developed many additional software applications that could be made available to interested parties, which represents significant value for money.” **E**

Computational scientist **Greg Falzon** and mechnronics expert **Jaimen Williamson** field testing the prototype **Wild Dog Alert device**. PHOTO: Heath Milne



PAIN RELIEF

RESEARCH FOR MULESING

Research co-funded by AWI has shown that using a combination of the Tri-Solfen® and Buccalgesic® pain relief products provides more prolonged relief from mulesing than using each of the products on its own.

Tri-Solfen is a topical product applied after mulesing and contains local anaesthetic agents to alleviate pain, and haemostatic and antiseptic agents to reduce bleeding and promote healing. In the six and a half years since Tri-Solfen was first registered, it has become widely used – three-quarters of Merinos mulesed now receive pain relief.

Ilium Buccalgesic® OTM, a buccal formulation containing the non-steroidal anti-inflammatory drug (NSAID) meloxicam, was registered in 2016 for the alleviation of pain associated with castration and tail docking in sheep and in October 2017 the Australian Pesticides and Veterinary Medicines Authority (APVMA) approved Buccalgesic for the alleviation of pain associated with mulesing.

The meloxicam product from Troy Laboratories is a pre-operative analgesic, administered as a viscous solution between the inside of the cheek and molar teeth of sheep from where it is absorbed into the blood stream.

A recently concluded research project – co-funded by AWI, CSIRO and Troy Laboratories Pty Ltd – provides a welfare assessment of Tri-Solfen® and the Meloxicam-based Ilium Buccalgesic® OTM product, on female lambs for mulesing.

The research was undertaken by CSIRO at Armidale, NSW. CSIRO Principal Research Scientist, Alison Small, said the research demonstrated the efficacy of Buccalgesic, alone and in combination with Tri-Solfen, in reducing the pain responses of female

lambs and female weaner lambs that underwent surgical mulesing.

“The use of the analgesic agents Buccalgesic and Tri-Solfen singly or in combination provides analgesic benefits that persist for at least six hours post mulesing based on behavioural observations, and up to 24 hours based on physiological parameters,” Dr Small said.

“Tri-Solfen provided rapid-onset analgesia, but the duration of analgesic effect of the lignocaine and bupivacaine contained in Tri-Solfen was shorter than that of the meloxicam contained in Buccalgesic. Buccalgesic was slower to provide obvious changes to the parameters indicating effective analgesia, but the duration of analgesic effect of meloxicam was longer than that of local anaesthetic agents.

“The best outcome was seen where Tri-Solfen and Buccalgesic were used in combination, delivering the benefits of both local anaesthetic and non-steroidal anti-inflammatory agents. Buccalgesic therefore offers a good adjunct to Tri-Solfen in extending the pain relief period for sheep undergoing surgical mulesing.”

As a recent national survey shows that 96% of producers mules at marking, the main age group used in the studies was 6-10 week old lambs. However, the field study also included animals of 8-10 months, because some animals in Australia are mulesed at around 9 months of age – in situations where mulesing lambs coincides with the high flystrike risk season.

The project comprised two distinct but complementary study formats: a pen study, carried out in an animal house; and a field study, carried out in a paddock.

The pen study was the most detailed of the two studies because, as well as observing individual *behavioural* pain indicators (eg postural behaviour such as hunched/statue standing, and active pain avoidance behaviour such as a reluctance to lie down), researchers were also able to observe *physiological* pain indicators (eg pain-related hormones such as cortisol) and include an assessment of key *haematological* parameters (blood samples were collected). Only single-born female Merino lambs were used in the studies.



Buccalgesic® being applied to the internal cheek of a lamb during the research trials. The buccal (inside of cheek) formulation has a thick consistency so after application (using a modified drench gun) it adheres to the mucous membrane of the mouth.

“In this study, the administration of analgesics increased the amount of time that mulesed lambs spent lying down, and feeding – with the combination of Buccalgesic and Tri-Solfen appearing to be the most effective. While analgesic treatments did not significantly reduce ‘hunched standing’, the lack of ‘statue standing’ of the Buccalgesic and Tri-Solfen group of lambs was very similar to that experienced by lambs that hadn’t been mulesed,” Dr Small said.

“Administration of analgesic agents also increased the wound healing response to mulesing, compared to those lambs that hadn’t been given pain relief. Tri-Solfen administration resulted in a significantly lower cortisol concentration at 30 minutes post-mulesing while the Buccalgesic-only group had a significantly lower cortisol concentration at six hours post-mulesing. The combination treatment of Buccalgesic and Tri-Solfen consolidated the benefits of both agents.

“The analgesic treatments, especially the combination of Buccalgesic and Tri-Solfen, also lessened the impact of mulesing on the animal’s leucocyte (white cell) profile that helps the body fight bacterial infection.”

While welfare trials offer valuable information about the effectiveness of pain relief treatments, woolgrowers are encouraged to seek advice from a veterinarian regarding their own situation. **B**



Recording the behavioural responses of lambs following the use of pain relief at mulesing in field studies at CSIRO’s Armidale research site.

OBSERVED BENEFITS OF USING BUCCALGESIC WITH TRI-SOLFEN

South Australian woolgrower Richard Halliday has been using Tri-Solfen® on his lambs for many years for mulesing and marking, and he has now started using Buccalgesic® in combination with Tri-Solfen®. He is reporting his lambs appear to recover faster with less negative behavioural effects – and the costs of treatment are more reasonable than he expected.

“My motto is happy, healthy sheep lead to a positive outcome for animal and owner.”

So says Richard Halliday who runs Callowie Poll Merino stud and commercial sheep flock with his wife Jacque and their children Sarah, Angus and Thomas. They run 1,300 ewes with 19.5 to 21 micron wool on their 'Mallee Downs' property near Bordertown in the south-east of South Australia.

The Hallidays have been using the post-operative Tri-Solfen® pain relief product ever since it was released about a decade ago, to help with wound recovery of their lambs following mulesing and marking using rings. They have also recently started using the pre-operative Buccalgesic® product in combination with Tri-Solfen.

The Meloxicam product Buccalgesic was initially released in August 2016 for the alleviation of pain associated with the routine husbandry procedures of castration and tail docking in lambs, but in October 2017, the APVMA also approved Buccalgesic for mulesing.

“We have now started using Buccalgesic in addition to Tri-Solfen,” Richard said. “Because we have been successfully using Tri-Solfen for many years, I was not comfortable to stop using Tri-Solfen and use Buccalgesic on its own.”

“We used Buccalgesic and Tri-Solfen for mulesing as well as marking. It is part of our constant aim for improvement in animal husbandry on our property.”

By receiving both pain relief products, Richard says the lambs appear to recover faster.

“Although only through observation, the positive behavioural response to the combined use of Buccalgesic and Tri-Solfen was clearly visible to me, with the lambs heading straight off to their mothers sooner than they seemed to when I only used Tri-Solfen,” he said.

“Part of our management is we mark in portable yards in the paddock so seeing the lambs' response is very easy. Normally after marking some lambs hang around the yards looking for their mothers; while this still happened, this time when the ewes were



By applying pain relief products to his lambs in portable yards in the paddock, it has been very easy for woolgrower **Richard Halliday** (right) to witness his lambs' positive response to the products.

drafted the stragglers followed the ewes away and started grazing the pasture straight away.

“We had one mob that had to be moved after marking for management and the lambs travelled off with the mothers with very few lambs hanging at the rear of the mob.

“On inspection of the animals a few days after marking, there was an improvement in the mobility of the lambs and their grazing behaviour.”

Richard said the cost of treatment was more reasonable than he expected.

“The cost of the products for the combined treatment was \$1.50 per lamb which we thought was reasonable when taking into consideration the current return for wool at around 1750c/kg clean and returns for sheep – wether lambs from \$100 per head and surplus ewes from \$140 per head.

“These strong returns give us the challenge to make sure that the lambs thrive as much as possible.

“There was probably only a small reduction in lamb losses which was expected because our

losses are traditionally low on our property as the environment in which we farm doesn't generally have adverse weather and the ewes are managed in line with the principles of the Lifetime Ewe Management program.”

There are many variables and factors to take into account when considering pain relief options for marking and mulesing: availability of products, throughput required per day, time and method of treatment, ability of lambs to mother up, practicality and cost. So there are no black and white answers applicable across Australia, and woolgrowers are encouraged to seek advice from a veterinarian.

However, on-farm adoption of Tri-Solfen for mulesing was rapid, and the availability of Buccalgesic, along with Metacam20® which was registered in 2016, now gives woolgrowers further options to consider.

“With the aim of continued improvement in animal husbandry and positive outcomes for our animals, our move at 'Mallee Downs' to using Buccalgesic in combination with Tri-Solfen has been an important transition for our business,” Richard added.

BREECH FLYSTRIKE PREVENTION PUBLICATIONS

AWI makes available publications about breech flystrike prevention on its website at www.wool.com/flystrikelatest

Here is a selection of the available publications:



PLANNING FOR A NON-MULESED MERINO ENTERPRISE

(March 2018)

This 16-page report outlines the key learnings from a number of wool-growing enterprises, from a diverse range of environments and Merino types, that have moved to a non-mulesed enterprise.



MANAGING BREECH FLYSTRIKE

(June 2017)

This 44-page manual is designed to help woolgrowers further reduce their flock's flystrike risk. It includes coverage of management options, breech modification, scouring and worm control, breeding for breech strike resistance and moving to a non mulesed enterprise.



BREEDING LOWER WRINKLE AND DAG

(June 2017)

PAIN RELIEF: FREQUENTLY ASKED QUESTIONS

(March 2017)

Each is a 2-page summary article from *Beyond the Bale*.



AWI BREECH STRIKE RD&E PROGRAM - IMPROVING LIFETIME WELFARE

(November 2017)

Presentation slides that outline the outcomes of AWI's Breech Strike RD&E Program since 2005. There are five key areas of work: (1) Breeding and Selection, (2) Breech Modification, (3) Improved Management, (4) Domestic Extension and (5) International Supply Chain Communication.



DAFWA BREECH STRIKE RESISTANCE PROJECT NEWSLETTER ISSUE 7

(July 2017)

CSIRO ARMIDALE BREECH STRIKE GENETICS NEWSLETTER ISSUE 7

(November 2016)

Newsletters from the Breech Strike Genetics project funded by AWI.



PUTTING WORMBOSS INTO PRACTICE

Awareness of WormBoss among sheep producers is very high, but sometimes, getting started can be helped with motivation from other producers.

Through an AWI-funded extension project, two producer groups are putting WormBoss into practice to particularly reduce weaner morbidity and mortality.

Monaro Farming Systems is based in southern NSW. Although it's in southern Australia where scour worms predominate, the Monaro region experiences a rainfall pattern that causes barber's pole worm to be an annual challenge.

The ASHEEP group is in the Esperance and Ravensthorpe shires of southern Western Australia with country from the coast to about 150km inland. Again, both scour worms and barber's pole worm (for those close to the coast) present a problem.

This project supports participants to conduct two very key practices, DrenchTests and Worm Egg Counts, as the basis for tactical drenching decisions.

To get double the value, the DrenchTests are also part of another AWI-funded project. Dawbuts laboratory is conducting the DrenchTests two ways: using the standard method plus an alternative laboratory method called Mini-FLOTAC. This method is more sensitive and is being assessed to see its usefulness for conducting DrenchTests at lower worm burdens.

"You'll only know what works on your property by doing a DrenchTest on your property."

Dr Deborah Maxwell,
ParaBoss Executive Officer

In Western Australia, Drench Tests are best done at weaning time. With the ASHEEP group joining the project more recently, members will conduct their tests at the end of this year.

Already, ten of the planned fifteen properties from the Monaro Farming Systems group have conducted DrenchTests; the result averages are presented in Table 1 right. Tests for resistance to flukicides will be conducted in winter.

Monaro Farming Systems Executive Officer, Nancy Spoljaric, said, "Many of our producers have long suspected some level of drench resistance in their flock, but doing an actual drench resistance test on their property has now shown the extent of the resistance problem.

"With this information, group members are



Monaro Farming Systems members have seen the DrenchTest results at their field days and in the MFS newsletter.

now able to make a much more effective choice of drench and make significant savings in cost and time by avoiding ineffective drenches.

"Barber's pole was a major challenge on the Monaro for many producers last spring and summer with average worm egg counts in the thousands for many properties. The test results showed it accounted for 51% of the total worm burdens on the 10 participating properties."

Deborah Maxwell, ParaBoss Executive Officer, said, "DrenchTests are one of the most valuable activities managers can do to improve worm control as they tell you what works, against which worm, on your property. The MFS results show that even within a region, drenches vary in efficacy, not only against specific worms, but from property to property.

"It's great news to see that one of the most recently-released drench actives, monepantel, is still fully effective across all worms. The triple also has great results here, but that's not always the case in other districts."



Sheep in a DrenchTest with coloured marks showing which drench they received. PHOTOS: Nancy Spoljaric, Monaro Farming Systems.

Ms Spoljaric added, "MFS members have found it especially useful to know that levamisole – the cheapest drench – was essentially 100% effective against barber's pole worm on all the properties tested."

Dr Maxwell has conducted DrenchTests in New England over the past few years and emphasised that in the summer rainfall region the story is quite different with widespread resistance of barber's pole worm to all but the two newest drench actives, monepantel and derquantel, and the organophosphate drench, naphthalophos.

The message is quite clear, said Dr Maxwell: "You'll only know what works on your property by doing a DrenchTest on your property." **B**

More information
For more information on DrenchTests see www.wormboss.com.au/tests-tools

wormboss

Table 1: Efficacy (% reduction in worm egg count) of tested drench actives against the three most common worms: black scour worm, brown stomach worm and barber's pole worm, across ten properties in the Monaro Farming Systems group, tested in 2017-2018.

	BLACK SCOUR WORM		BROWN STOMACH WORM		BARBER'S POLE WORM	
	Average	Range	Average	Range	Average	Range
BZ (white)	62	0-100	45	0-100	82	51-100
LEV (clear)	69	0-100	78	0-100	100	99-100
Moxidectin (ML)	100	100	89	57-100	82	35-100
Closantel					91	42-100
Monepantel	100	100	100	100	100	100
BZ/LEV (double)	91	72-100	89	62-100	100	100
BZ/LEV/ML (triple)	100	100	98	92-100	100	100

LAMBING EWES: IS A PRE-LAMBING DRENCH WARRANTED?

Serious worm issues have been reported on many properties across Australia where ewes and young lambs have grazed heavily worm-contaminated paddocks. Many producers, having experienced this problem, are now using a pre-lambing drench. In this article we present whether and when lambing ewes should be treated and their management for worms through to weaning.

A pre-lambing drench is a time-honoured tradition, aiming to ensure that lambing ewes, whose immunity to parasites temporarily declines just prior to and after lambing, do not contaminate the paddocks with worms.

If left untreated, lactating ewes can develop much higher worm burdens than when they are dry or pregnant, which in turn leads to a worm-contaminated lambing paddock and lambs becoming infected.

As lambs and weaners have little immunity to worms, their growth, and even survival rates, can be affected. There are also further consequences with flow-on contamination to other sheep and paddocks on the property when sheep are later moved into and out of those lambing paddocks.

To combat this, a pre-lambing drench may be warranted. You may be wondering if you need to give a pre-lambing drench, when to do it, which drench to use and whether a WormTest should be done first.

REGIONAL AND STATE RECOMMENDATIONS

- **Tasmania / summer rainfall tablelands and slopes region of northern NSW / southern Queensland:** The WormBoss regional experts recommend that a pre-lambing drench is mandatory. A pre-lambing WormTest is not required; instead, routinely give an effective, combination, short-acting drench and move the ewes onto prepared low worm-risk paddocks. A long-acting product is generally only warranted in wet, high worm-challenge seasons if the lambing paddocks are already heavily contaminated with worm larvae – that is, they have not been effectively prepared as low worm-risk.
- **Victoria / South Australia / other moderate to high rainfall areas of NSW and Queensland:** A WormTest should routinely be carried out first to determine whether a pre-lambing drench is required.

- **Western Australia:** WormTest late-lambing ewes (lambing later than mid-June), but in early-lambing ewes that received a drench in March–April no further WormTest or pre-lambing drench is required as this acts as a pre-lambing drench.
- **Pastoral region:** A pre-lambing WormTest is not specifically indicated, especially in the drier areas, but if a drench before or during lambing has been required occasionally in the past on your property, a routine pre-lambing WormTest would be useful.

Table 1 below shows the worm egg count thresholds above which a pre-lambing drench should be given. Some of these levels are below where ill-effects would be seen in the ewes, but are given strategically

to keep worm levels low during lambing.

TIMING THE PRE-LAMBING DRENCH

When a pre-lambing drench is recommended, it is ideally given **within the three weeks before the start of lambing**. Giving a drench sooner than this – particularly in the higher rainfall areas – allows more time for the ewes to acquire a substantial burden of worms before lambing starts. Time the drench with the move to the prepared lambing paddock.

If WormTests are used, allow enough time for samples to be posted to the laboratory and results to come back – usually about a week.

TABLE 1: WORM EGG COUNT THRESHOLDS FOR PRE-LAMBING DRENCHES

Drench if the worm egg count per gram of faeces is equal to or greater than the threshold shown in the table.

REGION	ZONE/SITUATION	PRE-LAMBING WEC THRESHOLD (EPG)
Victorian Winter Rainfall	Spring-lambing ewes	100
	Autumn-lambing ewes	100
South Australian Winter Rainfall	South east	75
	Higher rainfall Mediterranean	100
	Lower rainfall Mediterranean:	
	• early lambing ewes	250
NSW Non-Seasonal Rainfall	• late lambing ewes	150
	• No culture OR less than 60% barber's pole	150
QLD/NSW Summer Rainfall/Slopes and Plains	• Greater than 60% barber's pole	250
	Pastoral	300
Western Australian Winter Rainfall	High rainfall zone:	
	• late lambing ewes (lambing starts from mid-June)	200
	• early lambing ewes (lambing starts before mid-June)	No drench is recommended as worm burdens will be low after the autumn treatment.
	Low rainfall cereal zone	200

The information in the table comes from the WormBoss Drench Decision Guides. They provide more information to assist your day-to-day drenching decisions. See www.wormboss.com.au/drench-decision-guide



It is important to **minimise worm infections of your lambs** as they have little immunity to the parasite. Worms can affect lambs' growth and even survival rates.

LAMB MARKING TO WEANING

WormTest ewes a week or so prior to lamb marking.

Your paddock preparation has been effective if a drench is not required at lamb marking. However, if the ewes need drenching at marking, also drench the lambs.

WormTest again mid-way from lamb marking to weaning and drench if required (consult the Drench Decision Guide for your region).

WormTest ewes prior to weaning. In all but the driest sheep production areas, lambs typically receive a drench at weaning; WormTest them only if drenching is not routine. In some areas this drench, either for ewes or lambs, may coincide with a 'first summer drench'.

WHAT DRENCH SHOULD BE USED?

Effective, short-acting, combination drench products are the best first option.

- **Effective:** proven on your property to decrease the worm egg count by 98%.
- **Combinations:** fewer worms are able to resist combinations of different drench groups given at the same time.
- **Short-acting:** long-acting products have greater potential for development of drench resistance (especially moxidectin given pre-lambing).

In southern Australia, or with prime lamb mothers in other areas, a macrocyclic lactone (ML) as one component of a winter/spring drench removes scour worms, which can benefit milk production in high performing ewes.

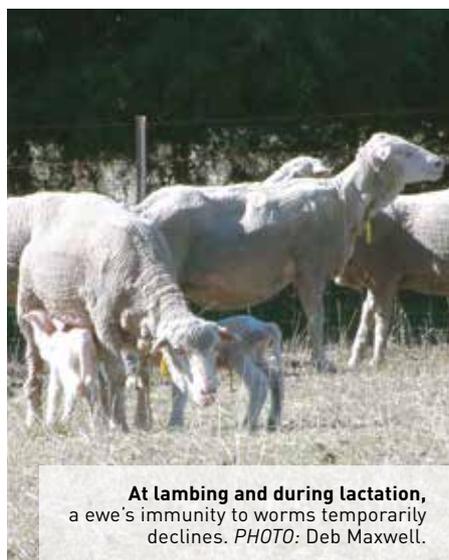
WHAT ELSE CAN MAKE A DIFFERENCE TO WORM CONTROL AT LAMBING?

Decreasing the exposure of ewes to worms during lambing can have a substantial impact.

- In the summer rainfall areas, prepared low worm-risk paddocks reduce exposure of ewes and sets the scene for lower across-farm worm burdens.
- In winter rainfall areas, the dry summer combined with 'smart-grazing' can be used to prepare lambing paddocks.
- In the southern half of Australia, you can monitor worm egg counts of sheep in the lambing paddocks in the months before lambing and use the paddocks that had the lower worm egg counts to lamb down the most susceptible lambing ewes. **B**

More information
www.wormboss.com.au/programs

wormboss



PARABOSS: BEST PRACTICE ADVICE FOR MANAGING SHEEP PARASITES

ParaBoss is a suite of three products – **LiceBoss**, **WormBoss** and **FlyBoss** – developed to help sheep producers in the management of lice, worms and blowflies.

The LiceBoss, WormBoss and FlyBoss websites are sources of detailed management information and regional programs that will assist in managing the major parasite risks for sheep. The websites have been developed by expert panels of parasitologists and veterinarians from across Australia.

ParaBoss provides access to the three websites at www.paraboss.com.au.

Subscribe to **ParaBoss News**, the twice monthly free email newsletter with state outlooks on the current state of sheep parasites as well as feature articles and the quick quiz to test your knowledge of sheep parasites. You can subscribe on the ParaBoss website.

Join us on **Facebook** at www.facebook.com/paraboss.com.au to see weekly posts on flystrike, lice and worm control.

ParaBoss is funded by AWI and MLA and coordinated by the University of New England with industry oversight. **B**

More information
www.paraboss.com.au



paraboss



Australian Wool
Innovation Limited



MEAT & LIVESTOCK AUSTRALIA

POST-FARM BIOS

The thought of emergency animal diseases (EAD) such as foot-and-mouth disease can strike fear in farmers across the world. However, the Australian wool industry has a robust strategy to minimise the potential trade impacts on the industry if an outbreak of an EAD was to occur in Australia. As part of this strategy, **AWI is funding several biosecurity projects that will help minimise disruption to flows of Australian wool to world markets in the event of an EAD outbreak.**

WHAT IS THE THREAT?

Australia's biosecurity framework is strong by international standards. There are very well-developed plans to control or eradicate certain EADs should they enter the country. However the Australian wool industry's strong export orientation places the industry at significant risk should Australia face an outbreak of an EAD transmitted by wool.

"Trading partners would immediately place a ban on imports of Australian greasy wool and this ban would remain in place until each country's authorities were satisfied that the wool posed no threat to their own national biosecurity," said AWI Program Manager, Sheep Health & Welfare, Bridget Peachey.

"Furthermore, at the global wool industry level, wool trade is highly dependent upon Australian exports, so the short-term depletion of the pipeline could be very damaging, particularly if some later-stage players for whom wool is optional move to other fibres."

For the wool industry, the major EAD risks are considered to be foot-and-mouth disease, sheep and goat pox and bluetongue, but there are many others.

WHAT IS THE INDUSTRY DOING?

It is clear that effective EAD prevention, a speedy response to an outbreak should it occur, and well-planned trade continuity measures are critical for the Australian (and indeed the global) wool industry.

As a consequence, the Federation of Australian Wool Organisations (FAWO) with the assistance of AWI developed a three-year Australian wool industry EAD preparedness research, development and extension (RD&E) strategy for 2016/17-2018/19. This strategy is an update of the first such plan, which spanned the preceding three-year period.

The strategy specifically addresses the shorn wool pipeline from farm to market; that is, it is concerned with the mitigation of supply chain and trade risks (such as product traceability), rather than disease response risks (such as diagnostic capability or vaccination).

"In the event of an EAD, the goals would be to minimise interruption to exports of Australian wool to the world's markets, and minimise reputational damage to the Australian industry," Bridget said.

"The aim would also be to achieve the most rapid possible return to normal business for woolgrowers, customers and others in the wool industry pipeline.

"As the wool industry's R&D body, AWI takes primary responsibility for the development, oversight and funding of projects to address the priorities of this strategy. The Sheep Production portfolio of AWI's own Strategic Plan for 2016/17-2018/19 aligns with the industry EAD strategy."

The industry EAD strategy has the following six programs:

- 1. Traceability** – In the event of an EAD outbreak, it would be important to trace animals and wool backwards and forwards from centres of infection to help stop the spread of the disease and identify those that are from areas free of disease and are therefore low risk.
- 2. Bale disinfection** – Bales that contain wool might need to be disinfected if they have left a property that is later found to be infected or if they have been potentially exposed to other sources of infection.
- 3. Wool disinfection** – If a disease agent is suspected to be present within wool bales or loose wool, then it will need to be deactivated before the wool is suitable for any movement including export.
- 4. Codification** – It is critical that any improvement in the wool industry's capacity to respond to an EAD outbreak is captured in documentation that can be readily accessed and applied if an outbreak occurs.
- 5. Capacity building** – It is important that the people involved in implementing EAD preparedness and response strategies have the understanding, capacity and relationships to do so effectively.
- 6. Coordination and relationships** – The activities of this strategy will require coordination and management.

PROJECTS UPDATE

TRACEABILITY

			NM	M	PR		
			NM	M	PR		
			NM	M	PR		
			NM	M	PR		

By signing this declaration, I warrant that (a) I am authorised to act as the selling agent to submit this document to AWEX (if requested) audits and on farm inspections, the results of which may be made available to the public. The AWEX Program and Privacy Policy are available on the AWEX website.

PIC: _____ Owner/Manager Name: _____

Woolgrowers should ensure their properties have a **Property Identification Code (PIC)** and they include it on their National Wool Declaration and speci – this is vital information during a crisis.

A project has been completed with AWI funding to assess how readily wool could be traced through the value chain. Results showed that most lines of baled wool can be reliably traced but the process is time-consuming because not all systems are directly linked.

FAWO is currently seeking to ensure that farm Property Identification Codes (PICs) are included in the information accompanying wool, because the PIC is the identifier used by government when managing disease outbreaks.

Woolgrowers are encouraged to ensure they include their PIC on the Wool Classer's Specification and National Wool Declaration. The PIC is an eight-character alphanumeric code allocated by state/territory authorities to livestock producing properties. If you own sheep, you require a PIC.

BALE DISINFECTION



The **prototype bale sprayer** which will soon take part in field trials.

A prototype bale sprayer unit that will allow rapid disinfection of the outside of wool bales has been developed by AWTA with AWI funding.

SECURITY VITAL

An initial evaluation of the bale sprayer has been completed. This work included an assessment of the effects of citric acid (the disinfectant that would be used against foot-and-mouth disease) on wool just inside the nylon pack. No negative effects were found.

The device is a modified shipping container, allowing for ready deployment as needed. Field trials will soon take place to evaluate the device's transportability, ease of integration into existing facilities and the effectiveness, efficiency and safety of operation.

Longer-term planning will be undertaken regarding the number of units needed to be manufactured, storage location, maintenance, conduct of simulation exercises and other considerations.

WOOL DISINFECTION



When collecting data in the project, the **beacons** will be inserted under the label on the wool pack (they are photographed here outside the label to demonstrate size). The beacon on the right is emitting a faint blue light from the middle of the beacon, indicating that the beacon has been connected to an iPad and is currently delivering live data. The beacon on the left is still collecting data, but not currently sending that data to a smart device.

The top priority for the wool industry during an EAD outbreak would be to convince trading partners that Australian wool poses them no biosecurity threat. This means demonstrating that any given lot of wool has an almost-zero risk of carrying the disease agent in question.

The interior of a wool bale offers a protective environment for disease agents that may be present. Deactivating most diseases of concern would mean storing the wool for a period of time sufficient to kill off the agent. The time required depends on the temperature and humidity to which the agent is exposed. The challenge is to illustrate which bales have been exposed to sufficient temperature loads to render a specific virus inactive.

New technologies becoming available could enable spatial and environmental tracking of baled wool. AWI is currently partnering with Agriculture Victoria to field test a new wool biosecurity device – a small bluetooth beacon (see image) developed by AWI – that collects temperature and humidity. Data that is collected throughout the wool supply chain by the beacon can be downloaded to a smart device, such as an iPad.

The 'WoolTrace/Digibale' project undertook an initial examination of different sensor technologies and has commenced the field trial component for testing the bluetooth beacons throughout the wool supply chain – from on-farm through to core sampling. As the data starts coming in, the project will also develop a user interface, and assess the feasibility of such a system and its requirements if scaled up for wider adoption. The user interface will enable data in relation to bale location and environmental conditions to be captured.

It is anticipated that this system would give trading partners confidence that wool has been stored for long enough to deactivate any disease agent that may have been present and therefore not pose a biosecurity threat.

CODIFICATION



A new **Biosecurity Risk Assessment tool** helps wool enterprises such as brokers' stores identify biosecurity weaknesses.

Considerable effort has gone towards ensuring the wool industry has the necessary plans in place in case of an EAD event.

The government/industry emergency response framework, 'AUSVETPLAN', sets out the various roles, responsibilities and policy guidelines for agencies and organisations involved in an EAD response.

While AUSVETPLAN includes the wool industry, the wool-related information in it is not as cohesive and comprehensive as it could be. Proposed updates to the 'Wool Enterprise Manual' and other AUSVETPLAN manuals to incorporate

the latest wool industry knowledge have recently been submitted to Animal Health Australia and are being reviewed. These updates will make clearer how wool and wool enterprises should be handled in the case of an EAD outbreak, minimising the time before they can resume trade.

A template EAD response plan has also been developed for wool enterprises such as brokers' stores and test houses. The template helps businesses to be better prepared for an EAD outbreak and also provides a 'go-to' reference document in the event that an EAD is found in Australia.

Supporting the template is an online 'Biosecurity Risk Assessment Tool' that helps identify biosecurity weaknesses that may delay such a wool enterprise from returning to trade. The tool is available via the AWI website at www.wool.com/biosecurity.

CAPACITY BUILDING



An **EAD workshop** being piloted to post-farmgate businesses.

A 5-hour workshop to prepare wool enterprises for an EAD event was recently piloted with 21 staff, from five post-farmgate businesses, at three locations. The pilot workshop explained how the business would be affected by an EAD event and what steps can be taken during 'peacetime' to minimise these impacts.

Feedback from the sessions was very positive. Participants reported a much higher understanding of how easily EADs can be spread, the potential impact of an EAD on their business and the industry, and the importance of preparation and biosecurity.

The FAWO EAD Working Group will now consider whether a national roll-out of this training should be a priority. B

More information
www.wool.com/biosecurity

LIFETIME EWE MANAGEMENT

BENEFITS PRODUCTION

Woolgrower Peter Luberda, who is currently approaching the end of a Lifetime Ewe Management course, runs 2,200 Merino ewes near Esperance in Western Australia with his parents. **Their ewes have a 92% conception rate, with an impressive 60% of the wet ewes scanned as twins.**

Commercial woolgrower Peter Luberda farms a mixed enterprise with his father John and mother Francis, at their 1,100 hectare property alongside the West Dalyup River at Dalyup west of Esperance, where they receive an average annual rainfall of 550mm.

The property has been in the Luberda family since the 1960s. They currently run 2,200 Merino ewes cutting wool of about 20-21 microns. The flock comprises 800 hoggets and 1,400 are mixed age ewes; the Luberdas sell their wether lambs. Their cropping operation includes canola, wheat, barley and oats.

Peter is nearing completion of a Lifetime Ewe Management (LTEM) course run by Ken Hart of Ewetopia Consulting, who Peter says is very knowledgeable and a great facilitator for the group.

Peter says he was motivated to join the course because he saw it as an opportunity to better understand how to improve lambing percentages and therefore improve the bottom line of their business.

ABOUT LIFETIME EWE MANAGEMENT

The LTEM course, supported by AWI, aims to increase producers' understanding of the influence of ewe nutrition and management on overall reproduction rates and lamb and ewe survival. Producers develop the skills to manage their ewes to achieve condition score targets and explore the economics of supplementary feeding and pasture management to review stocking rates.

LTEM groups, typically comprising 5-7 producers, meet six times in the annual sheep calendar during a period of 12 months. The course is very hands-on, being based in the sheep yards, shearing sheds and paddocks of participating



Peter Luberda runs 2,200 Merino ewes near Esperance in WA.

woolgrowers, which enables participants to share and learn from one another.

LTEM was developed using research outcomes of the AWI-funded Lifetime Wool project (lifetimewool.com.au), which ran from 2001 to 2008, and involved growers and researchers in WA, Vic, NSW, and SA.

The LTEM course is a great example of where investment in initial research, its further development and an effective extension model has paid off handsomely for the woolgrowers for which AWI works, and it will continue to generate benefits for many years to come.

BENEFITS FOR THE BUSINESS

Peter said that the LTEM course provided him with useful knowledge and skills to more effectively manage the nutritional requirements of ewes through the reproduction cycle – and discover how these requirements are influenced by pregnancy status (singles/multiples). The course also helped him to determine Feed On Offer (FOO) and potential supplementary feed requirements.

"It's been very beneficial to understand the benefits to our bottom line of increasing conception rates, and the importance of feed management and ewe body condition scores," Peter said.

As a result of doing the LTEM course, the Luberdas now regularly condition score their ewes, scan for multiples and feed them according to their pregnancy status.

The conception rate of their ewes (including maidens) is 92% this year, with an impressive 60% of the wet ewes scanned as twins. Peter says this is one of the highest percentages his pregnancy scanner has ever scanned.

"Our main profit driver has been to increase our ewes' conception rate because that leads to increased numbers of lambs weaned and marked. I think it's important to aim for high conception rates, or you'll end up getting low numbers," Peter said.

"Pregnancy scanning has been very useful for us. It has allowed us to sell off barren ewes and concentrate on our productive ewes, so there are fewer mouths of unproductive ewes to feed.

"We manage our twin bearing ewes differently than single bearing ewes by providing them with more and better quality feed, so all our ewes – whether multiples or singles – maintain a good body condition score.

"We supplementary feed them accordingly with pasture hay, lupins, oats and barley. The benefits of extra lambs born and increased survival to marking, and ultimately more wool cut, outweighs any extra feed costs.

"We also try to optimise lamb survival by providing shelter where we can. We have trees around, but not in every paddock."

Peter also emphasised that he liked the practical, hands-on nature of the course.

"I've enjoyed and benefited from viewing other course participants' properties," he said. "It really helps that it is a small group with an experienced facilitator. We all felt very comfortable discussing our thoughts and ideas, no matter how ridiculous they sometimes initially sounded."

OPTIMISM FOR THE FUTURE

Peter says he is optimistic about the future of the wool industry.

"It's taken some time for wool prices to get to where they are now, but it's all looking good at the moment," he said.

"Merinos consistently provide a good amount of wool cut and income, even when seasonal conditions are poor. We have moved from a breed base of dual purpose Dohnes to more of a wool Merino.

"There are the usual issues that producers in the local area have to keep on top of, such as non-wetting deep sandy soil, sheep worms, and it is a concern that wild dogs are getting closer too.

"But at the end of the day, if you're continually trying to improve your business through the adoption of research via workshops or courses, or you're just trying new ideas, you will have a better knowledge base that will in turn increase production levels."

More information

For more information, or to set up or join an LTEM group in your local area, call RIST on freecall 1800 883 343 or visit www.rist.edu.au/lifetime-ewe-management AWI: www.wool.com/LTEM

REALISING PERFORMANCE POTENTIAL - ONE DAY WORKSHOP

AWI's new Realising Performance Potential one-day workshop, developed for commercial enterprises with self-replacing Merino flocks, identifies key practical actions to implement on-farm to convert reproductive potential into profit.

Built around scanning, condition scoring and wet/dry assessment at lamb marking, the workshop helps woolgrowers to develop the practical skills required to identify 'performers' from 'passengers' among adult ewes within their enterprises. The reproductive efficiency of a flock can be significantly improved by culling the poor performers and retaining the good performers.

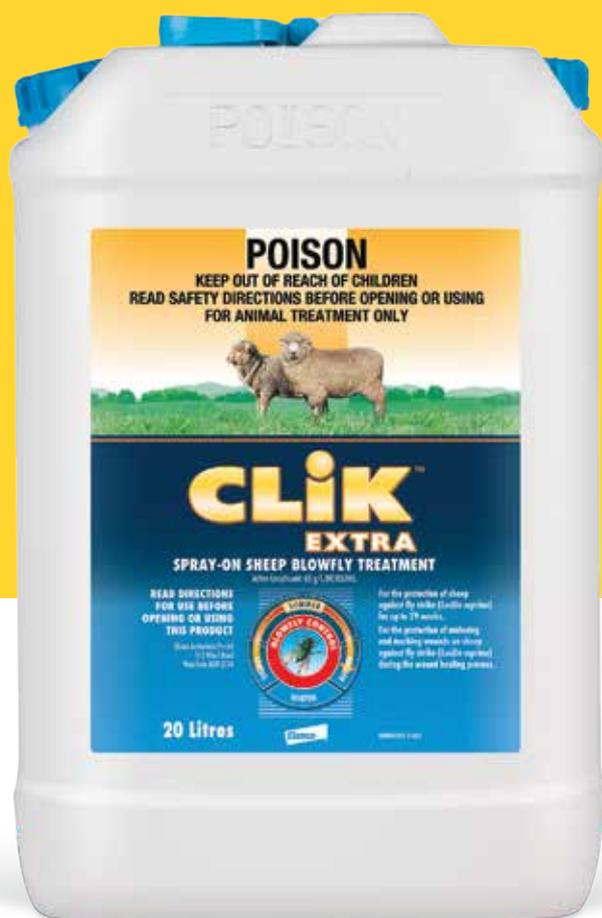
The workshop assists the commercial self-replacing Merino production sector in recognising and placing appropriate

importance on the total lifetime productivity potential and value of their Merino ewes (fleece, meat, surplus stock) and aims to achieve a minimum weaning rate of 95% from Merino joinings.

The workshop is designed to complement the Lifetime Ewe Management (LTEM) course. Realising Performance Potential offers beneficial management skills for both pre- and post-LTEM participants.

More information

Workshops are run on a demand basis through AWI's State Grower Networks across Australia. To find out about upcoming workshops in your region, contact your State Grower Network (contact details at www.wool.com/networks).



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MOB SIZE AFFECTS LAMB SURVIVAL

Reducing the mob size of twin-bearing ewes that are in a reasonable condition at lambing will improve lamb survival, according to the current results of ongoing AWI-funded research. However, their stocking rate has little or no effect on lamb survival.



Researcher Amy Lockwood says improved lamb marking rates can be achieved for twin-bearing ewes by reducing mob size at lambing, as well as pregnancy scanning and optimising condition score.

Lamb mortalities are estimated to cost the Australian sheep industry about one billion dollars each year, so improving marking rate is an important driver of productivity and profitability for sheep enterprises.

A National Lambing Density project, launched in 2016 and supported by AWI and Meat & Livestock Australia, has been investigating the effects of mob size and stocking rate on the survival of twin-born lambs between birth and marking.

The research is being conducted at 70 on-farm research sites across Western Australia, South Australia, Victoria and NSW using Merino and non-Merino ewes. A large network of producers is also providing data from their own farms – across a broad range of environmental and management conditions – to validate the data from the research sites.

The project aims to develop guidelines for sheep producers regarding the allocation of ewes to mobs and paddocks at lambing to improve lamb survival.

Beyond the Bale caught up with project researcher Amy Lockwood from Murdoch University to find out more. Read on...

Has there been previous research on this topic?

A survey of sheep producers in Victoria run a few years ago by the AWI state grower network BestWool/BestLamb showed that for each additional 100 twin-bearing ewes in a mob at lambing, lamb survival decreased by 3.5%, but in single-bearing ewes the effect was quite a bit lower at 1.4%. The survey also found that lamb survival decreased by 0.7% for each additional ewe per hectare, regardless of birth type.

This suggested an opportunity for producers to improve lamb survival by both reducing mob size and potentially also reducing stocking rate.

The existing guideline of 100 to 250 twin-bearing adult ewes per mob at lambing is broad and could represent a range in marking rate of at least 10% for twin-bearing mobs. So our research team set out with the aim to quantify the effects of mob size and stocking rates on lamb survival and provide some more credible recommendations for allocating ewes to mobs at lambing.

We were particularly interested in the effect of mob size in twin-bearing ewes given that improving the survival of twins is a priority for the industry.

What are the new project research results?

At the Lambing Density on-farm research sites, the low mob size comprised about 100 ewes and the high mob size about 240 ewes; stocking rates were generally 5-6 ewes per hectare for the low stocking rate and 7-8 ewes per hectare for the high stocking rate.

The initial results show that lower mob sizes equate to higher lamb survival. However,

there was no effect of stocking rate on lamb survival, therefore reducing stocking rates is unlikely to be an effective strategy for improving lamb survival.

On average, survival was just under 3% greater for lambs born at the lower mob sizes compared to the higher mob sizes. This equated to a 2% decrease in the survival of twin-born lambs for each extra 100 ewes in the mob at lambing. To put this simply, reducing mob size by 100 twin-bearing ewes increased the number of lambs marked by four.

The effect is linear – as we increase mob size, lamb survival decreases. For the on-farm research sites, this effect was consistent between Merino and non-Merinos, and for ewes in a condition score of 2.6-3.7 at lambing.

At larger mob sizes there will be more ewes lambing per day, particularly for twin-bearing mobs, so there will be a greater presence of birthing fluids and newborn lambs. Previous research has indicated higher lambing densities increase the risk of mis-mothering and cross-fostering, resulting in ewe-lamb separations and therefore poor lamb survival. However, most of this research has been performed on a small experimental scale.

Do seasonal variations have an effect?

As part of my PhD, we also performed experiments at Pingelly east of Perth in two separate years to investigate the effects of mob size on ewe-lamb behaviour and lamb survival at a larger scale, more reflective of commercial conditions.

In 2016 we had an exceptional season in WA and we ended up with Feed On Offer (FOO) levels of >2400kg DM/ha throughout lambing, and under those conditions we saw no effect of mob size on the survival of single- or twin-born lambs, when mob size was 55 compared to 130 ewes.

In comparison, last year we had quite a tough season. Our FOO levels were <400kg DM/ha at lambing and we were also supplementary feeding the ewes throughout lambing. Under those conditions the survival of twin-born lambs was 6.2% higher at a mob size of 55 compared to 210 ewes. If we're assuming that effect is linear, that equates to a 4% decrease in the survival of twin born lambs for each extra hundred twin-bearing ewes in the mob.

We are looking to do some further work to investigate the relationship between mob size, FOO and lamb survival given these contrasting results.

How do the results fit in with other guidelines?

We know through the Lifetime Ewe Management guidelines that pregnancy scanning and separating single- and twin-bearing ewes to optimise maternal nutrition is key to improving ewe and lamb survival and performance. The guidelines also provide condition score and FOO targets for use during pregnancy and during lactation.

We also know that providing access to shelter at lambing, particularly for twin mobs, can improve lamb survival if the shelter is effective and utilised, particularly where chill index is high.

From our new work we've indicated that reducing mob size is going to also improve lamb marking rates. The effect of mob size appears to be about the same as increasing condition score for ewes at lambing by 0.1 to 0.2. While it's a fairly small effect, the overall results can be significant when used in combination with the other existing guidelines.

The Lambing Density project is in its final year. We've completed work on 61 of 70 on-farm research sites, so this year we'll undertake work on the remaining nine sites. Our next step will be to undertake a full benefit-cost analysis in terms of reducing mob size to improve lamb survival, including the costs associated with subdividing or putting up temporary fencing in large paddocks. We'll then run some workshops to communicate project outcomes and develop some practical guidelines for producers which can be implemented to increase their marking rate. **B**

Researcher **Amy Lockwood** and **Dr Serina Hancock** condition scoring some ewes at one of the research sites in WA.



WINNING WITH WEANERS



A new AWI workshop – Winning With Weaners – is being rolled out across the country to give woolgrowers the skills to lift the lifetime performance of their young Merino sheep.

KEY THEMES OF THE WINNING WITH WEANERS WORKSHOP

1. Understand the impact of weaning weight on the survival of weaners to first joining
2. Understand weaner nutrition, in terms of both energy and protein
3. Set weaner weight targets
4. Understand the importance of weaner management on lifetime performance of breeding ewes
5. Strategies for success – management calendar

Weaner ill thrift and mortality are the fourth highest ranked priority disease, in terms of economic cost, to the Australian sheep industry. It has been estimated to cost the industry approximately \$188 million annually – most of this estimate is due to production losses. The cost of prevention (providing improved nutrition for weaners) is estimated to be only \$36 million.

Weaner ill thrift occurs when young sheep fail to thrive when other classes of stock in the flock are in satisfactory health and body condition. It results in poor growth, reduced wool production and wool quality (especially staple strength), increased susceptibility to disease (especially worms) and can lead to high mortality rates in young sheep up to one year of age.

While there are multiple concurrent causes of weaner ill thrift and mortality, they are all primarily related to animal management and husbandry.

To help woolgrowers improve weaner management of their Merino flock, AWI has developed a new workshop called Winning With Weaners™.

The workshop targets 95% weaner survival to one year of age. It identifies key practical actions and tools for commercial enterprises to implement on-farm to achieve this performance aim.

Winning With Weaners assists participants in understanding the key issues affecting weaner survival and performance and guides them through developing targets for growth and practical pathways for improving performance from this group of sheep.

The workshop was piloted by AWI in late 2017 and early 2018, with a subsequent series of train-the-trainer events held across Australia. Accredited and licensed deliverers are now in place to deliver the workshop and will work with AWI's State Grower Networks to organise these across the nation.

Winning With Weaners is a single day workshop (9.00 am-2.30 pm) with about 15-25 participants per workshop and costs \$75 per person. Attendees receive a full set of workshop notes, useful tools to help with monitoring and planning for successful weaner management and a checklist for use in their own operation. **B**

More information

Workshops are run on a demand basis through AWI's State Grower Networks across Australia. To find out about upcoming workshops in your region, contact your State Grower Network (contact details at www.wool.com/networks).

MINERAL SUPPLEMENTS FOR PREGNANT EWES

Supplementary feeding of calcium and magnesium to pregnant ewes that don't show any visual sign of a deficiency is still likely to put the ewes into a better metabolic state and potentially lead to better lamb survival, according to ongoing research funded by AWI.

A project funded by AWI is looking at whether more widespread supplementing of lambing ewes' diets with calcium and magnesium can improve lamb survival.

Professor Michael Friend is the principal researcher on the project at the Graham Centre for Agricultural Innovation at Charles Sturt University.

"We know when a ewe goes down with metabolic disorders such as hypocalcaemia (milk fever) or hypomagnesaemia (grass tetany) the effects are very obvious," he said. "But what this project is more interested in is *subclinical* metabolic disorders, which is when there are *no visual signs* that the ewe is in trouble but her magnesium and calcium levels are actually below requirement."

The researchers began the project by conducting a comprehensive literature review which indicated that, while there were strong indications that magnesium and calcium can play an important role in lamb survival, there was a knowledge gap about when the ewe shows no visible sign of metabolic disorders (a *subclinical* effect).

EVIDENCE OF SUBCLINICAL METABOLIC DISORDERS IN LAMBING EWES

The researchers then, in 2016, undertook a study of predominantly twin bearing Merino ewes from 15 flocks from across southern Australia. They tested the calcium and magnesium status of the ewes and found that even in mobs that do not show signs of metabolic disorders, a large number of ewes across the flocks were deficient in calcium and magnesium.

"These farms had the type of pastures that you wouldn't ordinarily think would have low levels of calcium or magnesium," Professor Friend said. "However, once the animals had been grazing on the pasture pre-lambing, we took blood and urine samples that indicated ewes in a majority in the flocks had calcium levels that were deficient, and to a lesser extent magnesium as well.

"It certainly showed that, despite the fact that the pastures were telling us that things are okay (the calcium and magnesium levels in pasture tested as adequate), something metabolically was happening in the ewes. Interestingly there was a strong association between high phosphorus levels in the pasture

and lower calcium levels in the ewes, so on farms that had higher levels of phosphorus fertilization there was an indication that there might be more of a problem."

MINERAL SUPPLEMENTS IMPROVE EWE AND LAMB HEALTH

PhD student Forough Ataollahi is part of the research team and she conducted a controlled study to evaluate the effect of calcium and magnesium supplements on twin bearing ewes and their lambs.

"The results showed that feeding calcium and magnesium supplements had a beneficial effect on the immune systems, energy profiles and mineral profiles of both the ewes and lambs," she concluded.

"Ewes supplemented with calcium and magnesium regulated their energy more efficiently than ewes not supplemented, which has many implications for the prevention of pregnancy toxemia (twin-lamb disease) and the improvement of ewes' reproductive performance.

"Lambs of ewes supplemented with minerals had better weight gain at one month of age and they had a better ability to fight against pathogens compared to lambs from non-supplemented ewes.

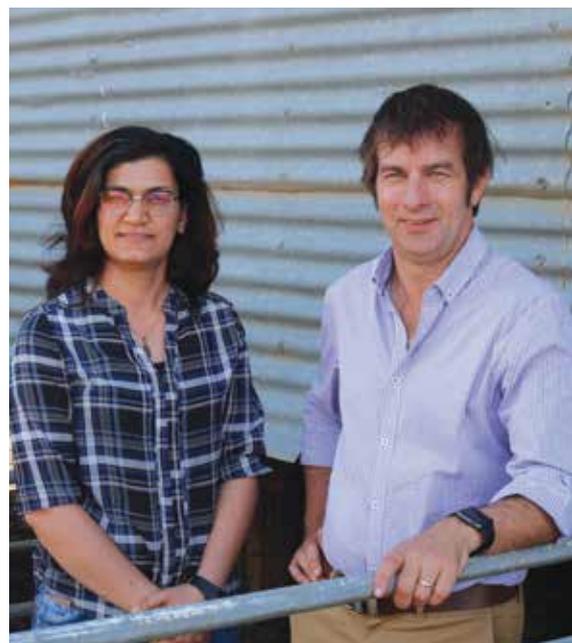
"Moreover we observed that, while ewes underwent a period of immune suppression at the time of lambing (which is normal), supplementation improved the immune system of the lambs at this time."

WHAT ABOUT LAMB SURVIVAL?

Professor Friend said Forough's work showed that calcium and magnesium supplementation is likely to put the late pregnant ewes into a better metabolic state and this is likely to lead to some improvements in lamb survival.

"However her study was a relatively small trial with about 40 sheep and we wouldn't expect to see differences in lamb mortality in such a small trial, so we needed to test it on a larger scale," he said.

Therefore, further similar research to monitor lamb survival on 400 ewes from each of five of the farms in the 2016 study was undertaken – the results are currently being analysed.



Researchers PhD student **Forough Ataollahi** and Professor **Michael Friend** of Charles Sturt University.

"We know that there are good rational reasons why calcium and magnesium supplementation should improve lamb survival, but we'd like to conclusively prove it," he said.

ADVICE TO WOOLGROWERS

Professor Friend says the research indicates that, even in flocks that one wouldn't think have any problems, many lambing ewes could be deficient in calcium and magnesium. So he says that if woolgrowers are concerned about the calcium and magnesium status of their lambing ewes, they should offer them some supplement.

"The cheapest supplement is typically a loose lick of calcium carbonate (lime), magnesium oxide (Causmag) and salt. Salt is added as it improves not only the uptake of the magnesium but also the palatability of the supplement to the sheep.

"I recommend this cheap supplement option because we know it has some production benefits and the evidence is mounting that it is likely to have, particularly in some cases, a significant impact on lamb survival." **B**

More information

Hear more from Professor Friend and Forough Ataollahi in Episode 35 of AWI's The Yarn podcast at www.wool.com/podcast



SCANNING FOR AGE OF FOETUS



Scanning to determine the age of the lamb foetus can help determine the lambing date, which is particularly useful for larger scale flocks like Merinos which often aren't mothered up at lambing.

Scanning for the age of the lamb foetus can help determine the lambing date, which may lead to a better managed lambing and improved lamb survival, according to research funded by AWI.

The study found that scanning to measure the lamb foetus's head size – the 'bi-parietal diameter' (BPD) – accurately predicted the foetal age of the lamb, which enables the prediction of when the ewe became pregnant and therefore when she is likely to lamb.

The AWI-funded research was undertaken by researchers at CSIRO and the University of New England (UNE), led by Senior Research Scientist Dr Kim Bunter at the Animal Genetics and Breeding Unit at UNE.

"The study found that, using a single scanning event with an experienced operator who understands the change in BPD size with foetal age, around 80% of ewes would be correctly allocated to three lambing groups," Dr Bunter said.

"Furthermore, no ewe assigned to an early lambing group, via predictions based on foetal aging, lambed in the tail end of the lambing time, or vice-versa. This confirms that an appropriate method of scanning to discriminate between early and late lambing ewes is 100% accurate. There is a little more noise in the middle, because gestation length is also variable.

"There's no way that producers can get this type of information in the field by observing matings, and the current alternative for breeders is to mother up at lambing which can be time intensive and difficult. Scanning is therefore an opportunity for producers to obtain, in a once-only task, some very useful data about their flock, particularly for larger scale flocks like Merinos which often aren't mothered up at lambing."

WHAT ARE THE BENEFITS FOR WOOLGROWERS?

Combined with scanning for fertility and litter size, additional scanning for foetal age can prove to be a cost effective and profitable practice.

"By accurately estimating their pregnant ewes' lambing dates, the farmer can divide their ewe flock by date of lambing, and feed and manage

them accordingly, which could help reduce ewe and lamb mortality," Dr Bunter said. This could be of most value in droughts.

"Farmers could also better optimise their weaning process so that they are weaning groups of lambs at more appropriate ages."

Foetal aging not only provides a tool for management purposes, but could also be useful for ram breeders who have not mothered up at lambing.

"Many early in life traits are affected by age, and unless mothering up is performed or lambing date can be predicted, age will be unknown. Combining foetal aging with scanning for multiples can provide information on both birth type and birth date, for more accurate comparison of young animals."

Foetal aging could also help split lambs into early and late ages for submission to Sheep Genetics to improve data quality.

However, Dr Bunter warns that scanning for foetal aging requires more knowledge and more training than scanning for fertility and litter-size.

"So the industry has to either train more people who have the right equipment to do the foetal scanning, or develop scanning software that can automate the measuring of the foetal head."

HOW DID THE PROJECT ORIGINATE?

Dr Bunter said that when she moved into sheep production research a few years ago, she met one of the original developers of scanning in Australia, Dr Doug Fowler, who started with CSIRO in the '80s, and who is now a co-investigator on this project.

Dr Fowler informed Dr Bunter that he could do foetal aging and he showed her data that showed foetal aging of cattle was accurate.

"The foetus of cattle is of course a lot bigger than sheep and there tends to be only one of them," Dr Bunter said. "So we needed to show in this project that we could successfully do foetal aging with sheep, and that it wouldn't matter if

there were singles or multiples, or if there were different genotypes of ewes or lambs involved."

HOW WAS THE PROJECT UNDERTAKEN?

The Merino Lifetime Productivity (MLP) flock near Armidale – having about a thousand artificially inseminated ewes – provided a good resource for the scanning project to demonstrate the variation that a scan operator would see in foetal size and gestation length.

Dr Bunter said results were not strongly associated with ewe age or litter size. "This showed us that a scanning operator should be able to go into the field and do the scanning without having to correct the data afterwards for other things."

The researchers also created a resource population of ewes, divided into three groups of naturally mated ewes of a couple of genotypes: Merino by Merino, cross bred ewes by White Suffolk rams, and Merino by White Suffolk rams.

"The site manager Dr Jen Smith of CSIRO, who is a co-investigator on our scanning project, and her team went through those flocks daily and looked for ewes with evidence of having been joined, and then the ewes were later mothered up at lambing, and we could tell when they actually lambed, and what their litter size was."

One of the surprises of this exercise was some lack of accuracy of raddle marks. There were about 5% of ewes that were joined but showed no sign of raddle mark, and there were also ewes that were already pregnant but were remarked.

"That was a bit of a surprise," Dr Bunter said. "I guess it was a good illustration that even though raddle marking can be useful, it has its own errors, the same as mothering up has errors, and the same as scanning has errors." **B**

More information
Hear more from Dr Bunter in Episode 38 of AWI's The Yarn podcast at www.wool.com/podcast



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TE PARI

THERE'S A PENGUIN IN MY PADDOCK!



A local **Falkland Islands'** farm with sheep and penguins living together.

Shearing and wool handling can provide the opportunity to travel, compete and work overseas, as well as around Australia. Louise Fletcher from near Cooma recently took the opportunity to work in the 'woolshed at the end to the world'...

Louise Fletcher, whose parents run a sheep and cattle property 'Fentonville' at Eucumbene, west of Cooma, has recently returned home after working as a wool handler in the Falkland Islands for five months as part of a six-stand contract team made up of locals, Aussies, Kiwis and a few Poms.

Louise has been around wool her whole life and while she is currently studying in her 3rd year of Agricultural Science at Charles Sturt University, she still works in woolsheds on her days off. She is also half way through undertaking a wool classing course.

"Australian shearers and wool handlers have a good reputation internationally for their skills and work ethic, and I was invited to go to the Falklands by a shearer who works in my local shearing contracting team," Louise said.

Sheep and wool are an important part of the Falkland Islands' economy – a ram has featured on the coat of arms and the flag of the Falkland Islands for the past 70 years, and there are more than 150 sheep for every person there.

The flock of 490,000 sheep are a Corriedale type; recently the local farmers have been crossing them with SRS Merinos from Australia.

Louise warned that working in a shearing and wool handling team can be just as hard work in the Falkland Islands as it is in Australia.

"The shearing team worked from six am to

six pm, six days a week to make sure the sheep were all shorn within the limited timeframe allowed for animal welfare in such a wild climate – it was always windy and often blowing at gale force," Louise said.

"The shed I worked in was ginormous. It could hold about 4,000 sheep.

"Although there are no formal requirements for wool preparation in the Falklands, in the shed that I worked there was a great attention to detail because the wool classer had an Australian stencil."

Louise said the Island community love their sheep and host regular shearing competitions.

"I took on the island's best rousies in the major wool handling competition at the Falkland Shears and came out the winner after defeating several world championship contenders!"

Louise said the Island locals were a cheerful bunch and more than happy to invite the visiting workers in for Christmas lunch, New Year's parties and farm tours. The town of Stanley, which is the capital has a population of around 2,000, and regularly hosts cruise ships. The British military has a base in the islands which also has its own population of about 3,000.

Getting to and from the Falklands involved a flight from Sydney to Auckland, Santiago to Punta Arenas in Chile then a hop across to the islands. The pilots are well versed



Louise Fletcher also had the opportunity while in the **Falkland Islands** to learn the basics of shearing.

in handling the wild and windy conditions although the return flight was delayed a day due to "exceptionally" windy conditions.

Louise is back studying at university in Wagga Wagga and is looking to be involved in the genetics and artificial breeding industries when she completes her studies. But she looks back fondly on her time in the Falklands.

"The trip gave me valuable experience and a chance get a firsthand look at farming techniques in another country," she said. "Having shed skills certainly provides great opportunities to travel."

NEW YARDS

PROVIDE BULK HANDLING IMPROVEMENTS

A growing trend for wool and sheep producers is to incorporate in their yards low stress, stock handling systems which can handle bulk numbers of animals. For Richard Harkness of Tintinara, South Australia, this was the catalyst for a custom-designed handling facility at their family property 'Gumbarra Park'.



Sheep rounding the curve of the **bugle shaped yard design** with its tapering approach towards the working area, at 'Gumbarra Park' at Tintinara, South Australia.

The Harkness family operates a mixed farming enterprise in the Murray Mallee region of South Australia running 7,000 Merinos alongside their stud and cropping 4,000 acres. Investing in new sheep yards and handling equipment has a number of benefits for Richard.

"We get 18-inch rainfall and hot summers which makes working sheep challenging at times, so we've fixed all that with a new set of yards with a roof over the top," he said.

IMPROVED EFFICIENCY AND LESS HARD WORK

"We wanted to identify key areas in the yards so that we can do all the operations we need to without any modifications or shifting handlers or weigh crates out of the way.

"Now we have the ability to do all of our husbandry operations in two key work stations. One is our 3-way draft which also functions as a lead up to a Peak Hill immobiliser – this can handle bung holing, A.I. and mid-side sampling of rams. Most of the other jobs go through the ProWay Bulk Handler which is used for drenching, vaccinating, back lining, mouthing and tagging.

"A lot of sheep handlers require two people; the beauty with the bulk handler is, it is only a one-person job and it pretty much loads itself as they enter the handler as a group."

Richard approached ProWay with the intention of creating multiple flow-through benefits from a single *bugle* design. A dual working race was incorporated for classing, which can be used to feed into the bulk handler or be completely bypassed with an internal lane system.

"One lot can go through to the bulk handler while the others come up the draft or working race, so we can do multiple operations at the same time if we choose to," Richard said.

The new yards were designed to work in with the shearing shed and utilise an existing laneway and holding yard.

"The old yards were like most people's yards, they had seen better times.

"We're feeding the new yards in the exact spot we entered the old yards. The difference now is we can bring woollies in and take the shorn sheep out without having to shift stock. We've got multiple entries or exits meaning the flexibility is far greater."



Richard Harkness with sheep having just entered his ProWay Sheep Bulk Handler. The **Bulk Handler** lifts the sheep off the ground – to a comfortable working height – where they naturally become passive, enabling a single operator to perform husbandry practices with minimal strain.

MODERN AND SAFE FACILITIES

Another advantage of the system was adding vehicle access and utilities such as electricity, water and air hoses.

"We've got good access coming in under the roof for a fork lift or to back in a crutching trailer. We also have power and lighting at our key workstations which drop down from the roof if we need a laptop or any tools."

Safety and efficiency in the yards were also a key consideration for Richard.

"We've got three generations working here; the safety factor is very important for not only our family members but also our employees, stock agents, dogs and the sheep.

"Obviously it's a big investment, but to be able to operate every job that we do more efficiently makes it easier to justify. Plus, we knock off at the end of the day after putting a lot of sheep through and we still feel pretty fresh. There's a big saving there and that should be the case for many years to come." **B**

More information

To view a video of the yards in action, visit www.proway.com.au/proway-tv

AUSTRALIANS REIGN IN COMPETITION

Australia comfortably won the Trans-Tasman shearing test at the Golden Shears at Masterton in New Zealand in March against the New Zealand world champions.

The test was won by the AWI-supported Australian team of veteran Shannon Warnest, reigning Australian



Australian shearing legend **Shannon Warnest** leads his country to another shearing test victory over New Zealand at the **Golden Shears in Masterton, New Zealand**. PHOTO: Pete Nikolaison, Golden Shears Media Group

champion Daniel McIntyre, and seasoned international Jason Wingfield.

It was Australia's 33rd win in 63 tests since the annual home-and-away Trans-Tasman series started in 1974, and provided some payback for New Zealand's win in a wool handling test the previous night against Mel Morris and Sophie Huf.

It extended the amazing record of South Australian shearing legend Shannon Warnest who has shorn in 31 of the tests, the last 29 in a row. He was the best individual in a Trans-Tasman shearing test for at least the 15th time.

AWI provides funds for the Australian team's travel, accommodation and uniforms. This support of the national team complements AWI support for shearing competitions at local and state levels, with the main aims being to promote excellence and professionalism within the Australian shearing industry, and to encourage young people to join the industry.

If you're planning a local or regional shearing and wool handling competition based on Sports Shear Australia criteria, you may be eligible for support from AWI. Contact **Stephen Feighan** at AWI on (02) 8295 3107 or stephen.feighan@wool.com to find out more about what support might be available for your event. **B**

SHEARING SHOWCASED TO THE PUBLIC

The 780,000 members of the public that went through the gates of the Sydney Royal Easter Show this year had the opportunity to see AWI shearing demonstrations by world-class shearers, with a few lucky audience members invited to help lend a hand.

AWI's shearing industry development coordinator Jim Murray led the team of shearers who collectively have vast experience and knowledge of the shearing and wool industries. They showcased their expert skills, reminding those in the crowd that there is work for professional shearers in all corners of Australia.

The multiple shearing demonstrations each day attracted large crowds throughout the duration of the show. While the many audience members watched on while listening to yarns about where wool comes from, a few lucky people also had the opportunity to help shear the sheep and collect some wool to take home. **B**



AWI's **Jim Murray** with shearers **Ian Elkins** (machine shearing) and **Courtney Sutherland** (blade shearing) displaying their skills during the shearing demonstration.

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MLP DAM & AI SIRE DIVERSITY ACHIEVED



The Merino Lifetime Productivity (MLP) project is designed to generate a unique Merino ewe dataset that can be analysed to better understand how current selection approaches such as breeding values, indexes, genomic information, and the use of visual selection relate to lifetime performance and how breeding strategies might be enhanced to deliver better outcomes to industry.

The core focus of the project is 5,000 ewes that will be annually assessed for wool production, carcase traits, conformation, visual performance and importantly, annual reproduction performance. The ewes are the product of five differing ewe bases located in dissimilar environments joined to 135 unique and diverse industry sires. **The following stocktake of the project's ewe base, and sire used, emphasises the diversity achieved in the project.**

NUMBER OF SIRES

In total, there have been 168 AI sire joinings to 90 ewes each; 135 individual sires along with 33 joinings where repeat sires were used to provide linkage between years at a site and between the five sites.

SIRE POLL / HORN STATUS

A few sires remain to be genotyped for poll status. The current numbers are:

Poll Status	No.	%
Horn / Horn	53	32%
Poll / Horn	46	27%
Poll / Poll	47	28%
Yet to be tested	21	13%

There are approximately one third true polls, one third true horns and one third carrying both the poll and horn gene.

MERINOSELECT STATUS

MERINOSELECT membership	No.	%
MERINOSELECT	118	70%
DOHNE MERINO	1	1%
Non-MERINOSELECT	49	29%

Through the open nomination process, 30% of the sires selected are from non-MERINOSELECT members.

The Pingelly field day included a description of the sires' progeny.



Presentation at the MerinoLink field day on 16 March.

AGE OF AI SIRES

Drop	Current Age	No.	%
2010 and earlier	>8 yo	20	12%
2011-2013	5-7 yo	77	46%
2014-2016	2-4 yo	71	42%

There is a mixture of young and proven sires in the project, designed to reduce selection risk but to also use the latest young AI sires available.

MERINO TYPE

Merino Type	No.	%
Super Fine	20	15%
Fine/Medium	88	65%
Medium	27	20%

There is a balance of sires roughly proportional to the wool types grown in Australia.

SIRE ASBVS

30% of sires did not have ASBVs at the time of selection but as their progeny are assessed, these sires eventually gain Breeding Values. To date, of the 135 unique sires used in the project, 120 sires have ASBVs with a very large diversity. **AWI and AMSEA are grateful to those breeders who entered sires to facilitate the diversity required. See Table 1 on opposite page.**

VARIATION IN EWE TYPES AND ENVIRONMENTS

Site	Location	Ewe Type
New England	Uralla, NSW	Super Fine
Balmoral	Harrow, Vic	Fine
MerinoLink	Temora, NSW	Fine/Medium
Macquarie	Trangie, NSW	Fine/Medium
Pingelly	Pingelly, WA	Meat Merino

There are a diverse range of ewe types and environments, rainfall, temperature, soil types and altitude. There are a range of link sires that have been joined across ewe types and environments. See the sire listing opposite.

THE PROGENY

Five thousand daughters from these diverse foundation ewes and AI sires will be assessed both visually and measured through their young ages and over 4 to 5 years as lambing adults.

Will the high performing daughters at one and two year old be the high lifetime performers?

How were the top lifetime performing ewes assessed as young ewes and what can we learn about selecting the top lifetime performing sheep at young ages. Time will reveal all. **B**

More information
www.wool.com/MLP
 Episode 30 of AWI's The Yarn podcast at www.wool.com/podcast



TABLE 1: RANGE IN PERFORMANCE OF MLP SIRES BASED ON CURRENT ASBVs (APRIL 2018)

TRAIT	ycfw	yfd	yfdcv	yss	ysl	ywt	yfat	yemd	ywec	nlw	ebwr	DPP	MPP	FPP
	%	FD	%	N/Kt	mm	kg	mm	mm		%	Score	Index	index	index
Min	-35	-4.2	-3.7	-7.1	-12.6	-5.9	-2.1	-2.7	-81	-17%	-1.6	64	70	86
Max	44	1.5	2.3	11.7	28.1	14.2	2.8	3.9	130	32%	1.3	250	241	204
Range	79	5.7	6.0	18.8	40.7	20.1	4.9	6.6	211	49	2.9	186	171	118
Ave	19	-1.3	-0.5	0.1	5.9	5.4	-0.1	0.2	-1	2%	0.0	154	155	144
MS Av*	13	-1.2	-0.8	0.5	6.3	4.2	0.1	0.4	-15	1%	-0.1	138	137	132

* MS Av = MERINOSELECT average.

The trait range, for the traits listed in the table, varies from the top 2% to the bottom 2% of the Merino breed. 10% of sires have a Breech Wrinkle ASBV of -0.8 or less (natural non mules) and 10% of sires a Breech Wrinkle ASBV of +0.8 and higher.

SIRE LISTING BY SITE AND YEAR OF DROP

The final AI joining has just been completed at the New England Site. The full list of Sires in the MLP project is listed in the table below.

BALMORAL 2015		BALMORAL 2016		MERINOLINK 2016		MERINOLINK 2017		MACQUARIE 2017		MACQUARIE 2018	
Billandri Poll, 130087		Centre Plus Poll, 707115		Bella Lana, 130296		Bundilla Poll, 140055		Centre Plus Poll, 707115 *		Anderson Rams, 150266	
Bogo, 111424		Glen Holme, 141077 (Dohne)		Boyanga, 145112		Centre Plus Poll, 407185		Collinsville Poll, 130545 (Apollo)		Centre Plus Poll, 707115*	
Bundaleer Poll, 13V741		GRASS Merino, 142194 (R4)		Glen Donald, 120014		Collinsville Poll, 130545 (Apollo)*		Darriwell, 130941 *		Charinga, 130240 (Doc)	
Bundilla, 111265		Greendale, 120012*		Greendale, 120012		DT Kenilworth, WH13017		GRASS Merino, 122190 (P47) L		Glen Donald, 120014*	
Centre Plus Poll, 207316		Greenfields Poll, 140345		Leahcim Poll, 090918*		Greendale, 140141		Gullen Gamble Poll, 120018		GRASS Merino, 141924 (R15)	
Darriwell, 130941		Greenland, 2.366		One Oak No.2, R56 *		Lachlan Merinos Poll, 015305		Hazeldean, 13.4936		Gullen Gamble Poll, 14189	
Glenpaen, 120042		Hannaton Poll, 120046		Pastora Poll, 082893		Leahcim Poll, 132624		Kerin Poll, 151911		Haddon Rig, 2.715*	
Greenfields Poll, 130599		Hazeldean, 11.3542 (Hugh)		Poll Boonoke, 120020		Tallawong, 150280		Moojepin, 120652 *		Hazeldean, 11.3542 (Hugh)*	
Hazeldean, 11.43		Kiandra Poll, 140757		Pooginook Poll, 140632		Toland Poll, 151058		Mumblebone, 151367		Kerin Poll, 160137	
Kurra-Wirra, SR5681		Koorungal, 130519		Roseville Park, 140611		Trefusis, 150282		Roseville Park, 132933		Langdene, 160950	
Leahcim Poll, 090918 L*		Kurra-Wirra, SB5585		Trigger Vale Poll, 140477		Trigger Vale Poll, 140477*		Trigger Vale Poll, 140477 *		Lewisdale Poll, 150010 (Monty)	
Leahcim Poll, 123153		Leahcim Poll, 090918*		Wattle Dale, 140754		Wallaloo Park Poll, 150422		Wanganella, 130816		Orrie Cowie, 140050 (Trojan)	
Merinotech WA Poll, 100081		Melrose, 12UGB060		Wurrook, 130149		West Plains Poll, 110004 (Mercenary)*		West Plains Poll, 110004 (Mercenary)*		Roseville Park (Poll), 150039	
Mokanger, 120092		Mumblebone, 130389						Wilgunya, 121224		Stockman Poll, 130707 (Pioneer)	
Moojepin, 100248 L		Mumblebone, 140026						Willandra Poll, 140030 (Des)		Wanganella, 150610	
Mumblebone, 130389		Nerstane, 100919								Willandra Poll, 160001	
Mumblebone, 130850		One Oak No.2, R56*									
Nareeb Nareeb, 130380		Stockman Poll, 090853 (Stilts)									
Nerstane, 130467		Terrick West Poll, 122220									
One Oak No.2, R56 L*		The Mountain Dam, 11/ESA004*									
Roseville Park, 140019		Trefusis, 110482									
The Mountain Dam, 11/ESA004		Tuckwood Poll, 131026									
Tuckwood Poll, 121021		Wallaloo Park Poll, 120912									
Yalgoo, 120043		Woodyarrup, 120175									
Yiddinga, 130374		Yiddinga, 141989									

PINGELLY 2016		PINGELLY 2017	
Billandri Poll, 130641		Anderson Rams, 140474	
Boolading Blues Poll, 120708		Barloo Poll, 140027 (Eureka)	
Claypans Poll, 130597		Billandri Poll, 151280	
East Mundulla, 090137 (Jonty)		Coromandel Poll, 130660	
Ejanding Poll, 145096		Cranmore, 13.10	
Haddon Rig, 2.715		Edale, 10Z266K	
Hazeldean, 11.43*		Ingle Poll, 150087	
Ingle Poll, 130387		Mianelup Poll, M00540 (Expo)	
Leahcim Poll, 090918*		Moojepin, 120652	
Merinotech WA Poll, 100081*		Moorundi Poll, NE73	
Moojepin, 140377		Neearra Poll, 110264	
One Oak No.2, R56*		Range View Poll, 5-680	
Rhamily Poll, 110330 (Benny)		Trigger Vale Poll, 140477*	
West Plains Poll, 110004 (Mercenary)		West Plains Poll, 110004 (Mercenary)*	
Wyambeh Poll, 140141		Woodyarrup, 150329	

NEW ENGLAND 2017		NEW ENGLAND 2018	
Connemarra Poll, 140257		Alfoxton, 150430	
Conrayn, MVB123		Avington Poll, 160047	
Cressbrook, 140055		Bungulla, 160350	
Egelabra, HEK 1.36		Clovernook Poll, 160095	
Grindon, 150017		Cressbrook, 140055*	
Karori, 140188		Eilan Donan, Harvey (5145)	
Miramoonna, 140012		Europambela, 120101	
Mirani, 120021		Hillcreston Park Poll, 110143	
Moorundi Poll, NE73*		Hilltop, HT Poll 156	
Nerstane, 150073		Karori, 150222	
Petali Poll, 150697		Nerstane, 150073*	
Trefusis, 150282*		Petali Poll, 160849	
Trigger Vale Poll, 140477*		Tallawong (Poll), 150280*	
West Plains Poll, 110004 (Mercenary) L*		Wurrook, 130149*	
Yalgoo, 150313		Yalgoo, 160070	

FIELD DAYS

The **Balmoral**, **MerinoLink** and **Pingelly** sites have had recent field days. For their latest results go to www.wool.com/MLP

Upcoming Sheep Inspection Days will be held at **Macquarie** on Wednesday 11th of July and at **New England** on Friday 3rd August.

L = Funded links to sire evaluation

* = Between MLP site linkage

PETER WESTBLADE MEMORIAL MERINO CHALLENGE 2018

FAST FACTS

- The Peter Westblade Memorial Merino Challenge (PWMMC) is a platform for all breeding philosophies to benchmark their wethers' relative merits for a wide range of traits that have a significant impact on enterprise profitability. In the most recent trial, half of the wethers were slaughtered at 11 months of age, the other half have been shorn twice. A full set of results can be found at www.craigwilsonandassociates.com.au
- The 2018 Wool Challenge shearing results continue to highlight the large variation that exists within the Merino industry. This variation is consistent with previous trial results.

The PWMMC is currently the largest commercial comparison of Merino genetics in Australia. Entrants are restricted to commercial woolgrowers, with ram suppliers and studs excluded.

The PWMMC is currently conducting its fifth trial, attracting teams from NSW, Victoria and Western Australia.

The PWMMC is a platform for all breeding philosophies to benchmark their wethers' relative merits for a wide range of traits that have a significant impact on enterprise profitability. The information present gives entrants the opportunity to benchmark their wether flock and identify strengths and weaknesses that they can focus on in their future ewe and ram selection decisions.

Of the 253 teams, 50% are repeat entrants, either entering a team in all five Challenges or at varying intervals over the past eight years. These repeat entrants provide excellent linkage across years. There are 62 ram sources and 26 are represented by two or more teams. All teams have been randomly drafted by an independent person to ensure an accurate representation of the entrant's flock.

The second shearing assessment of the most recent trial, 2016-2018 PWMMC, took place at the Primary Industries Centre, Riverina TAFE Campus, Wagga Wagga in early March. The wethers had been running together as one mob under the same management and nutrition since their induction into the PWMMC in April 2016 and the results presented are based on 12 months' wool growth.

Table 1: State of origin of the entrants in the five PWMMCs

	2010-2012	2010-2014	2014-2016	2016-2018	2018-2020	Total
NSW	45	50	46	43	38	222
VIC	4	7	3	4	4	22
WA	1	-	1	2	1	5
SA	-	2	-	-	-	2
TAS	-	1	-	1	-	2
Total	50	60	50	50	43	253

Table 2: 2017 Wool Challenge Summary

	Unit	Wool Challenge Average	Individual Sheep Min	Individual Sheep Max	Team min	Team Max
Fibre Diameter	Micron	17.9	13.9	22.4	16.5	19.7
Greasy Fleece Weight	kg	4.9	2.8	8.1	3.7	6.0
Sch Yield	%	62.9	6.4	74.5	57.4	67.9
Staple Length	mm	95.5	63	144	85	108
Staple Strength	N/Ktex	36.4	11.3	86.7	25.7	54.7
Clean Wool Price	c/kg clean	1323	1185	1151	1212	1433
Clean Fleece Weight	kg	3.1	1.5	5.4	2.3	4.0
Greasy Wool Weight	kg	6.3	3.9	9.5	4.8	7.5
Clean Wool Weight	kg	3.9	2.2	6.2	2.9	4.9
Body Weight	kg	56.8	34.6	82.7	46.1	67.6
Wool Value	\$/head	\$50.32	\$28.49	\$77.31	\$40.97	\$63.91
Mutton Value	\$/head	\$76.62	\$46.74	\$111.59	\$62.18	\$91.30
Sheep Value	\$/head	\$126.94	\$89.82	\$170.10	\$103.14	\$144.73

Table 3: 2018 Wool Challenge Summary

	Unit	Wool Challenge Average	Individual Sheep Min	Individual Sheep Max	Team min	Team Max
Fibre Diameter	Micron	17.2	13.2	22.4	15.6	19.6
Greasy Fleece Weight	kg	4.6	2.4	7.4	3.9	5.3
Sch Yield	%	63.6	45.5	73.4	56.0	65.9
Staple Length	mm	86.1	70	120	80	93
Staple Strength	N/Ktex	41.6	22	42	38.8	42
Clean Wool Price	c/kg clean	1588	1310	1720	1403	1715
Clean Fleece Weight	kg	2.8	1.4	4.3	2.3	3.3
Greasy Wool Weight	kg	5.6	3.5	8.7	4.6	6.6
Clean Wool Weight	kg	3.3	2.0	4.9	2.8	3.9
Body Weight	kg	55.3	40.6	76.1	47.0	65.3
Wool Value	\$/head	\$51.52	\$29.13	\$75.99	\$42.53	\$66.12
Mutton Value	\$/head	\$79.16	\$57.58	\$107.58	\$66.46	\$92.35
Sheep Value	\$/head	\$131.29	\$92.20	\$166.31	\$111.75	\$143.62



Drafting the wethers into their teams ready for shearing.

Figure 1: 2017 Wool and Mutton Values for each team.

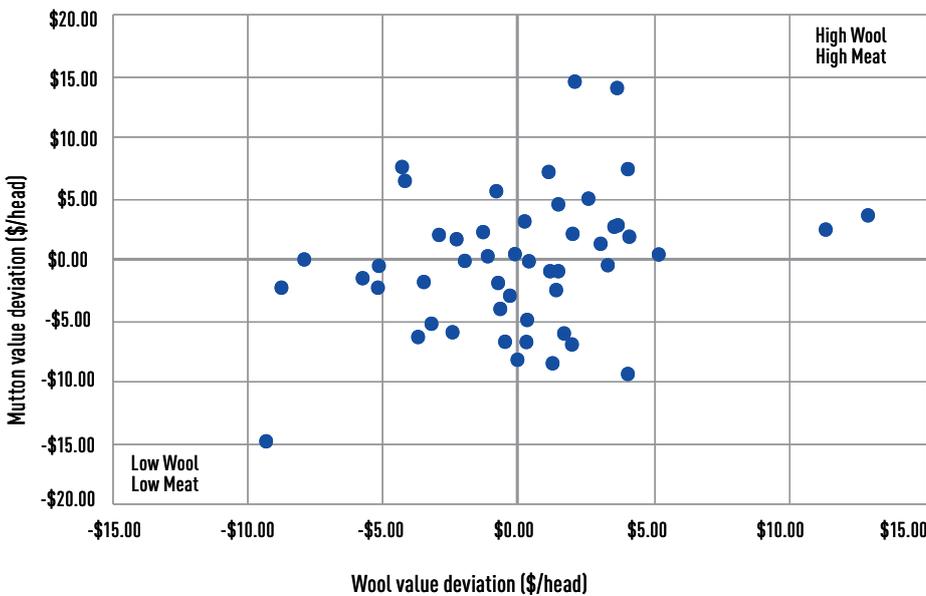
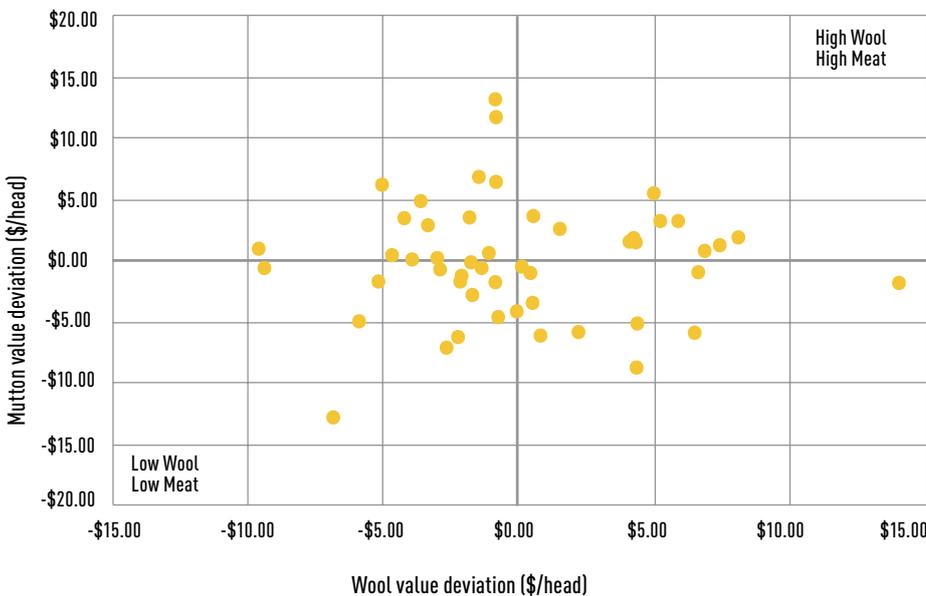


Figure 2: 2018 Wool and Mutton Values for each team.



The 2018 Wool Challenge shearing results continue to highlight the large variation that exists within the Merino industry. This variation is consistent with previous trial results. Tables 2 and 3 show a summary of the Wool Challenge average and the range for each trait and dollar value for individual sheep and teams in the Wool Challenge in both 2017 and 2018 respectively.

Figures 1 and 2 (left) present the combined wool and mutton values for the Wool Challenge wethers over the two assessment years, using a 5 year rolling average wool price and mutton price. While the 2017 shearing was a younger 'yearling' measurement, it was over a good sheep season. The 2018 shearing was an older 2-year old assessment but was a poor sheep year.

In 2017 the average greasy cut was 4.9kg at 17.9 microns, a year later in 2018 the average greasy cut was 4.6 kg and 17.2 micron.

On a separate note, each team contributed a sample of wool to be made into the next batch of Baggy Green caps to be worn by Australian cricketers as part of AWI's Flock to Baggy Green project (www.wool.com/baggygreen). B

More information
Contact Craig Wilson & Associates
www.craigwilsonandassociates.com.au



Measuring the fleece of the wethers at shearing.

WORLD MERINO CONFERENCE IN SOUTH AMERICA

The **10th World Merino Conference in Montevideo, Uruguay** in mid April will remain memorable for many reasons, not the least of which was the genuine sense of optimism for wool.

Woolgrowers and stud breeders from around the world were thick on the ground at the conference itself as well as the pre and post conference tours.

More than 100 Australian woolgrowers joined their contemporaries from New Zealand, South Africa, Argentina, the United States, Lesotho as well as many naturally from the host country of Uruguay, with representatives also from Russia, Portugal, Italy and France amongst others. Overcoming the language barriers was just one of the many triumphs of the World Federation of Merino Breeders and the Uruguayan Merino Breeders Society that did much of the heavy lifting in terms of organising.

The two-day conference heard from many speakers on many topics – from genetic evaluation and forecasting to climate change, traceability and marketing developments. AWI was represented by Corporate Communications Manager Marius Cuming, who spoke of AWI's latest marketing developments as well as the increasing trend of using woolgrowers at the front and centre of this marketing of the natural fibre alongside a growing list of retailers and brands.

One of the strong themes to emerge from the conference was the desire for all countries to lift the numbers in their Merino flocks given the solid present and future prospects for both wool and meat. However every country that spoke also pressed the serious limitations around any significant lifting in either Merino wool or meat production in the short to medium term.

Naturally, Australia, as having the lion's share of the global Merino flock, is limited by seasons, but also in pastoral regions by the continued prevalence of wild dogs, in more higher rainfall regions by the preference for cropping by many younger people, the high price of prime lamb and, in some regions, a lack of infrastructure and even knowledge around wool production. This was outlined to a captivated audience by newly appointed Australian Association of Stud Merino Breeders President Peter Meyer.

However this was echoed across the globe by equivalent constraints in other countries.

In New Zealand, production cannot significantly lift due to land use and in some

areas, conservation. In Uruguay and Argentina, weaning rates are seriously hampered by predation not only by foxes but pumas that can take many lambs in a night. In South Africa, predation by people, socio-political change and the expansion of mining is putting large caps on any potential expansion. Every Merino producing country has very strong reasons why they won't be significantly expanding their flock size any time soon.

But this restriction of supply only feeds into the continued levels of optimism around the Merino according to the new President of the World Federation of Merino Breeders, Will Roberts.

"It's been really wonderful to come and speak with woolgrowers from around the world and it is true that we are all in a similar situation of limiting supply," he said. "Couple this with the increasing demand for Merino wool across growing markets and increasing discretionary income in large countries such as China, the USA and India and the future continues to look very bright for the Merino... as long as it rains!"

WOOL-GROWING IN PATAGONIA

Wool-growing in Argentina is predominantly limited to the region of Patagonia, essentially at the southern end of South America.

Merino enterprises in the region range from very large corporate farms such as those run by the Benetton Group right through to many small family operations.

One of the warmest welcomes the Australian delegation received was from the Gonzalo family at the Rio Pico Estate in the Chubut province of Patagonia.

Julian and Estela Gonzalo run the farm with their three adult children: Julian, Maria (both vets) and Rodrigo who is an agricultural engineer.

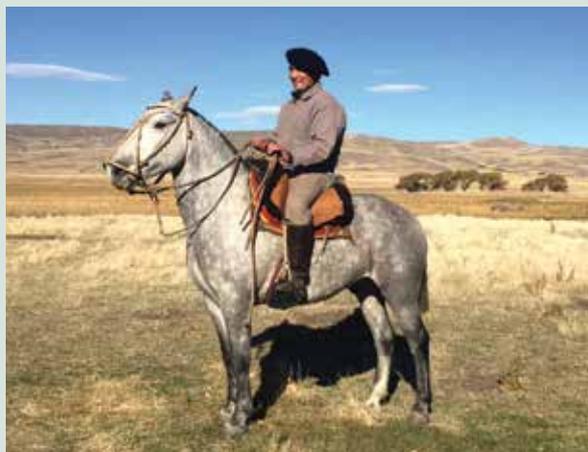
The farm is run as a board of five with a permanent staff of three gauchos and the mix of history and family makes for a strong and diverse team.

Now in the hands of the fifth generation of the family that established the property in 1910, the farm is 30,000 hectares and is situated at the foothills of the Andes mountains, receiving between 300mm and 500mm annually with up to one metre of snow. Needless to say the temperature variation is extreme with 30 degrees in the summer through to -30 degrees in the depths of winter.

Across this extreme environment the Gonzalo family runs 18,000 mainly Merino and Poll Merino sheep, of which 8000 are



Rio Pico wool-growing property in Patagonia.



Leleque wool-growing property in Patagonia.



The tour provided an opportunity for visiting Australians to discuss Merinos with the local producers.



The tour provided an opportunity for visitors to see the local's sheep and practices. Pictured right is pressing a wool bale, from beneath.

ewes, the rest being dry animals and 6,000 wethers with up to 900 Merino-Corriedale/Hampshire Down cross lambs sold at 75 days of age and 10.5 to 12 kgs to the Christmas market. There are also 800 Poll Hereford cattle.

Across the flock the average micron is 19.5 micron, average fleece weight 5.4 kilograms and fleeces generally yield 65%.

With Poll Hereford and Merino stud operations, the family travels widely to agricultural shows and sells up to 700 two-tooth rams a year and up to 70 bulls.

Rio Pico has been using Australian Merino genetics since 2005 to increase both fleece weight and body weight with a wide variety of imported genetics from studs in WA, SA, NSW and Victoria.

One of the major production constraints for the Merino enterprise is predation by red fox

and puma and in some areas of Patagonia, predation by people is also a major issue.

This predation and the weather constrains weaning rates to about 65-70% in the sheep enterprise and whilst predators are kept in check to some degree by baiting and shooting, the ability to fence the property is unfortunately not practical given the terrain. The best that can be done is to graze ewes and lambs in safer areas where and when both climate and conditions allow.

With the altitude of the property ranging from 650m to 1500m above sea level, both winter and summer grazing systems are employed. Both native and marsh grasses are used along with an annual sowing of the evergreen perennial *Festuca Pallescens* (related to fescue).

Given the snowfall on the Andes nearby and

natural springs, there is no lack of flowing water but some canals have been dug to bring water to some irrigated paddocks.

In the depths of winter, cattle are used to knock down snow to allow sheep the access to pasture below: not a grazing technique used by many in Australia.

With eight grandchildren now on the property, the next generation is very much involved at Rio Pico and a special mention has to be made of Maria Gonzalo who was of enormous help to the Australian, New Zealand and Uruguayan farmers who attended the post conference tour. **B**

MORE INFORMATION

A series of interviews from the post conference tour can be heard on The Yarn with an extended interview with **Maria Gonzalo** well worth a listen.



MARKET INTELL

AVERAGE MONTHLY EMI COMPARISON RECORD PERFORMANCE FOR FINER AND MID MICRONS

EMI'S RECORD RUN CONTINUES

The chart opposite provides a snapshot of how well the AWEX monthly Eastern Market Indicator (EMI) and a range of microns have performed for the past three months (February 2018 – April 2018) in Australian dollar terms compared with the previous five years February 2013 to January 2018 (circles) and the decade previous to that, February 2003 – January 2013 (squares).

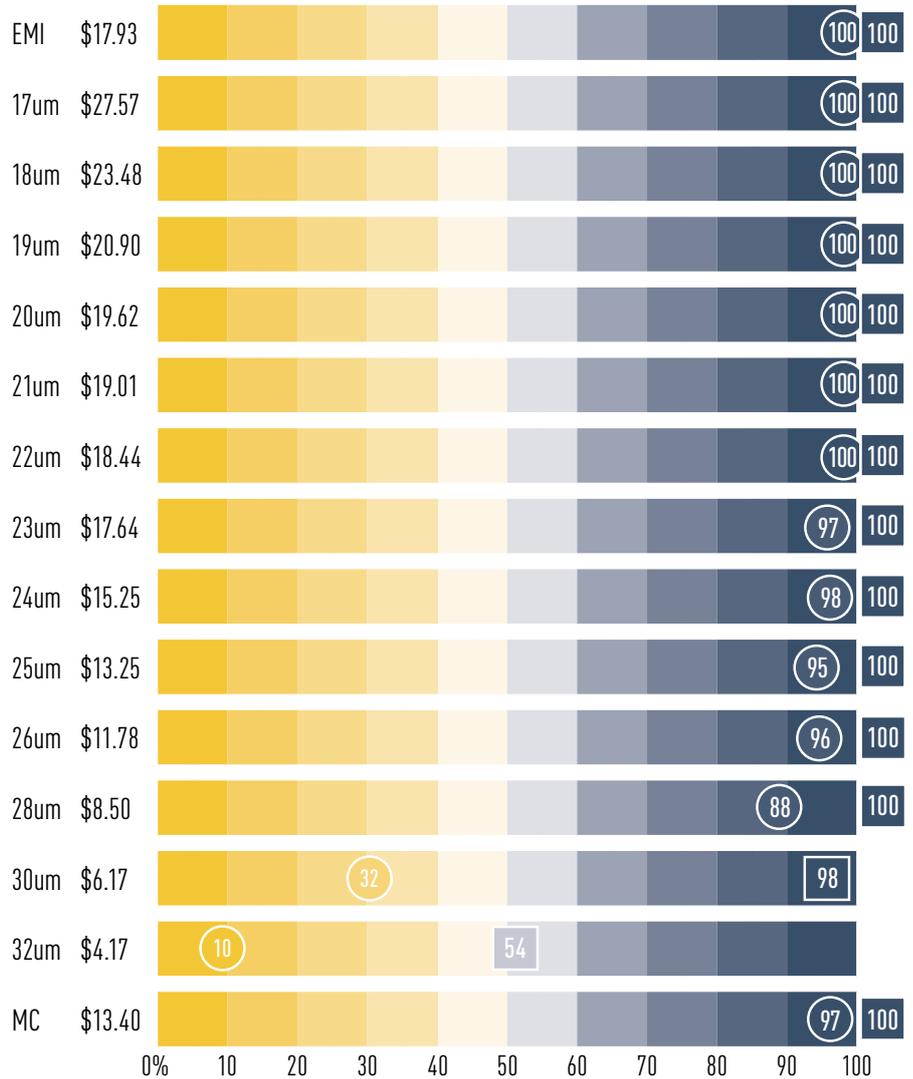
For the past three months, the monthly EMI averaged at \$17.93, tracking at the 100th percentile against the previous five-year monthly EMI. This means that in the previous five years the monthly EMI has never recorded a price higher than the current \$17.93 (February 2018 – April 2018).

As well as tracking at the 100th percentile over the previous five years, the EMI is also at the 100th percentile when compared to the decade February 2003 – January 2013. This means the current EMI of \$17.93 (February 2018 – April 2018) is higher now than it was for all that decade.

The mid and finer microns and Merino Cardings (MC) have continued to perform particularly well recently. For the past three months Merino Cardings averaged at \$13.40, operating at the 97th percentile for the previous five years and the 100th percentile for the previous decade.

For the same period, 18 micron averaged at a monthly value of \$23.48 (100th percentile for the previous five years and 100th percentile for the previous decade), 21 micron averaged at \$19.01 (also 100th percentile for the previous five years and 100th percentile for the previous decade), and 28 micron averaged at \$8.50 (88th percentile and 100th percentile respectively). **B**

AVERAGE MONTHLY EMI FOR FEBRUARY 2018 – APRIL 2018 COMPARED WITH
● PREVIOUS 5 YEARS FEBRUARY 2013 – JANUARY 2018
■ THE DECADE FEBRUARY 2003 – JANUARY 2013



MARKET INTELLIGENCE: FREE VIA SMS

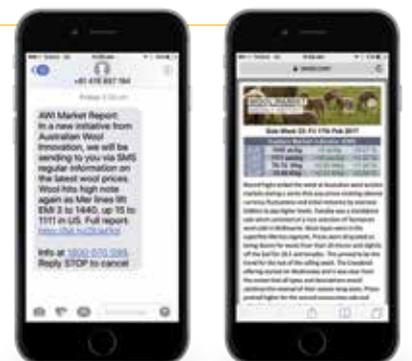
In an initiative launched last year, AWI is sending wool prices and market intelligence direct to about 5,000 woolgrowers' mobile phones.

The woolgrowers receive the latest movements in the EMI in a simple text message (see left image), including a link to a full price report that provides more detail about price movements (see right image).

If you would like to subscribe to the free SMS service, visit www.wool.com/sms where you will be asked to input your name and the mobile phone number to receive the SMS.

You can unsubscribe from the service at any time by replying to the AWI SMS message.

MORE INFORMATION
www.wool.com/sms

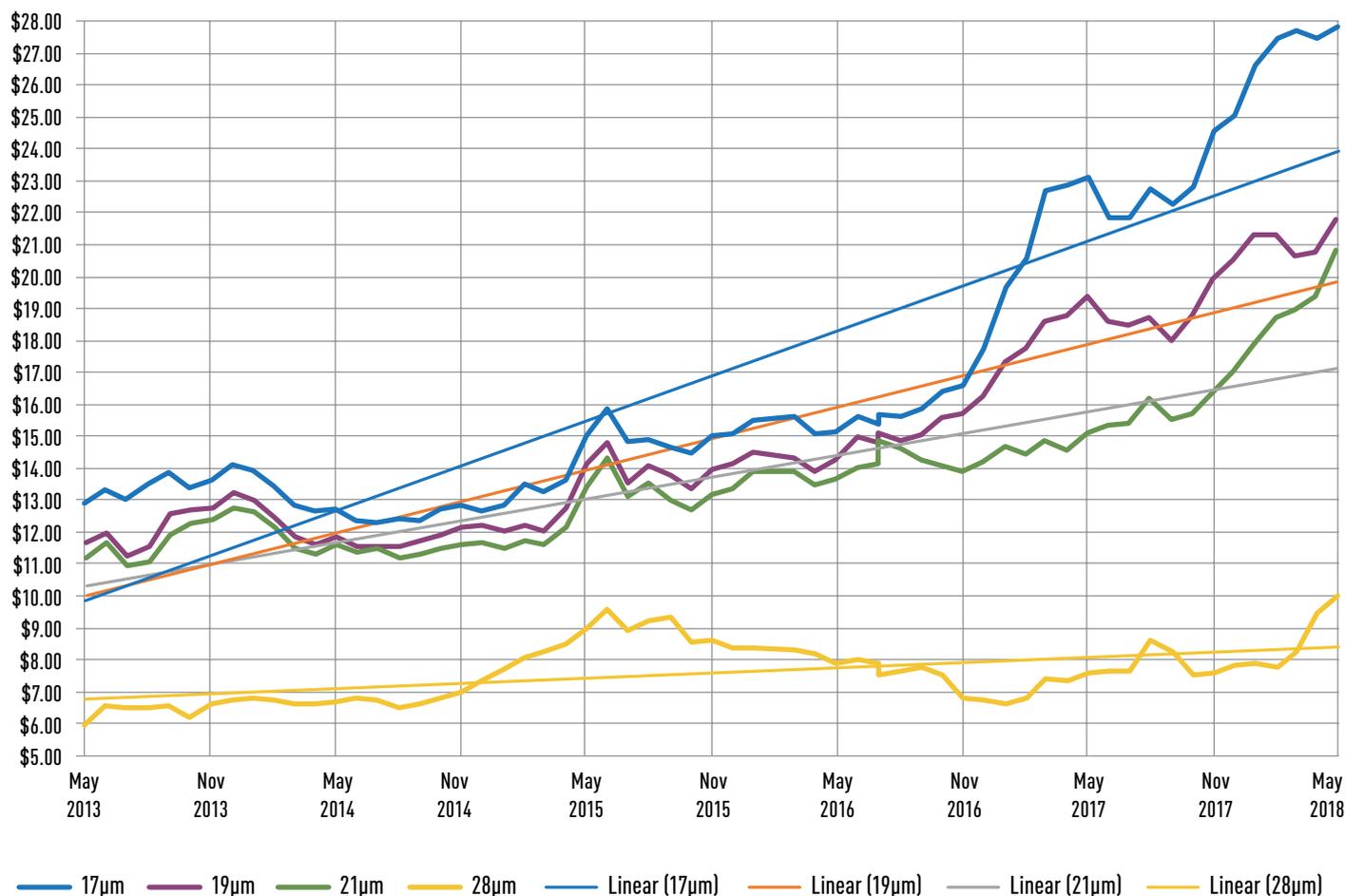


IGIGENCE REPORT

POSITIVE TRENDS FOR ALL MICRONS

It has so far been a continuation of solidarity for woolgrowers over the past nine months as prices build on last season's progress, and production has remained steady despite some tough seasonal conditions over recent months.

5 YEAR PRODUCTION COMPARISON VALUE 2013-2018



Superfine (<18.5 micron) wool prices have seen considerable growth this season as demand has set in for these wool types as the new next to skin market opens up competition with Italian mills who are keen to secure a superfine wool supply for more traditional purposes. Monthly average prices for 16.5 micron have lifted 680ac/kg clean in 12 months, while 17 and 18 microns have rallied 502ac/kg and 216ac/kg clean respectively. Last season superfine prices produced almost 32% of our AU\$3.4 billion clip value while accounting for around 24% of the wool produced.

Fine wool prices (19-21 microns) have also performed well over the past 12 months. While not receiving the same gains of the

superfine section, it is worth considering that this bracket is where the bulk of the Australian wool clip is captured. Prices for 19, 20 and 21 microns all rose between 200-400ac/kg clean in 12 months, on the back of previous season price rallies.

Last season 46% of Australia's wool clip was between 18.5 and 21.5 microns, illustrating how demand is still outweighing our largest wool supply and pulling it through the pipeline.

Medium wools have also been in high demand, particularly in recent months which has seen the 22 and 23 microns prices jump from 1407ac/kg and 1368 ac/kg in March 2017 to 1850ac/kg (+447ac) and 1798 ac/kg (+430ac) 12 months later. This is a result that exemplifies

that the recent demand in not just for the finer micron types but for all of our Merino types.

Crossbred wools have remained steady, particularly the broader end, however 26 micron wools have also been caught in the increasing fibre demand, lifting 169ac/kg over 12 months. While crossbred prices have remained relatively unchanged, pressures from a large wool supply due to high lamb prices have meant current price levels are a good result for the producer who can receive both incomes.

With supply predicted to remain at similar levels for season 2017/18, and with demand staying firm, there is little reason that prices cannot too.

RISE IN PRICE OF WOOL VERSUS OTHER FIBRES

The price of wool is rising and breaking away from other fibres, both man-made and other natural fibres.

As crude oil prices could swing up or down, depending on perspective in the near future, it harbours uncertainty for synthetic fibres and cotton as they try to compete for market share and price.

Wool, on the other hand, is somewhat free from the implications of changing alternative fibre prices and sits alone for quality and quantity as a natural fibre resource for eco-conscious consumers.

Brent crude oil prices passed through USD\$75/bbl last month, which analyst PCI Wood Mackenzie says could indicate a moving of prices back towards \$100/bbl in the near future.

Low oil prices have been inevitably enjoyed since 2015 as a new shale supply was found and many believed peak oil demand had been hit. However, the past year's low prices caused some troubles for many producers as operating costs remained up. Synthetic fibre and cotton producers may need to increase prices as higher labour, transport, environmental and chemical costs put their margin at risk. Water costs in particular for cotton continue to mount and entitlements become increasingly harder to come by.

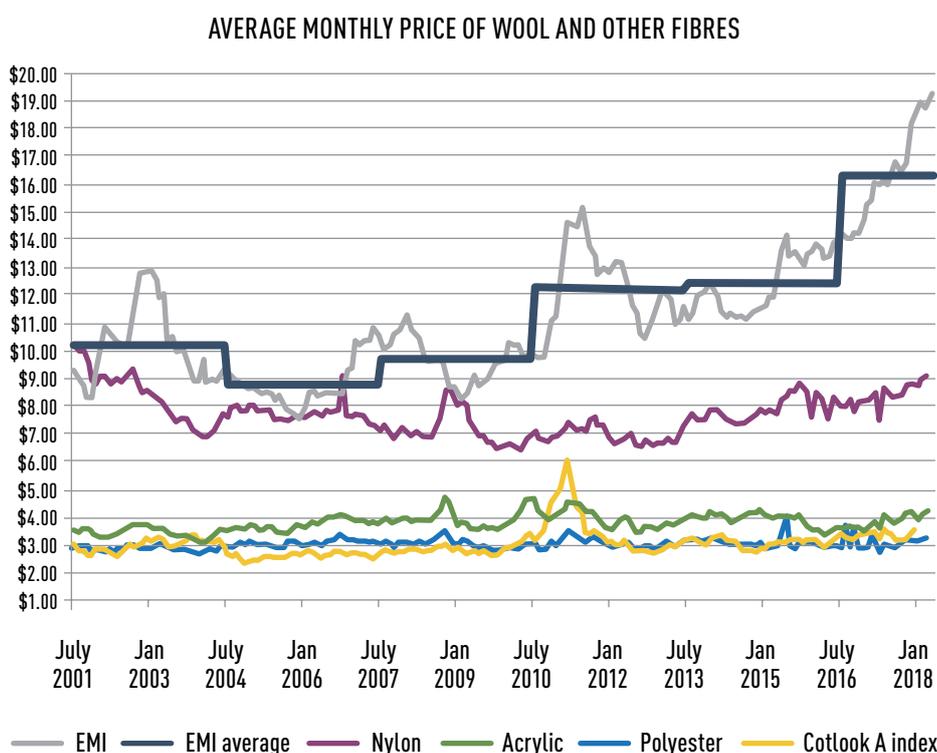
These escalating costs will need to be passed on to the end consumer, ultimately reducing the major benefit of using these cheaper fibres: price.

In 2017, according to market research company Statista, oil-based synthetic fibres accounted for around 64% of the world fibre consumption, cotton 24% and wool just 1-1.5%.

Wool is not a suitable alternative to cotton and synthetic fibres for processors to switch between as prices increase or decrease, as low volumes make it uneconomical to change. Therefore, a price change in these 'other' fibres will not cause a relative shift in wool prices as the price of 'other' fibres is highly determined by production cost while wool is set by demand.

Wool's quality and performance as a fibre cannot be easily substituted for synthetic fibres or cotton by designers and manufacturers, as the product result will not be the same.

The notion of not being a competitor may sound daunting to some, however it does allow wool to be free from the price constraints of these 'other' fibres, meaning the price of wool is determined by the



consumer demand for it, and leaves the price limit 'open' for consumers to define.

DEMAND DRIVES WOOL'S PRICE RISES

The past decade has seen efforts to establish wool, and in particular Merino wool, as a premium fibre and subsequent premium prices have been received. This has seen prices climb steadily but surely over the past five years, and even more so over the past year lifting \$3.27/Kg clean in 12 months.

There have been false and misguided reports to claim the eight-year price drive for wool is a result of low supply. While supply is low comparatively to the halcyon and falsely held up price levels of the reserve price days of the late 1980s, the key thing to note is that Australian wool production has been on par since 2009, when the sustained price surge commenced.

In the past season of 2016/17 AWTA tested 357,785 million kilograms of wool, just 1.7% less than the 363,879 million kilograms in of 2009/2010, while the EMI has lifted 62% or AU\$5.4/Kg clean in the same time frame. Quite simply, supply cannot keep up the new demand for the fibre.

This increase in demand for our fibre is heavily driven through the marketing efforts of not just the Australian woolgrowers through AWI's marketing arm The Woolmark Company, but also by working ever more closely with processors, designers and retailers.

In fabric innovation and development, The Woolmark Company has encouraged designers and labels to create products in new clothing markets and build demand that pulls our wool through the pipeline.

The demand comes in both traditional markets of suits, jackets and coats, and new markets such as active wear and next to skin clothing. These technical developments have transformed the ability of wool to market itself away from the traditional market sectors, and stereotypical impediments to wool use, and reveal its true ability as a premium natural performance fibre that breathes and regulates temperature.

Significant global brands are now using the story of wool or Merino in their marketing campaigns, which illustrates that wool has hit a new paradigm whereby premium prices over alternative fibres is the new normal. **B**

STRONG EARLY ADOPTION OF WOOLQ



WoolQ can be used on any mobile phone, tablet, laptop or desktop. When no Wi-Fi or internet connection exists, the **WoolQ App** ensures users can still access the tool.

Three months following the launch of the first piece of WoolQ portal functionality, the WoolQ eSpeci, **adoption of the WoolQ portal is gaining strong momentum.**

Woolgrowers, classers and brokers are registering their details on the WoolQ portal, enabling them use of the tools that have been released to date and ensuring they have immediate access to future functionality as it is launched throughout July and beyond.

Several hundred users have also established business profiles on the portal, which assists in showcasing their business to the industry, highlighting their brand story, provenance and service offering.

Woolgrowers have been using the portal to capture their wool data at the time of shearing and to connect with their classers, business partners and other contacts.

Several farms have completed their shearing using the WoolQ eSpeci and have digitally sent their eSpeci to their broker, with reassuringly

strong feedback about the tool from all partners involved. Both woolgrowers and classers have reported the WoolQ eSpeci to be intuitive and easy to learn. The elimination of illegibility issues within the speci has been reported as a huge upside of the WoolQ eSpeci, as has the ability to store and archive the data in the woolgrowers' own, secure dashboard, with a view to building a base of data that can be tracked during years to come.

"We helped each other through the process on the first time we used the WoolQ eSpeci and we got the hang of it quite quickly. Next year we'll be even quicker with it," was one such comment by a husband and wife team from NSW who recently used the WoolQ eSpeci to record their clip.

Masterclasser Raelene Laidlaw from Victoria, who has been actively using WoolQ, stated: "Any documentation process that increases the opportunity for higher rate of accuracy is vital in any all shearing shed. I have used WoolQ in shed and found the ease of setting up mobs, lines and preferences to be very straight forward and self-explanatory. The presser was able to follow the wool book lay out to correctly enter the bales and information."

A number of video tutorials and user guides have been developed and are accessible in the Education section of WoolQ, which have helped users become familiar with the tools the first time they use them. The WoolQ customer call centre has also supported users through their experiences and remains available 7 days a week for over-the-phone support.

July will see the launch of further WoolQ functionality, including the Ready Reckoner calculator, the Industry Forum and the expanded woolgrower Dashboard, offering even more ways for woolgrowers to get value out of the WoolQ portal. These tools will not only provide woolgrowers with further insights to help in decision making, they will foster a stronger connectivity and interaction between parties who would otherwise be physically isolated from fellow colleagues and peers.

REGISTER ON WOOLQ NOW

If you're yet to sign up to WoolQ, do so right away by visiting www.woolq.com, to start benefiting from the various tools and functionality. Registering takes less than two minutes and once you have done so, you'll be provided with a personal login that will enable you to explore the WoolQ portal and what it has to offer. **B**

To register, simply visit www.woolq.com and click on the **Register** bar on the home page to access the quick and easy online form.





WIN!!!

If you submit a photo that gets published in Readers' Photos, you'll receive an autographed copy of Andrew Chapman's *'The Shearers'*.

This 170-page hardback book documents the lives of the Australian shearers as they go about their work in some classic shearing sheds. It is also available to purchase from www.andrewchapmanphotography.com and good bookshops.

READERS' PHOTOS!

Have you got any interesting photos that you'd like to share with other readers of *Beyond the Bale*?

If so, please email the image and a brief description to the editor of *Beyond the Bale* Richard Smith at richard.smith@wool.com.

 **Beyond the Bale has also launched its very own Instagram account.** You can follow [@beyondthebale](https://www.instagram.com/beyondthebale) on Instagram and also tag us in your photos for your chance to be featured. We will also be showcasing on Instagram some photos emailed in to Readers' Photos (we'll ask your permission first), so you can keep emailing them in.

PUFFED!

This is Mark Swaffer's 4-year-old Bodhi Woodstock-Swaffer from Tumbly Bay in South Australia: "He had managed two full runs hitting most of us with his broom and was super excited for lunch until he fell fast asleep at 11:55am!"



MORNING TEA WITH DAD

Maegan Taylor of 'Ravensleigh' at Grenfell in the Central West of NSW having morning tea and a patty cake in the shed with her dad Paul Taylor and the shearers.



MINI FARMER IN THE MAKING

Leisl and Kevin Pfeiffer sent this photo of their 3¼ year old son Charles of 'Round Hill' at Parrakie in South Australia. Charles is helping his dad and uncle at crutching time, using his custom-made sweeper.



BLANKETED IN WOOL

Liz Preece sent in a photo of her four-month-old son Toby helping with shearing at 'Little Forest' in Cressy, Tasmania.



BACK TO THE DAY JOB

Hugh & Heather Cameron (@the_yanko) of 'The Yanko' at Jerilderie, NSW, uploaded on Instagram this image of Trans-Tasman Test winner Jason Wingfield (see page 59) back doing his regular work. "New Zealand one day, The Yanko the next!"



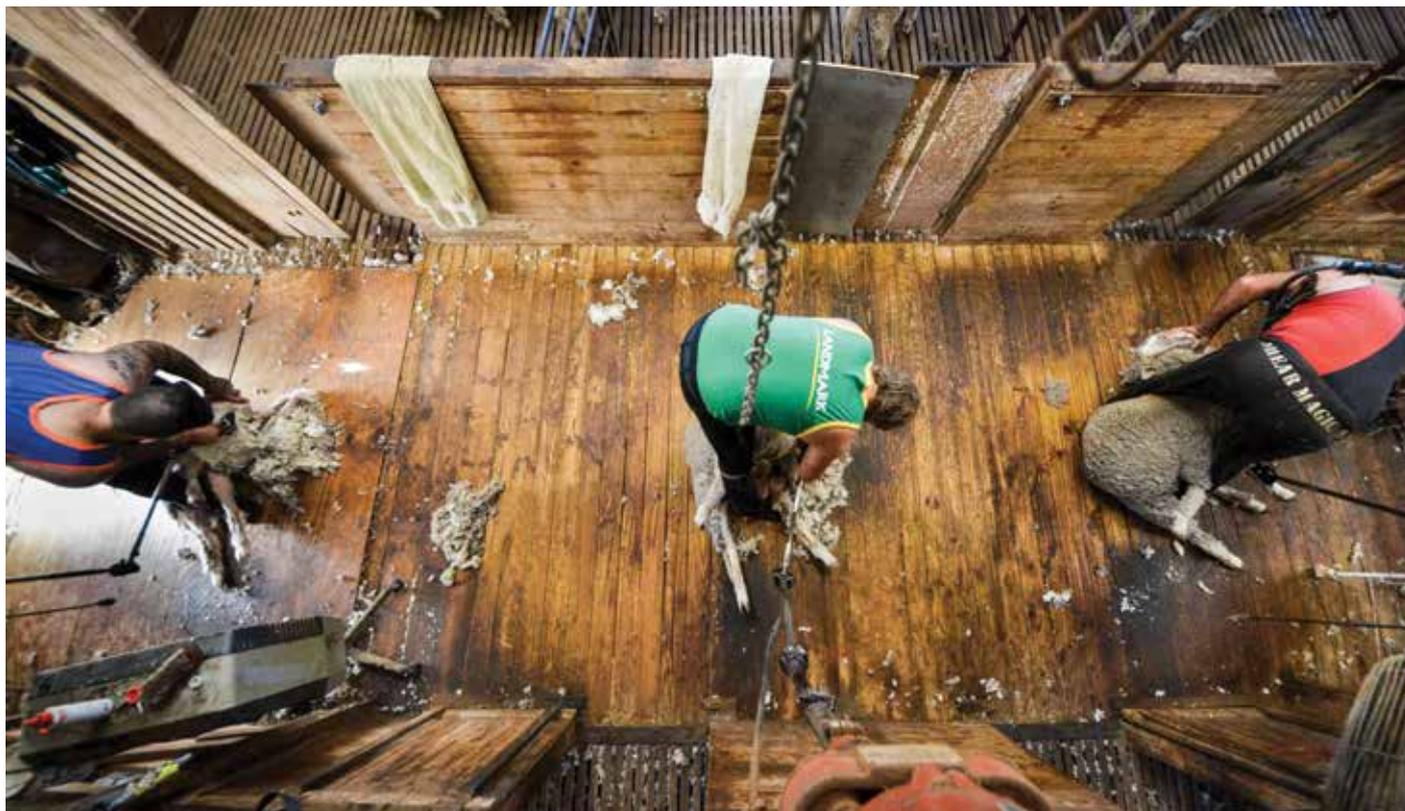
DOG ON THE TUCKER BOX

Archie, the dog of Pat Dwyer of Yass in NSW, doing his Dog on the Tuckerbox impersonation! The real bronze sculpture of the Dog on the Tuckerbox is at nearby Snake Gully.



BIRD'S EYE VIEW

Fiona Tiller of Balaklava in South Australia sent in this photo of Patty, Timmy and Aurthor during the January shearing run at Mike Tiller's shed.



SMOKO TIME!

Michael Dreckow was crutching in the paddock on a crutching trailer out at 'Nikalapko Station' in the Riverland of South Australia when, instead of jumping off the side of the trailer, this ewe decided to jump in the wool pack where the wool from crutching was being placed. "After standing in there for a minute, she decided to get comfortable but unfortunately for her, she had to be removed."



BELLA ARABELLA

Both of Arabella Hawkins's parents have featured in *Beyond the Bale* before, now it's her turn! Arabella's parents are Geelong AFL star and Fibre of Football ambassador Tom Hawkins (@tomhawkins_) and granddaughter of legendary Boonoke studmaster Basil Clapham Emma Hawkins (@emmahawkins_).



TAHLIA IN THE SHED

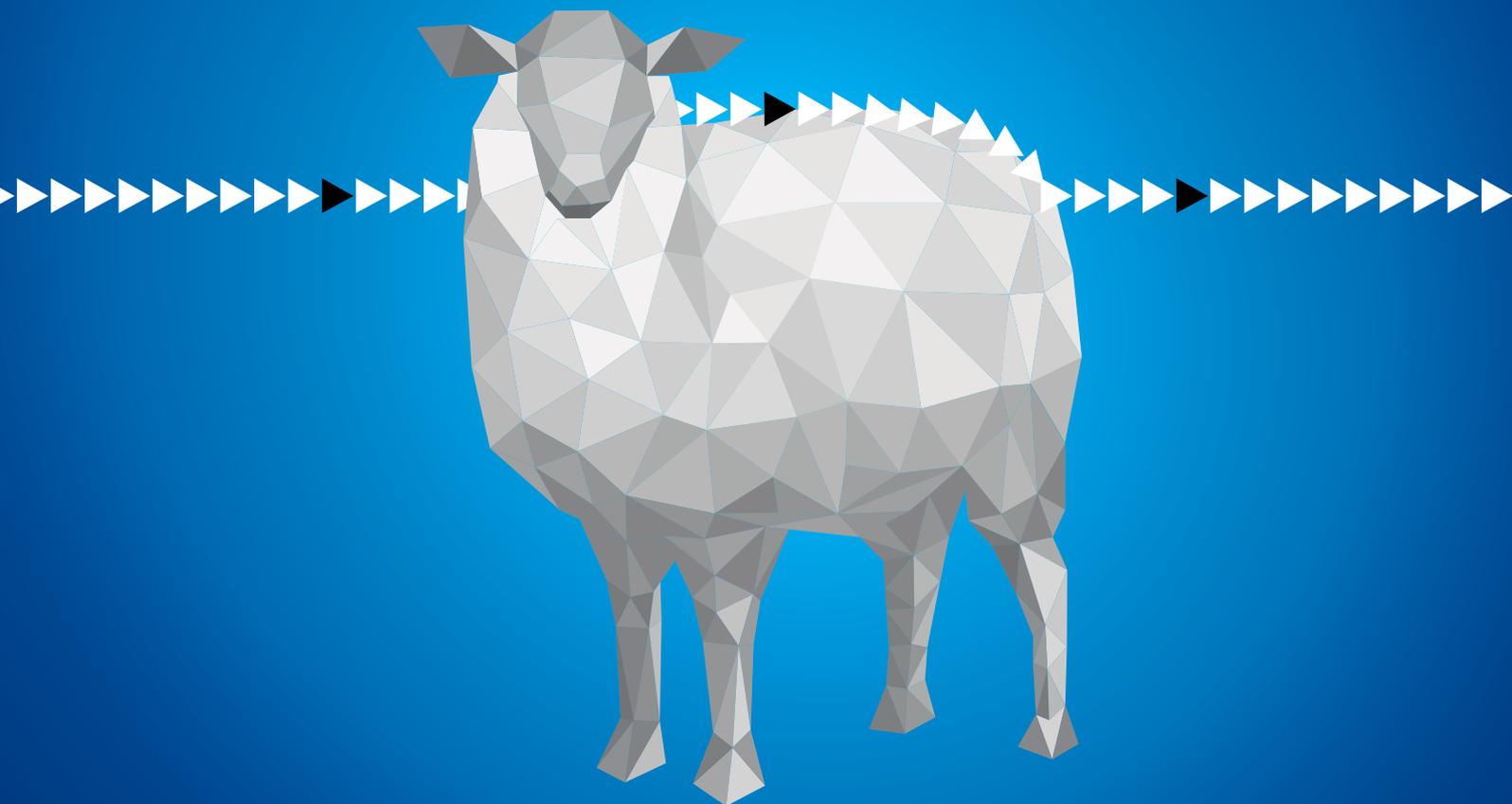
Caroline Hermes from 'Deakin' at Bethungra near Cootamundra, NSW, sent in this image of Tahlia Delaney: "What can't this girl do? Not only is she an energetic and efficient roustabout, she is also studying for her Woolclassers' Certificate at night in Temora, and recently we discovered she can shear as well!"



HANDCRAFTED BALE HOOKS

Tim Watts of 'Mederberrin' at West Pingelly in WA sent in this photo of a bale hook handcrafted by his brother Chris in his forge. It is made to an original pattern and specification popular in his region for decades. Being made from car coil springs, they provide a reliable hook into the bale. The handle is made from local hardwood timbers from their farm including wandoo (white gum). Contact Chris on 0427 331 317 or watschris65@gmail.com if you are interested in purchasing one - they are proving to be popular as a display item as well as a functional tool.

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