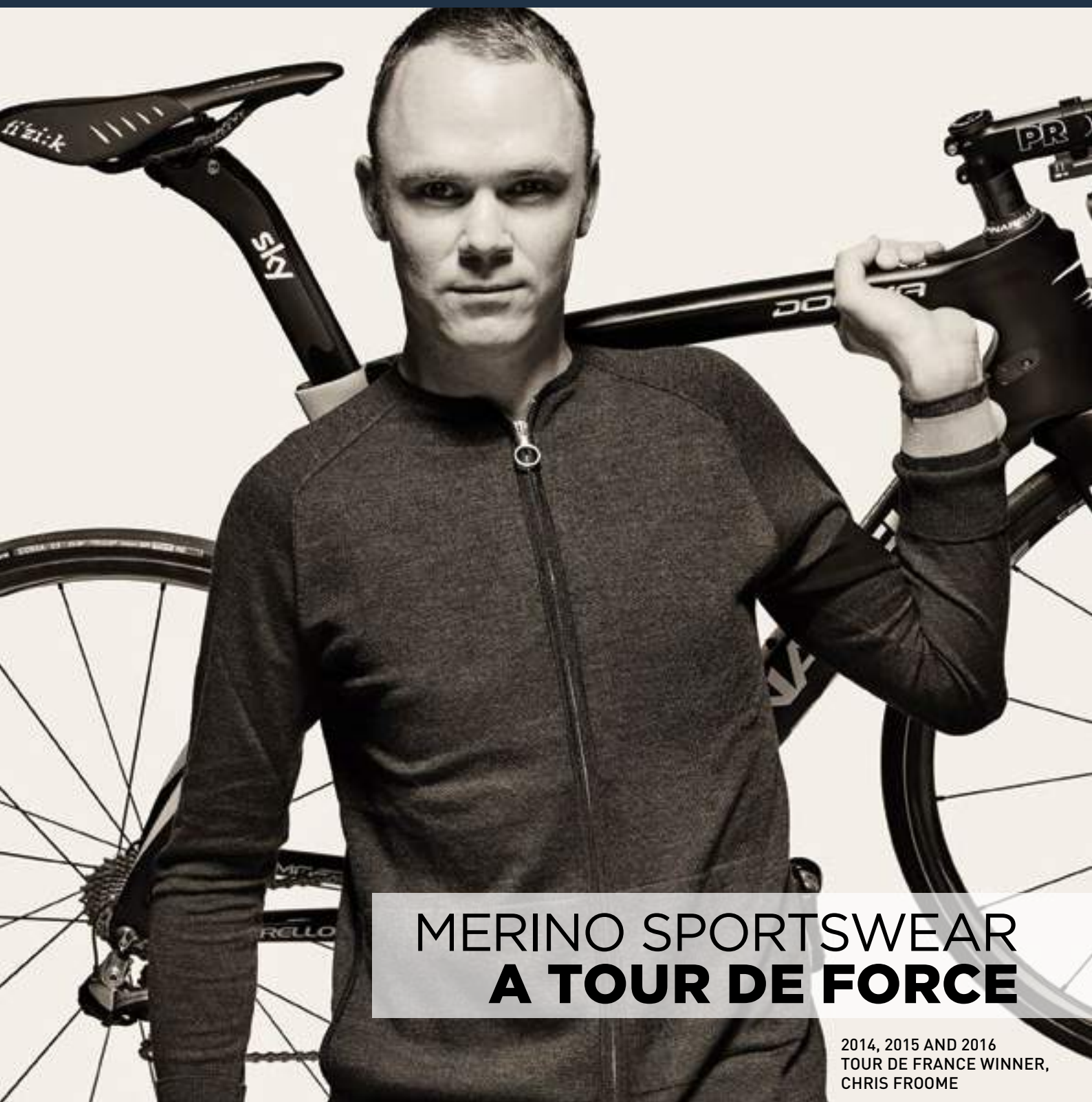


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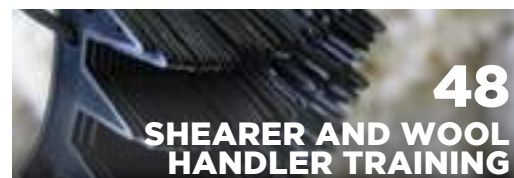
PROFIT FROM WOOL INNOVATION

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MERINO SPORTSWEAR A TOUR DE FORCE

2014, 2015 AND 2016
TOUR DE FRANCE WINNER,
CHRIS FROOME



Beyond the bale

www.wool.com/btb

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FRONT COVER

Three-times Tour de France winner and current champion Chris Froome wearing Merino wool apparel (by Rapha) as part of a British GQ magazine feature promoting Merino wool in sportswear.

The cycling champion appeared in the feature along with eight other British sports stars wearing Merino, including England cricketer James Anderson.

The British GQ feature was an initiative by AWI to help increase demand for Australian Merino wool in the country's premium sportswear market. See page 4.



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AWI INVESTMENT STRATEGIES

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

POSITIVE START TO 2017

Wool prices have made a strong and welcome start to 2017 with the EMI reaching above 1,400c in each of the first six selling weeks of the year. This follows on from a positive 2016, during which the EMI was well above 1,200 cents for the entire year and pushing above 1,300c on several occasions during the second half of the year. We all hope that this upward trend continues so as to reward the hard work, passion and loyalty that woolgrowers have demonstrated towards the fibre. I believe the strong prices are due to a consistent and steady long-term shift in consumer sentiment towards the fibre and appreciation for its premium natural qualities.

NEW STRAIN OF RABBIT CALICIVIRUS RELEASED

A strain of rabbit calicivirus (RHDV1 K5) new to Australia is being released during the first week of March at more than 600 sites across the country. It will boost current biocontrol activity that is already impacting pest rabbit populations and help woolgrowers increase their productivity. Community organisations, Landcare groups and government land managers are participating in the national roll-out of the virus, as part of the RHD Boost project funded through the Invasive Animals CRC with additional funding from AWI. AWI has also funded a series of 10 short rabbit control videos to help ensure an effective rollout and provide information on conventional control methods such as warren fumigation and ripping.

MERINO LIFETIME PRODUCTIVITY (MLP) PROJECT

Thanks must go to the many ram breeders that nominated to be involved in the latest round of joinings in the MLP project. Sires from across six states have been selected

to have their progeny assessed visually and objectively throughout life at four locations across Australia. An oversubscription of nominations has allowed for a wide range of genetics to be considered and helped to facilitate a robust sire selection process. Those ram breeders that missed out are encouraged to nominate for the Macquarie (Trangie, NSW) December 2017 and the New England (NSW) 2018 joinings. MLP site field days in March and April will showcase the first and second drops of progeny at Elders Balmoral (Vic), and the first drop of progeny for MerinoLink (Temora, NSW) and Pingelly (WA). Head to the MLP website www.wool.com/MLP for more information.

WATER RESISTANT MERINO JACKETS

Hundreds of woolgrowers across Australia have purchased and are proudly wearing the Woolmark Optim WR jacket that AWI has made available at cost price to wool levy payers – see back page. These jackets use the latest Optim™ technology by which Merino wool is woven into an immensely dense fabric that is resistant to water and wind, while retaining all of Merino wool's fine properties, such as breathability. The 100 per cent Merino wool Optim fabric has also been commercially launched and is being used in both the fashion and outdoor markets. In this edition of *Beyond the Bale*, we report on two examples of brands that will be launching jackets made from the fabric to consumers later this year: Devold from Norway (see page 9) and Ibex from the USA (see page 10).

MORE WOOL IN SPORTSWEAR

A key part of AWI's marketing strategy is to place a large focus on increasing Merino fibre's presence in the sports and outdoor market. We are increasingly collaborating with leading manufacturers and brands in these sectors to promote the natural benefits of wool as a performance fibre. Reports from the latest trade shows at

which AWI has exhibited indicate there is a strong interest in wool as a technical fibre. While there are many sports and outdoor brands now incorporating wool in their collections, there is still further significant potential for growth in demand for wool in these sectors and also in the increasing market for 'athleisure' – a term used for activewear that can be used for non-active and casual, everyday use.

INTERNATIONAL WOOLMARK PRIZE

The womenswear award and the menswear award of the 2016/17 International Woolmark Prize were both presented in January. The interest in these awards from fashion communities and media globally continues to be phenomenal which is important to help increase the global demand for Australian wool. It is helping put wool back on the agendas of fashion designers across the world, and consequently into retail stores for consumers to purchase. The winners have the opportunity to be stocked in the most important retailers around the globe including David Jones in Australia.

THANKS TO DR PAUL SWAN

Dr Paul Swan, AWI's General Manager – Research, has resigned and will leave the company at the end of this month. I've known and worked with Paul since July 2001, when we both joined AWI, and I have the greatest respect for his service to the Australian wool industry. Whilst there is never a good time to lose a senior team member, especially one of Paul's calibre, it is probably as close to the right time for renewal given we have completed the company's strategy documents and the industry is in such a healthy position. It will not be the end of Paul's contribution to the Australian wool industry. He has advised that he intends to remain active, and continue to try and make a contribution to the industry I know he loves.

WOOL POWER

Some of the **UK's greatest sports stars** have been photographed in their favourite Merino wool training attire for **British GQ magazine**, in an initiative by AWI to help **increase demand** for Australian Merino wool in the country's **premium sportswear market**.



England's most successful bowler of all time **James Anderson** was one of the sporting stars that featured in the **British GQ** wool promotion. The 'King of Swing' was pictured wearing a Merino wool top by **Loro Piana** and Merino wool pants by **Michael Kors**.

AWI and **British GQ** have collaborated to produce a digital campaign featuring some of Britain's sporting greats, and a 10-page photographic showcase titled 'Wool Power' in the magazine's January 2017 issue, that aims to raise awareness in the UK, and globally, of Merino wool and its use in activewear and sports luxe apparel.

In the exclusive promotion, **British GQ** paid tribute to some of the UK's most exciting talents of today – including three-time Tour de France winner Chris Froome (see front cover) and legendary England cricketer James Anderson – modelling the finest in Merino wool athletic attire.

British GQ hosted on its website a series of three short films, and articles, featuring the sportsmen in action whilst displaying the performance power of Merino wool:

1. The first episode looked at what boxing and ballet have in common, featuring boxer Conor Benn and the Royal Ballet's Eric Underwood who both train in wool.
2. The second episode looked at seven famous athletes at the top of their game

training in wool: soccer player Alex Oxlade-Chamberlain, rugby players Chris Robshaw and Thom Evans, gymnast Louis Smith, cyclists Chris Froome and Mark Cavendish, and cricketer James Anderson.

3. The third episode focused on the Merino wool outfits themselves with an innovative video featuring an 'invisible man' putting the clothing through its paces. Featured apparel includes a wool blend hoodie by **Stone Island**; wool track pants by **Brunello Cucinelli**; hooded Merino wool sweater by **John Smedley**; wool blend dip-dyed tee and wool jersey pants by **adidas**; Merino wool blend base-layer by **Finisterre**; wool blend pants by **Helbers**; Merino wool hoodie by **Mover**; Techmerino Sweatshirt by **Z Zegna**.

"When you are at the top of your game there is only one fabric that can match your performance – naturally."

British GQ

The high impact video, digital and social media campaign targeted a style-conscious,

aspirational audience who invests in buying premium sportswear and fashion. The promotion reflected the changing face of the apparel market as fashion houses and activewear brands now pay real attention to the sports luxe market.

GQ arranged access to the nine high profile athletes in the UK to provide a range of influential independent endorsements for Merino wool across a range of sporting disciplines, and collectively with more than 12 million social media followers the awareness of wool will reach a new audience. All the apparel featured in the promotion is commercially available which directly helps increase consumer demand for the featured brands' wool products.

British GQ has a global reach (print + online + social) of 4.16 million, print readership of 413,000, 3 million online unique users and nearly one million social media followers (Facebook + Twitter + Instagram). The feature may also be syndicated in other markets by **GQ**.

"It is nature itself, in the form of Merino wool, that is the undisputed champion when it comes to pure action," says **British GQ**.

"Check out the structure of a fibre of wool. Rather than simply being a thread, it has seven distinct layers that help give it its extraordinary properties," which **British GQ** reports are softness, elasticity, anti-static, moisture management, temperature regulation and odour resistance.

B

MORE INFORMATION

View the videos/articles at
www.gq-magazine.co.uk/brand/woolmark-brand



Having grown up in a poor suburb of Washington DC, ballet dancer **Eric Underwood**'s natural talent won him a scholarship to the American School of Ballet, eventually becoming a soloist with The Royal Ballet in 2008. He is pictured here wearing Merino wool tights by **Falke**.

UK SPORTS STARS SHOWCASE MERINO WOOL APPAREL IN BRITISH GQ



CHRIS ROBSHAW - RUGBY PLAYER

England international Robshaw is a former captain of his country, and has twice been named Aviva Premiership Player of the Year representing his club Harlequins. In 2017, he will be hoping to make the squad for the British and Irish Lions tour of New Zealand.

What's he wearing? Wool blend top and wool blend pants by **Nike**.



CONOR BENN - BOXER

As the son of the legendary former super-middleweight world champion Nigel Benn, Benn's career has been heavily scrutinised since he turned pro last year. However, after six wins from six fights, he is already being described as one of the sport's hottest prospects.

What's he wearing? Merino wool hoodie by **Polo Ralph Lauren**.



LOUIS SMITH - GYMNAST

Smith is the only British gymnast to win medals at three separate Olympic Games, in Rio, London and Beijing. Smith's success has helped him build a strong media profile, boosted in no small way by winning the BBC's Strictly Come Dancing in 2012.

What's he wearing? Wool pants by **Balenciaga**.



ALEX OXLADE- CHAMBERLAIN - SOCCER PLAYER

The son of a former England international, since joining Arsenal in 2011 Oxlade-Chamberlain has made over 100 appearances for the Gunners, becoming the youngest Englishman to score in the Champions League and following in his father's footsteps by representing England.

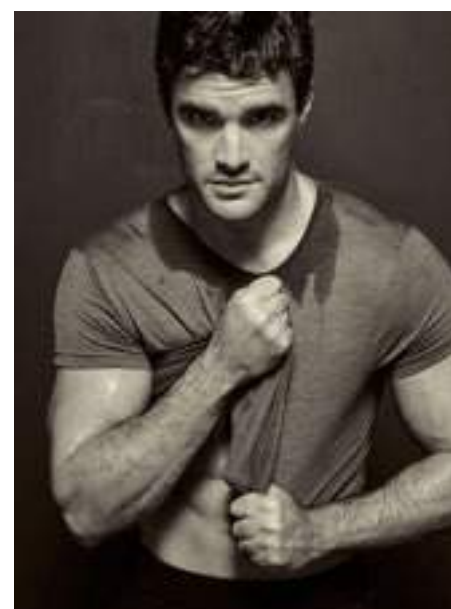
What's he wearing? Wool blend top and wool blend pants by **Nike**.



MARK CAVENDISH - CYCLIST

Cavendish has won 30 Tour de France stages, making him the second most successful rider in the sport's premier event. His success has also earned him an Olympic medal, an OBE and in 2011 he was crowned the BBC's Sports Personality of the Year.

What's he wearing? Merino wool T-shirt by **Armadillo Merino**; Merino wool pants and wool blend sneakers by **Z Zegna**.



THOM EVANS - RUGBY PLAYER

A former Scottish international rugby union player, Evans' sports career ended prematurely when he suffered a serious neck injury at the age of 24. He made a brief attempt at launching a sprinting career in 2012, but is now focusing on acting and modelling.

What's he wearing? Merino wool T-shirt by **Mover**; Merino wool pants by **Z Zegna**.

MERINO

OUTPERFORMING THE REST

Merino wool is a key fibre for running and cycling brand **ashmei**.

Visitors to the **ashmei** stand at The Run Event trade show had the opportunity to use **AWI's virtual reality headsets** to visually experience the source of Merino wool on an **Australian sheep farm**.

UK-based brand **ashmei** produces top quality running and cycling apparel made from Australian Merino wool, and according to the company's founder, Stuart Brooke, **ashmei's** suppliers are selected purely on their ability to produce products with only the highest level of performance.

"I have been involved in the development of high-end sportswear for some of the leading sports brands for the more than 20 years, and when I founded **ashmei** in 2012 I knew Merino wool would play a major role in the development of **ashmei** apparel," Mr Brooke said.

"We don't choose a price point, and then select a fabric and make the best product we can out of it. Rather, we work from the best fibre and develop the clothing for ultimate performance, quality and style. Every product has to be the best there is or we won't launch it."

While the performance benefits of the fibre have always been supremely important to **ashmei**, the company is also using the origin of Merino wool on wool-growing properties in its marketing to retailers and consumers.

The company recently exhibited at The Running Event in Orlando, Florida – one the world's premier running expos which attracted 2,540 key industry professionals, including buyers and retailers from North America and Europe. One marketing item in particular on **ashmei's** stand made a big impact: AWI's 'virtual reality (VR) farm tour'. Visitors had the opportunity to wear VR headsets and be 'transported' to an Australian sheep farm to visually experience first-hand the source of Merino wool.

As well as buyers and retailers, viewers of the VR included representatives from media titles including *Runner's World* – the largest

and most influential media brand in running – which subsequently gave **ashmei** a good review of its Merino apparel in the title's appraisal of The Running Event. Feedback from viewers of the VR was very positive and Mr Brooke said the innovation proved very useful in helping the company tell the provenance story of Merino wool.

"Key to creating the ultimate sports apparel is making sure that the material used is the very best available."

Stuart Brooke, ashmei founder

AWI provides its 'VR farm tour' to a range of brands to use in their marketing – instore as well as at trade shows – as well as exhibiting it itself during the many trade shows it attends during the year, and at student seminars.

While VR is a very useful way of giving people, on the other side of the world, a sense of what an Australian wool-growing property is like, **ashmei** designer Lucy Reeve Smith has gone one step further and actually visited and worked on a wool-growing property in South Australia.

"Wool has always been a fibre that has fascinated me and one I've thoroughly enjoyed using in my design and textiles work," Ms Reeve Smith said.

"I went to Australia to find out more about the production of wool, and what makes it so good. I got a very hands-on experience working on a Merino sheep station in the middle of the South Australian outback.

"My experiences there have left me feeling even more passionate about wool and keen to encourage its use and development within the clothing industry. I think it's a fibre that has so much to offer, with a combination of properties that so many other fabrics

can't provide, while also being natural and biodegradable.

"That's why I love being able to incorporate it into our designs at **ashmei**, knowing that we are providing our customers with innovative garments using the Merino fibre to the best of its ability."

B

MORE INFORMATION
www.ashmei.com



Visitors to the **ashmei** stand at The Run Event trade show had the opportunity to use **AWI's virtual reality headsets** (above) to visually experience the source of **Merino wool on an Australian sheep farm** (below).



JAGGAD

FLEXES ITS MUSCLE WITH MERINO

Activewear brand and new Woolmark licensee **JAGGAD** goes from strength to strength with the launch of its latest range of stylish, high-performance apparel featuring Australian Merino wool.

Australian sports and lifestyle brand – and new Woolmark licensee – JAGGAD has been growing at a rapid rate since it was re-launched in 2013. Initially a triathlon brand, life-long friends and ex-AFL football players Chris Judd and Steven Greene reinvented JAGGAD as a stylish, functional sports performance apparel brand, using the latest technical textiles and construction techniques.

After successfully launching Merino wool into its Spring/Summer 2014 collection, JAGGAD has continued to work alongside AWI for fabric development to remain at the forefront of innovation. Their number of wool-rich styles continues to grow each collection, as does their consumer base, having recently launched into overseas markets including south-east Asia, Canada, the USA and UK.

JAGGAD's latest Autumn/Winter 2017 collection includes 14 wool-rich styles for both men and women, including high-performance singlets, short- and long-sleeved T-shirts, and dance shorts.

"With our first Merino range landing only two years ago, we are thrilled with the continued growth of JAGGAD and are really excited with the continued development of our activewear range and garments featuring premium Australian Merino wool," said Mr Greene, who used to play for Hawthorn.

"Woolmark's MerinoPerform trademark, with which we are honoured to now be certified, is an important endorsement for our product. JAGGAD's Merino garments are durable and provide our customers with comfort, ensuring we continue to support the everyday athlete to feel their best while looking their best."

To celebrate the launch of their Autumn/Winter 2017 collection, online retailer The Iconic is running a competition with JAGGAD, in which the lucky winner will score a training session with Carlton footy legend and dual Brownlow medal winner Chris Judd, as well as a JAGGAD wardrobe, featuring the latest Merino wool activewear.

"With 2016 being such a successful year we have recently confirmed our own stand-alone show this May, where we will showcase JAGGAD MerinoPerform product at Mercedes Benz Fashion Week Australia. We are excited to have all our disciplines – children's, cycle and active – showcased in front of a national audience and global buyers."

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Autumn 2017 season wool blend Demi Open Back Muscle Tank from **JAGGAD**.



Autumn 2017 season wool blend Demi Open Back Muscle Tank from **JAGGAD**.



Autumn 2017 season wool blend On The Line Muscle Tank from **JAGGAD**.

MORE INFORMATION
www.jaggad.com

NEW TRENDS FOR WOOL IN ACTIVewear

Merino wool's natural benefits teamed with **technical innovations** are driving the **demand for the fibre in the activewear market**, as seen at recent sports and outdoor trade shows attended by AWI.



A packed AWI stand at the ISPO sports and outdoor trade show in Germany.



ISPO in Munich was attended by more than **85,000 visitors** this year.

Australian wool has shown its versatility to thousands of textile manufacturers, brands, designers and retailers at key global sports and outdoor trade events in the northern hemisphere.

At the world's largest activewear trade show, ISPO in Munich, attended by more than 85,000 visitors, and Outdoor Retailer in Salt Lake City, wool enjoyed increased attention from those looking for the latest fabrics that use a performance fibre produced in a natural environment from a renewable source.

Merino wool has positioned itself as a versatile, multifunctional and technical fibre in this sector thanks to its unique natural features and benefits, such as breathability, temperature control, moisture management, elasticity and resistance to odour.

AWI advisor for Sports/Outdoor Lars Ulvesund said at both ISPO and Outdoor Retailer there was not only increased interest in Merino wool as a technical fibre but also in the latest innovations on offer.

"This encompasses fabric and garment constructions that really stand out from the crowd, be it visually or through technical properties," says Mr Ulvesund. "Examples of this include circular knit fabrics with pronounced structures and seamless garments in new yarns. It's also interesting to see that lightweight flat knits are entering the market and competing in the next-to-skin market even though it is still early days.

"Most significant however was the presence of spinners at the trade shows and how they are getting more and more attention. Yarns are more important than ever before in the process of new knit innovations."

AWI exhibited its new edition of The Wool Lab Sport at the trade shows. The Wool Lab Sport, part of the Spring/Summer 2018 edition of The Wool Lab, showcases the latest innovative, commercially available Merino wool fabrics and yarns for a mix of both performance and athleisure apparel.

AWI has been attending ISPO and Outdoor Retailer since 2006 and 2007 respectively, demonstrating and showcasing the features and versatility of Australian wool as part of its strategy to influence demand for the fibre. In the past decade, wool's penetration in the outdoor and sports apparel market has remarkable and continues to grow.

WHAT THE BRANDS SAY ABOUT THE MARKET FOR WOOL

At the trade shows, key brands reported an increase in demand for wool, diversification into new sectors of the market, the development of new wool innovations, and consumers understanding the natural benefits of wool and willing to pay a premium over other fibres for those benefits.

One of the world's oldest companies producing wool product for the outdoor market – since 1853 – and in the very top tier of wool apparel production, is Norwegian company **Devold**. Working closely with their customers, Devold CEO Catherine Stange says exciting innovations arise from very specific requirements from consumers.

"Right now there's a clear trend towards finer micron Merino wool. Our 17.5-micron collection is getting more and more traction from consumers who are adapting that to a year-round alternative. In addition, we are able to expand and evolve the use of Merino into new categories. For instance, we've developed a collection for the sports/high-intensity training segment of the market based on 16.5-micron wool mixed with Tencel."

For Thomas Moe, Head of Mountainwear at German brand **Ortovox**, he sees an increase in demand for all wool products.

"There's a big trend in wool, a lot of people are jumping on the wool trend so we as a brand have to go deeper. Deeper means we have to go to the origin and have close contact with the farms, showing what happens from sheep to shop."

"When people understand the benefits of wool they don't talk about the price because they understand the need for wool. Wearing wool, you have all the fibre's benefits such as odour resistance, and you need less garments. One wool garment is going to be more expensive than a comparable polyester garment, but since you need less garments you actually come out better."

Outdoor, ski and sailing brand **Helly Hansen** is also seeing an increase in demand for wool, particularly its base-layer range.

"We're growing what we are doing with pure Merino wool because it's what our customers want as it is superb at keeping you warm and comfortable," says Helly Hansen Category Managing Director Kristoffer Ulriksen. "Merino wool is a more expensive fibre, but the interesting thing is that we're seeing more and more markets and consumers understanding the benefits of Merino wool; they are willing to pay more to get that added benefit of warmth and comfort."

"One of the exciting new products we have this season is the new seamless Merino wool product. We've had some people testing it and the feedback from our athletes trialling it is that it has fantastic comfort. People absolutely love it. It has such great warmth-to-weight ratio that even though it's lightweight – it's fairly thin – it has great comfort and warmth for the consumers." **B**



The award winning 100% Merino **Trollkyrkja** jacket being promoted on the **Devold** stand at ISPO.

100% MERINO JACKET WINS AT ISPO



Devold's award winning **Trollkyrkja** jacket made from 100% Merino wool.

Norwegian outdoor brand and **Woolmark licensee Devold won a 2017 ISPO award** for its Trollkyrkja jacket made from 100 per cent Merino wool.

The fabric in Devold's Trollkyrkja jacket is made using Optim™ technology (see page 11) that makes the fabric both water and wind resistant. The 100 per cent Merino wool fabric is a result of development by the Wool Development Centre set up in 2013 by AWI and Chinese company Nanshan.

The jackets will be available in the shops later this year for both men and women.

"One of our main leveraging points is innovations, including our new 100 per cent Australian Merino wool shell jacket," said Devold Product and Business Director Vidar Thorvik. "The idea for the jacket started one year ago at the Woolmark stand at ISPO where we were shown this new fantastic fabric. We've been quite busy this past year to be ready to launch the jacket this fall."

Devold also won a 2017 ISPO award for its wool Tinden Spacer jacket. The innovative spacer mesh technology creates air pockets for enhanced insulation, while maintaining wool's natural properties such as the ability to regulate body temperature and create warmth even when wet.

According to Mr Thorvik, the reason wool is still central to the company's products is because environmental issues are important. "One trend is that things should be natural. Wool is natural, it's a miracle fibre. It won't be destroying the earth, it's renewable. So a 100 per cent natural fibre is fantastic; it's important to have alternatives to synthetics."

B

MORE INFORMATION
www.devold.com



IBEX PUSHES MERINO TO THE MAX

Vice President of Marketing at Ibex, Keith Anderson, wearing the new 100% Merino jacket: "The initial reaction in the market, at trade shows, has been exciting and we can't wait to introduce it to consumers in a few months' time for the fall/winter 2017 season."

High performance 100 per cent Merino wool jackets will be launched to consumers later this year by **US-based outdoor apparel company Ibex**. The company discovered the **water and wind resistant Optim fabric** via AWI.

Outdoor apparel company Ibex, based in Vermont in the USA, will launch in autumn this year a set of jackets for men and women using Optim™ technology that makes the fabric resistant to wind and water.

"We first came across the Optim material at The Woolmark Company's stand at the 2016 Outdoor Retailer trade show in Salt Lake City," said Vice President of Marketing at Ibex, Keith Anderson.

"The Woolmark team showed our team The Wool Lab and their latest innovations. Instantly, we were impressed with the performance and richness of the Optim fabric. The fact that it is a high-performance woven fabric with weather resistant properties that is made from simply 100 per cent wool blew us away.

"The thing that really grabbed our attention about the fabric is that it provides us with a natural alternative – by using the weave structure to create the performance properties instead of the widely-used practices of DWR (durable water repellent)

and topical chemical finishes. This water resistance will last the life of the garment and not just 20 washes like DWR and other chemical finishes which break down quickly.

"We left The Woolmark Company's stand with a couple of samples ready to test, and in a cold and wet Vermont winter, we put the samples through a variety of everyday activities – from hiking to skiing and ice climbing. The jackets took a fair amount of abuse in all sorts of weather. From our testers' points of view, the jacket did exactly what it needed to do, it kept everyone dry and allowed moisture vapour to escape without issue, all while allowing the quiet nature of the fabric to be appreciated."

Ibex was founded in 1997 and uses wool as the primary fabric for all its clothing. Its products are available online and at 330 stores across the USA and Canada. The company's ongoing success and growth is due to its determined passion for building exceptional performance products from select Merino wool and other natural fibres.

"Ibex has been around for 20 years and we have always focused on wool as the foundation of our lifestyle and performance clothing. Although we concentrate on using fine Merino in the breadth of our range, we utilise a variety of microns to provide additional texture and strength for particular products," Mr Anderson said.

There will be two new Ibex jackets made from the Optim fabric, both for men and women. The Pursuit Shell is mountain-sport inspired and clean cut for athletic endeavours; the Pursuit Trench is urban-focused with a modern and tailored trench style. See the top of the opposite page.

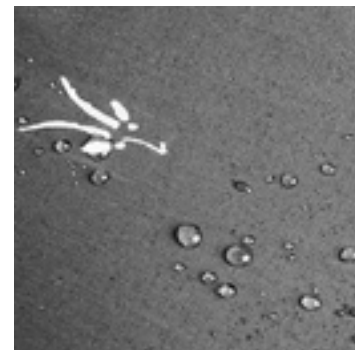
"The initial reaction in the market, at trade shows, has been exciting and we can't wait to introduce it to consumers in a few months' time for the Fall/Winter 2017 season. Beyond that, we will look for more year-round applications for this fabric to live throughout our product range."

B

MORE INFORMATION
www.ibex.com



The **Ibex Pursuit Shell** (left) and **Pursuit Trench** (right) are water and wind resistant jackets made from 100% Merino wool. They will be launched to consumers later this year.



A combination of a dense weave and fine yarns has created a fabric that has water resistance attributes.

DEVELOPMENT OF OPTIM FABRIC

The Optim fabric was developed by the **Wool Development Centre (WDC)** which was set up in Shandong Province, China, in 2013 by AWI along with one of China's leading woollen textile enterprises, The Nanshan Group.

The fabric is constructed at very high levels of thread density in warp and weft using fine Merino wool yarns that has 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) and are also machine washable, without any chemical treatments.

The fabric is promoted by AWI at trade shows and in The Wool Lab – AWI's sourcing guide to the world's best commercially available wool fabrics. Major brands, particularly in the sports/outdoor market (including Ibex – see left, and Devold – see page 9), have requested fabric samples and provided very positive feedback.

The fabric was used in the Woolmark Optim WR jacket that was produced exclusively for AWI to enable Australian wool levy payers to experience at a discount price of \$150 the benefits of Merino wool in an innovative way – see back page and www.wool.com/woolstore



The **Manifold** family of 'Boortkoi' near Hexham in western Victoria sporting the Woolmark Optim WR jacket – see the back cover to find out how you can purchase it.

INTERNATIONAL WOOLMARK PRIZE

2016/17 WINNERS ANNOUNCED



Models wearing the winning womenswear designs of **Gabriela Hearst**.



Models wearing the winning menswear designs of **COTTWEILER**.

Gabriela Hearst representing the USA, and design duo Matthew Dainty and Ben Cottrell of **COTTWEILER** representing the British Isles, **won the womenswear and menswear awards** respectively at this year's final, held in the key market of Paris.

The International Woolmark Prize generates **long-term incremental demand** for Australian Merino wool by connecting emerging designers, emerging markets and consumers with Australia's versatile natural fibre.

America's Gabriela Hearst and the UK's COTTWEILER have won the 2016/17 global final of the International Woolmark Prize for womenswear and menswear respectively.

For the first time, womenswear and menswear were celebrated together at one event, held against the backdrop of the Eiffel Tower at Paris' Palais de Tokyo.

"Paris has always been a key market for wool," explains AWI CEO Stuart McCullough. "It is not only home to some of the world's most iconic luxury fashion houses, but also to some of the world most fashion-forward, savvy consumers. Bringing the International Woolmark Prize back to Paris shines the spotlight on fashion's next generation, and I congratulate both COTTWEILER and Gabriela Hearst on their well-deserved wins."

Connecting the world's leading fashion designers with Australian Merino wool is extremely important due to the enormous influence these designers have in setting global textile trends for mainstream retail brands.

A star-studded judging panel, including fashion designer Victoria Beckham, British Fashion Council Chair Dame Natalie Massenet DBE, Founder and CEO Business of Fashion Imran Amed and a key group of retail buyers from the world's most important retailers, selected the two winners.

"The International Woolmark Prize gives a huge opportunity to young designers globally," explained Victoria Beckham. "It shows how much you can do with wool as a designer."

Both COTTWEILER and Gabriela Hearst will each receive AU\$100,000 to support the development of their business. They will also receive ongoing industry mentor support, Woolmark certification for their winning collection and the opportunity to be stocked in some of the world's most prestigious department stores and boutiques. These include Boutique 1, Boon the Shop, David Jones, Harvey Nichols, Hudson's Bay Company, Isetan, Lane Crawford, LECLAIREUR, mytheresa.com, The Papiilon and ssense.com. All finalists' collections will also become available for wholesale purchase via Ordre.com.

WOMENSWEAR: GABRIELA HEARST

Womenswear winner Gabriela Hearst was praised for her technical innovation and quality craftsmanship.

"I was very much in support of Gabriela," said Victoria Beckham. "For me, she is the worthy winner. I love what she does and she's clearly very talented. I like her eye, she has great product and she's a strong woman. I have a huge amount of respect for her. I'm proud and honoured to get involved in this and help make this possible for her."

British Fashion Council Chair Dame Natalie Massenet DBE echoed this sentiment, saying: "We picked Gabriela because we thought she struck a chord on every level: a passion for wool, its history, and the varied uses of wool. We feel that she will have an enormous future and will be great spokesperson for wool."

Born in Uruguay, the New York-based designer grew up on a sheep farm and believes in the traditional values of quality. Using ultrafine 14.5 micron Merino wool for luxurious knitwear, through to 21.5 micron

wool to create a wool-velvet fabrication, Hearst's clean cuts and precision offers a collection set to stand the test of time. It incorporated sleek silhouettes with updates on trench coats, pleats and an evening dress teamed with the more utilitarian baseball jacket with adjoining scarf, one-piece long johns, reversible puffer vest and cycling trousers.

"As a designer it's a huge honour to be recognised and I cannot wait to promote more Merino wool in the world as I believe it is the yarn of future," Gabriela Hearst said.

MENSWEAR WINNER: COTTWEILER

Representing the British Isles, COTTWEILER's winning International Woolmark Prize collection comprises 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.

"COTTWEILER is working with wool in a highly original way that mixes sports, tailoring, streetwear and fashion, and I think that represents a new dimension in menswear," said Dazed Media CEO and Co-Founder Jefferson Hack after the announcement.

The resultant collection brings COTTWEILER's brand of fetish-infused cult and tribe codes into the world of wool, with utilitarian detailing – padded hoods, detachable cargo pockets, running caps, and elasticised hems and cuffs, for example – at its core.

"Winning the International Woolmark Prize gives us the opportunity to share what we do with a much bigger, global audience," said COTTWEILER after the win. "But for us, the great part of this was the opportunity to work with a different material – Merino wool – because we're always interested in experimenting with technology and development."

MORE INFORMATION
www.woolmarkprize.com



Victoria Beckham, Fashion Designer; **Dame Natalie Massenet DBE**, Chair of British Fashion Council; **Miroslava Duma**, CEO and founder, Fashion Tech Labs and Buro 24/7 look on attentively during judging.



Ben Cottrell of **COTTWEILER** showing one of the designs to the menswear judging panel.

WHY AWI INVESTS IN LEADING FASHION

To achieve its mission of increasing the global demand for Australian wool, it is vital for AWI to reinforce the presence of Australian Merino wool in the international fashion industry.

The involvement of the world's leading fashion designers with Australian Merino wool is extremely important because of their enormous influence in setting global trends for the mainstream retail brands.

What we see on the world's catwalks this year quickly makes it into the mainstream fashion sector. The broader fashion industry looks to designers for the latest trends. Their work with fabrics like Australian Merino wool has a 'trickle down' effect which cannot be underestimated.

The International Woolmark Prize is the 'jewel' in AWI's fashion promotion activities. It is designed to generate long term incremental demand by connecting emerging designers, emerging markets and consumers.

It is an award for the next generation, shifting the focus from glamour to true talent as a way to highlight the beauty of the Merino wool fibre at the hands of the future leaders of the industry.

New demand will come from the creation of increased knowledge of and lifetime loyalty to wool amongst designers, along with the immediate presence of Woolmark-branded Merino wool collections in the top boutiques and retailers across the globe.

This program gives AWI the opportunity to work at three levels in the fashion apparel segment:

- At the jury level, there is the engagement with the world's leading influencers of

fashion, all of whom have a shared and stated interest in the development of new talent and new markets.

- At the participant (and winner) levels, AWI imbues them with knowledge of wool fibre at an early stage in the commercial development and works with them to create a connection to wool which will stay with them throughout their careers.
- At a broader global fashion apparel audience level, through the creation of aspirational content we can connect with a wide and sophisticated consumer audience allowing us to grow our digital databases and give us the opportunity to promote Merino wool directly to these engaged followers throughout the year.

MENSWEAR FINALISTS



WINNER: COTTWEILER – representing the British Isles
 Designer Ben Cottrell (far left) and Matthew Dainty (far right) with models.



Rochambeau – representing the USA
 Designers Laurence Chandler (left) and Joshua Cooper (front) with models.



TONSURE – representing Europe
 Designer Malte Flagstad (left) from Denmark with models.



Bounipun – representing India, Pakistan & the Middle East
 Designers Renni Kirmani (centre) and Zubair Kirmani (far right) from India, with models.



Ex Infinitas – representing Australia & New Zealand
 Designer Lukas Vincent (left) from Melbourne with models.



MÜNN – representing Asia
 Designer Hyun-min Han (front) from Korea with models.

WOMENSWEAR FINALISTS



WINNER: Gabriela Hearst – representing the USA
Designer Gabriela Hearst (second left) with models.



macgraw – representing Australia & New Zealand
Designers Beth MacGraw (far left) and Tessa MacGraw (far right) from Sydney, with models.



Faustine Steinmetz – representing the British Isles
Designer Faustine Steinmetz (second right) with models.



Nachiket Barve – representing India, Pakistan & the Middle East
Designer Nachiket Barve (second right) from India with models.

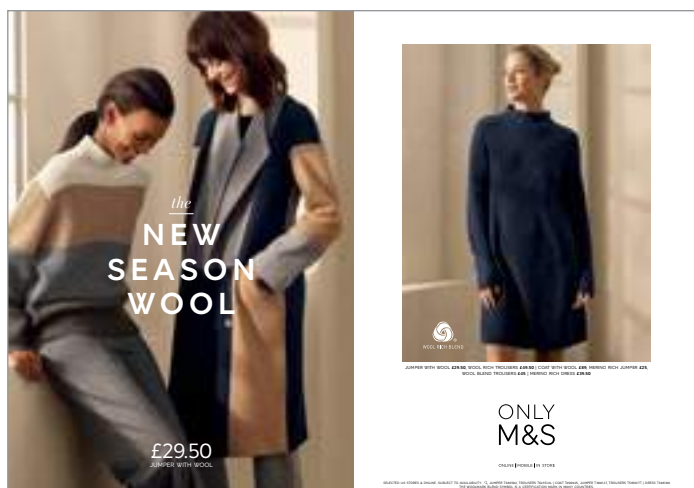


TOTON – representing Asia
Januar Heri Nugroho (second right) and Haryo Balitar (far right) from Indonesia, with models.



Tim Labenda – representing Europe
Designer Tim Labenda (far right) from Germany with models.

MARKS & SPENCER AND WOOLMARK PROMOTING WOOL



The latest **M&S** marketing campaign included window displays, welcome zones in stores and prominent space on its digital channels dedicated to wool.

During the recent northern hemisphere autumn/winter season, leading UK retailer and Woolmark licensee **Marks & Spencer** stocked more than **three million wool products**.

As the largest UK retailer of wool products, Marks & Spencer is a key brand with which AWT's subsidiary, The Woolmark Company, works collaboratively to help promote wool products.

The Woolmark Company has worked with the company for several years, supporting product development, sourcing and marketing to help raise awareness amongst its customers of what wool can offer in terms of natural benefits and value.

Collaboration between the two companies continued during the recent northern hemisphere autumn/winter season, with M&S introducing a new marketing campaign in October titled 'The New Wool Edit', across print, digital and social media platforms.

The campaign was run in 70 M&S stores across the UK at almost no cost to The Woolmark Company other than both product and Woolmark ticket and labelling advice, with the Woolmark logo front and centre in its store windows and across its stores.

M&S CEO Steve Rowe says the company has been committed to wool for more than nine decades and in the future will continue to be so.

"M&S has been using wool for over 90 years, and throughout this time we've strived to keep innovating and expanding our wool

offer, from when we introduced wool socks in 1926, to when we brought machine washable wool to the high street in 1972," Mr Rowe said.

"Today we are one of the leading retailers of wool items; this season alone we've bought over three million wool products and will use over 3,500 tonnes of wool throughout the year, confirming our commitment to championing wool as a preferred fabric across our collections."

Wool was a key fibre for the 2016/17 autumn/winter season with M&S offering a wide selection of wool products across its clothing and homeware collections. This included pure wool suits, coats and jumpers – for men and women.

M&S takes pride in introducing new wool innovations and styles, and each season continues to innovate and expand its wool offer in response to the needs of its customers. For instance M&S's Pure Lambswool jumper is machine washable and tumble dryable, and due to popular demand now comes in 20 colour options.

The 32 million UK customers who visit M&S stores and its website rely on M&S for quality and integrity, and wool with its natural characteristics of resilience, warmth and comfort is a clear brand fit.

In the past two years, M&S has become

a Woolmark licensee to emphasise to its customers – via point of sale collateral including swing tickets and labels – the high quality of its wool products.

"The Woolmark logo is one of the world's most recognisable textile symbols, and we are proud to have worked closely with Woolmark for many decades," an M&S spokesperson said. "We currently use three of their brands on our labels: Pure New Wool, Wool Rich Blend and Wool Blend Performance.

"Our recent customer research shows that two out of three of our customers check for the Woolmark logo when purchasing items made with wool. Our customers see the logo as a quality assurance with a guaranteed wool content. Many of our customers consider wool an investment piece; its durability ensures it will last them through the years in style."

M&S was also proud to support the Dumfries House wool conference in September last year, which was organised by The Campaign for Wool and the International Wool Textile Organisation.

"M&S is fully committed to supporting HRH The Prince of Wales' campaign to encourage a greater awareness of the benefits of wool," CEO Steve Rowe said.

B

MORE INFORMATION
www.marksandspencer.com

WORLD-FIRST EVENT FUSES FASHION AND MUSIC

The **Boiler Room** event was innovative in that it used the vitality and popularity of a live music event to extend the reach of **Agi & Sam's wool-rich collection** to a greater, international audience.

AWI has partnered with British fashion label **Agi & Sam** and the world's biggest online music broadcaster **Boiler Room** in an innovative way to **lift the profile of Merino wool**.

AWI's subsidiary, The Woolmark Company, continues to build its relationship with British fashion label Agi & Sam who in January joined forces with the world's biggest online music broadcaster Boiler Room to present their latest Autumn/Winter collection at a unique event as part of London Fashion Week Men's.

More than 500,000 people from 150+ countries across the world tuned in live online to watch this world-first event that fused fashion and music, with an original soundtrack composed and performed live by Manchester musician Holy Other.

The two worlds of music and fashion came together as Agi & Sam's models were sent down the runway in wool trousers, jackets and outerwear in a colour palette of red, black and white. More than 400 people experienced the immersive Boiler Room music and fashion event in person at the venue.

"Today it seems there is a real disconnect between the fashion show 'audience' and the consumers, and as a reaction, we have worked to bridge this gap by working closely on a format that collides music, fashion and consumerism," said Agi Mdumulla and Sam Cotton. "Music has always had a bigger reach than high fashion, but by combining both worlds we are really able to bring our ideas to the masses in a great and effective way.

"This partnership with The Woolmark Company and Boiler Room not only united groups of people, cultures and communities globally through a shared identity, but also allowed our consumer to experience our world first hand."

Agi & Sam has worked closely with AWI for a number of seasons (see the September 2016 edition of *Beyond the Bale*) and this season it was no different with the collection reflecting the design duo's allegiance to wool with more than 80 per cent of the collection comprising wool or wool-rich garments, including fabrics from Woolmark licensees A W Hainsworth, Reda and also from Dugdale Bros & Co.

"Wool is one of the most versatile and innovative fibres in the world, and we have utilised a variety of techniques in order to reflect not only wool's individual characteristics, but as a manifestation of the feelings of uniformity, togetherness

and comfort that we are aiming to convey throughout the collection's journey," explained Agi & Sam.

"Soft worsted tailoring wools and heavier barathea's have been used extensively and act as the core backbone of this collection. Heavier melton wools were used across coats, trousers and outerwear but utilised in varying forms, including screen printing and lamination, giving an appearance similar to leather but one of luxury, modernity, and practicality including water resistance." **B**

MORE INFORMATION

www.boilerroom.tv
www.agiandsam.com



Agi & Sam's wool-rich collection, featuring both menswear and womenswear, was on show to a **massive global audience** that tuned in to watch the **Boiler Room** event online.

CHINA PROMOTION: HER ERA, HER POWER

China's most fashionable and talented women have showcased the best of the new season's Merino wool collections to help **increase demand for the fibre.**

AWI, in collaboration with *T Magazine* China, has created a striking new campaign, called 'Her Era, Her Power', to promote the naturally inspiring benefits of Merino wool to Chinese female consumers.

Enlisting the help of some of China's most inspiring women – Olympic gymnast Liu Xuan, supermodel Pei Bei and actress Chen Ran – the campaign showcased the standout wool looks from the autumn/winter 2016 collections of 10 Chinese brands and designers.

Unveiled as part of an exhibition in Beijing, the photographic series demonstrates the versatility of Australian-grown Merino wool and its natural properties – its technical brilliance, multi-faceted application, and luxuriousness – as worn by the leading women in their respective fields.

Like the fibre itself, these talented women are each dynamic, versatile in their careers and inherently stylish. The three Chinese

influencers have more than seven million followers between them on their social media accounts, helping to spread the campaign amongst Chinese consumers.

The photos from the exhibition were also displayed in their corresponding brands' shops – which included Chloe Chen, JNBY, EIN, ICICLE, Marisfrolg and Song of Song – to help influence shoppers to buy the Merino wool collections.

"The 'Her Era, Her Power' photo series captures the refinement, elegance and authenticity of these women, who have in turn beautifully expressed the timeless appeal of wool," explained AWI's Country Manager, China, Jeff Ma.

During the exhibition's launch event, AWI hosted a panel discussion with the female influencers featured in the campaign. The conversation focused on how contemporary women are changing the world, giving rise to the theme 'Her Era, Her Power'.



Exhibition photo of Olympic gymnast and actress **Liu Xuan** wearing a wool dress from **ICICLE**.



Supermodel **Pei Bei** in front of an exhibition photo of her wearing a **Marisfrolg** wool dress.



Supermodel **Pei Bei**, actress **Chen Ran** and Olympic gymnast **Liu Xuan** with host **Linda Li** at the 'Her Era, Her Power' launch in Beijing.



Exhibition photo of actress and model **Chen Ran** wearing a **Chloe Chen** wool denim top.

GROWN IN AUSTRALIA, MADE IN INDIA

Designers **Jimit Mistry** (second from left) and **Karishma Jamwal** (second from right) with popular television celebrities **Shravan Reddy** (left), **Ekta Kaul** (centre) and **Ruslaan Mumtaz** (right) on the runway at a special showcase wool seminar in front of high-profile media publications, retailers and manufacturers.

Highlighting the **significance of Australian wool** to the **Indian textile industry**, AWI's latest promotion in India positions Merino wool as the ultimate ingredient in luxury fashion.

AWI's subsidiary The Woolmark Company has undertaken a marketing campaign titled 'Grown in Australia, Made in India' that highlights to Indian consumers the origins of Australian Merino wool and also the craftsmanship of the artisans in India that use the fibre.

The campaign brought together a number of Indian fashion designers, each creating wool-rich collections to be commercialised by major retailers.

Acclaimed Indian fashion designer Rajesh Pratap Singh collaborated with the 'Bhuttico Weavers' – a cooperative of handloom weavers based at Kullu in the foothills of the Himalayas in northern India – to present a Merino wool menswear and womenswear collection. This exclusive collection focussed on the rich legacy of the Bhuttico Weavers and comprises a mix of jackets, dresses and shawls, each highlighting Singh's signature minimal aesthetics and intense construction.

"I love the versatility of Merino wool, especially since it's so easy to work with and supports various techniques and blends," explained Singh.

"I am extremely passionate about the handloom industry as it is the primary source of my inspiration. Owing to our country's rich heritage each state adds another dimension of culture which is also captured beautifully by our weaves. I am ecstatic to partner with Bhuttico to create this special collection and thank you to The Woolmark Company for helping us to elevate this to a global level through the 'Grown In Australia, Made In India' initiative."

The campaign also brought together industry insiders and high-profile media publications at a one-day wool seminar, in partnership with India Fashion Forum, with Honourable Textile Minister Smt. Smriti Irani, Australian Deputy High Commissioner Mr Chris Elstoft and India's leading retailers and manufacturers in attendance.

"The farm to fashion journey truly highlights how Merino wool can beautifully be transformed into fashion pieces here in India," explained Textile Minister, Smt. Smriti Irani.

"We encourage the use of wool as a natural fibre as we aim to promote the Indian wool industry. This natural and biodegradable fibre is easy to tailor, which makes it a popular choice for most manufacturers and retailers in India. Bringing these two forces together, this event served as the perfect platform for exploring the different opportunities available in the wool industry. I am sure that this endeavour will spur growth of the Indian textile industry."

Designers Karishma Jamwal and Jimit Mistry each presented a fashion show for Ambassador Shawls and OCM, respectively, showcasing a mix of wool jackets, dresses, shawls and suits.

"Wool as a fabric is extremely versatile, allowing various shapes to be beautifully executed," said Jamwal. "The common perception of wool is of clean, classic cuts. Therein was the challenge for me to give this fibre an edgier feel. Consciously staying away from clean simple lines, I wanted this very versatile fabric to convey a language that was artful and bohemian."

Popular television celebrities Shravan Reddy, Ekta Kaul and Ruslaan Mumtaz walked the runway for the designers, while elaborate wool installations and panel discussions with industry experts highlighted the eco-credentials of wool and the farm to fashion journey.

The exclusive Merino wool collections created by Rajesh Pratap Singh, Karishma Jamwal and Jimit Mistry are available to buy now through Bhuttico, Monte Carlo, Ambassador Shawls and OCM. **B**



Yarn made from Australian Merino wool is used by the **Bhuttico Weavers** who are based in the foothills of the Himalayas in northern India.

PARTNERSHIP WITH FETED DESIGNER RAF SIMONS

AWI has partnered with **iconic fashion designer Raf Simons**, bringing Australian Merino wool to the designer's Autumn/Winter 2017 collection and **newfound creativity to the world of wool**.

AWI's subsidiary The Woolmark Company has partnered with renowned fashion designer Raf Simons, with Australian Merino wool looks sent down the runway at his Autumn/Winter 2017 show during New York Fashion Week Men's in February.

He is the current Chief Creative Officer of American fashion house Calvin Klein, and was previously the Creative Director of French luxury goods company Dior and German luxury fashion house Jil Sander. The Belgian-born designer launched his eponymous label in 1995, staging his first runway show in 1997 in Paris.

Fast-forward 20 years, and Raf Simons is one of the world's most celebrated fashion designers, with *Vogue* citing him as "the most exciting, the most innovative and ultimately the most important designer working in menswear today", raising the profile of men's

fashion across the world as he continues to produce seasonal menswear collections for luxury, international consumers.

By aligning the Woolmark brand with one of the world's most respected designers, AWI continues to elevate the Woolmark brand's positioning in the luxury market as a symbol of not just quality but also relevancy and creativity.

"I appreciate that The Woolmark Company encourages brands to come up with innovative ways to work with Merino wool – a material that I love and often use in my own collections," the designer said. "It feels very natural for me to partner with The Woolmark Company to create something special using the finest wool in the world."

His New York show, held at the contemporary Gagosian art gallery, presented a series of wool looks that paid homage to his new base ('New York' was emblazoned across some of the knitwear), having moved to the Big Apple for his new role at Calvin Klein. The collection features fine Merino wool jersey, wovens and knits sourced from some of the world's best fabric and yarn manufacturers including Manifattura Sesia and Olimpias Group.

This partnership marks the beginning of a longstanding relationship in which The Woolmark Company will continue to work closely with and support Raf Simons' design team with innovations and sourcing of Australian Merino wool.

AWI CEO Stuart McCullough said the partnership increases the positioning of Merino wool as the versatile fibre of choice for luxury menswear apparel.

"The Woolmark Company prides itself on partnering with designers that continually push the boundaries of contemporary fashion," Mr McCullough said.

"Through our partnership with Raf Simons, one of the industry's most creative visionaries, we are able to demonstrate the distinct versatility of Merino wool far beyond its traditional positioning in the suiting market. Through his iconic work, Raf Simons will bring a newfound creativity to the world of wool."



Raf Simons acknowledging the applause after the highly successful launch of his Autumn/Winter 2017 show during New York Fashion Week Men's
PHOTO: Jamie McCarthy.

ACCOLADES FOR DESIGNER RAF SIMONS

"Raf Simons is the most exciting, the most innovative and ultimately the most important designer working in menswear today."

Vogue

"The Belgian designer, 49, has been exceptionally influential in the realm of menswear — admired by a host of young acolytes for applying the swirl of youthful street culture to luxury fashion."

The Washington Post

"Raf Simons brings edge and buzz to New York Men's Fashion Week."

The Wall Street Journal

"The Belgian designer, indisputably the major draw of New York Fashion Week: Men's, honored his new home with a collection that celebrated the city itself. The city celebrated him right back. International press, top retailers, other designers and celebrities all turned out to welcome Simons."

WWD

"A modernist take on American classics, the designer's debut signature collection is sure to thrill celebs and the fashion industry alike."

Pret-A-Reporter

"To say that Simons is a god among New York menswear geeks would not be hyperbole."

The Business of Fashion



The collection included many Merino wool looks.

TROPPO FOR MERINO IN OSLO

Norwegian childrenswear company and Woolmark licensee Lillelam has launched a new brand – **Baylon** – which targets the **youth segment** (8-16 years), a market in which the availability of Merino clothing has traditionally been limited.



The **Lillelam** brand sells Merino wool products **for children up to 8 years of age**.

Oslo might seem a long way from the illustrious wool-growing properties of Australia, but founder and CEO of Norwegian childrenswear company Lillelam, Pernille Siem Sandahl, has as rich a family history in Merino wool as any Australian wool producer.

Ms Siem Sandahl's mother is French, from a town in the South of France called Mazamet. Her maiden name is Baylon, and one of the family's businesses was in the wool industry there, which was strong and flourishing for several hundred years until synthetics entered the market in the 1960s.

"This was before my time, but the love for natural fibres and emphasis on quality is a part of my upbringing and my family's passion," said Ms Siem Sandahl. "I started Lillelam in 2004 based upon this inspiration, and last year I launched a new brand named Baylon as a direct link to the younger days of the wool industry in my family."

In her early years Ms Siem Sandahl studied and worked in the arts, and it was only when she had children that her idea for a Merino wool apparel business developed.

"I searched for Merino clothes for my children – as that is what I was used to from my childhood. But this turned out to be a challenge as the market in Norway was dominated by either synthetic fibres or lambswool. I felt a strong urge to bring Merino wool to Norway so I spent two years doing thorough research to prepare for business."

She decided upon the following principles for Lillelam, principles that are still followed today, more than 12 years later:

- Use only 100% Merino wool throughout the brand

- Use only the finest Merino fibre
- Build a sustainable brand with updated certifications in all aspects
- Although classical in lines, create a design that is an alternative to the traditional brands for wool
- Place the production only with hand-picked, quality focused, European manufacturers
- Keep children, animals and the planet happy.

"Living in Norway, I know the cold weather very well, and wool has for millennia been necessary for survival. Even today with all the alternatives that have been developed, nothing surpasses the broad amount of benefits that Merino wool possesses."

The Lillelam brand and the business has grown steadily to become a dominating supplier in the Norwegian childrenswear market with about 250 retailers selling the company's products throughout the country. The company also sells online in Norway, but will open .com webshops for both the Lillelam and Baylon brands later this year. In 2016 the company's turnover was about €2.85 million (AU\$4 million).

"We proudly display the Woolmark logo to show customers that we are serious about quality, which is assured by a Woolmark licence. Also, as a licensee we get access to use all the updated material and research from The Woolmark Company to help us develop and market our products."

While Lillelam sells clothing for children up to eight years, Ms Siem Sandahl says the company had always been asked when it would start making garments of the same quality for older kids and adults.

"After a decade we felt we were well established, both product- and distribution-wise, and could take a natural step further into the youth segment, in which there is limited availability of daily wear and especially in Merino."

"We had a small-scale initial launch of the Baylon brand for Autumn/Winter 2016, which was very well received, and will do a grander launch this coming autumn for the Autumn/Winter 2017 collection. Although the collection is designed for youth from ages 8 to 16, we see that many adults who fit into the stretchy knitwear are walking around in Baylon."

B

MORE INFORMATION

www.lillelam.no
www.baylon.no



Lillelam has launched a new brand, **Baylon**, that sells Merino wool apparel for youths from **8 to 16 years of age**.

QUALITY KNITWEAR FROM ELLA SANDERS

The early upbringing of the fashion designer behind the Ella Sanders brand, **Danielle Sanders**, included **spending holidays on her grandparents' wool-growing property** and being surrounded by knitting – a background which has influenced the exceptional quality and timeless style of the brand's **beautiful Merino knitwear**.

Living in the coastal suburb of Beaumaris, on the outskirts of Melbourne, fashion designer Danielle Sanders is constantly surrounded by the beauty of nature. And so it's little wonder that she only uses natural fibres for her womenswear label Ella Sanders.

Her passion for all things natural has been with her from a young age, spending holidays on her grandparents' wool farm. "My Mum grew up in regional Victoria in Elaine, where the farm and shearing shed is located. She learnt to knit from a young age and visits were filled with wonderful memories of playing with wool fleeces and in the shearing shed with my cousins."

Later in life, as a textile design student, she came to fully appreciate Merino wool yarn and how it was made, after learning about the origin and manufacture of synthetic fibres.

"Learning where and how man-made fibres were made pushed me into thinking more about natural fibres, and this seems the only way to go," she said.

Danielle teams this passion with her flair for knitting – a skill passed down by her mother and grandmother – which forms the backbone of the Ella Sanders brand, which she launched in 2008.

"Mum used to hand-knit most nights on the couch and I thought I'd give this a go. I knitted very large gauge scarves, beanies and headbands under my first brand dsanders. I sold these to a range of boutique stores in Melbourne. From there it firmed up my decision to study textile design at RMIT and major in knitwear design."

Now stocked in more than 100 stores across Australia and New Zealand, and available online, the brand has garnered a strong following for its signature, ultra-luxe appeal from across the globe.

"Our clients range from mid-twenties through to 70-plus, which is really wonderful to see. The one thing that our customer loves is the quality of our knitwear, understanding that it will last throughout many seasons. I love wool's durability, softness and natural qualities. It's beautiful to wear and treated with love it will last throughout many seasons."

"I get so excited seeing the range of new colours each season across melanges and solid colour – the colour combinations are endless sometimes. Each season we see clients come to us for our use of colour, pattern and stitch techniques for that point of difference. We are known for our superfine Merino, and once you understand the quality and longevity combined with unique design you can't turn back."

Ella Sanders' Autumn/Winter 2017 collection 'Luminate' reinforces the benefits of premium, natural fibres, sublime comfort and enduring style and is a reflection of Danielle's journeys and studies across Arctic winters. The latest collection consists predominantly of 100 per cent pure Merino wool knitwear, and includes a new range of 100 per cent double-faced woollen coats and vests along with Ella Basics - a capsule of superfine Merino staples.

MORE INFORMATION
www.ellasanders.com.au



HIGH COURT ROBES

GET A MERINO MAKEOVER

The judges of **Australia's High Court** received a sartorial makeover, with a team of Queenslanders creating **new judicial robes** made from Australian Merino wool.



Master weaver Kay Faulkner working on a computer-assist hand loom to weave the judicial robes.

A dream team from Queensland was the minds and hands behind the new Merino wool judicial robes now being worn by judges in the High Court of Australia.

Master weaver Kay Faulkner, cutter Margaret Adams and maker Saffron Firkins brought renowned costume designer Bill Haycock's sketches to life, creating wool/silk robes for the judges of Australia's most preeminent court.

Bill is no stranger to Australia's judicial system, having worked alongside Margaret to create the judicial robes for the Federal Court more than 15 years ago.

"I was thrilled to be asked again after all these years and to work on what is really a further development of the earlier designs, since these are all Federal Courts with the High Court obviously the pinnacle within the Australian judicial system," Mr Haycock said. "Even though I've been professionally designing for theatre for over 30 years

these are probably the designs that will outlive me.

"I was given an excellent brief and framework which was both clear and specific but also still quite free for interpretation. It required research of what else existed in Australia and around the world."

Bill decided on the allusion of sand ripples upon the robes, referencing the sheer vastness of Australia – the island continent as well as its central desert – and symbolic of the breadth of judicial reach of the High Court.

"It was decided early on they'd be all black and so I was thinking about ways to create richness through texture and sheen within that black-on-black surface. The High Court wanted something lighter, cooler, easier to move in and it was also obviously important to reflect a certain gravitas as the highest court in the land – all this while

also being timelessly contemporary and symbolically appropriate."

With only seven High Court judges sitting behind the bar, the number of robes to be created was relatively low, and so each robe could be tailor made specifically for each judge whilst remaining identical in looks. It was also crucial that the fibre and fabric be long lasting, soft, comfortable, cool, be able to hang and drape well, be extremely good quality and Australian.

"Of course it had to be made from fine Australian Merino wool. And because the woven sections needed to 'read' in a black-on-black way we decided to mix high-quality silk into the hand-woven parts, making the sand ripple patterns read as strongly as possible in various lighting conditions."

And so, back in 2014, Bill sought out master hand weaver Kay, intriguing her with a secret mission.

"At that stage I had no idea what it was and it took until mid-2015 to find out," she said. "Can you imagine my delight when I found out what it was?"

With more than 30 years' experience behind a loom, Kay is no stranger to Australian Merino wool. She worked on a computer-assist hand loom to weave the judicial robes.

"There are 1380 warp threads with no threading repeat. This allows for variations in the size of the (sand) ripples across the width. The pattern repeat is 2100 rows long and that allows for the complexity of the pattern as it changes from narrow to wide ripples throughout the length of both sleeves. At one hem the ripples are narrow while at the other they are wider."

Kay agreed that Merino wool was to be the fibre of choice for the robes, firstly because of the strong link to Australia's history as a wool producing nation and also because the robes had to be of a high quality and readily accessible in the required size and colour.

"The wool when combined with silk allows for differences in lustre and so allows for the black-on-black pattern to be seen."



The new judicial robes for the High Court of Australia are made from **Australian Merino wool**, with silk incorporated on the sleeves to create sand ripple patterns. **PHOTO:** Adam McGrath, courtesy the High Court of Australia.

LOOM TO LONDON

AWI's **Loom to London** program connects **Britain's emerging fashion designers** with the best **wool mills and fabric finishers** the UK has to offer.

AWI launched its Loom to London program in 2013 as an innovative way to introduce emerging UK designers to some of the best wool textile manufacturing facilities on their doorstep.

Taking the designers to visit select British mills, the program aims to improve their understanding of wool textile production and help them forge relationships with sourcing contacts within the UK. In turn, the program opens opportunities for the prestigious mills to showcase their business and explain their production capabilities to designers.

The ultimate goal is to inspire emerging designers in the early stage of their careers about the properties and benefits of Merino wool, and encourage them to continue to use the fibre in their designs as they progress through their professional lives. Past participants include designers Craig Green, Matthew Miller, Katie Eary, Lou Dalton and Agi & Sam (see page 17).

The latest designer to join Loom to London was Sadie Williams – a London-based designer well known for her love of lurex but who recently contacted AWI's London office to further develop her knowledge and understanding of working with Merino wool.

"The trip has made me fall in love with wool even more."

Fashion designer Sadie Williams

Travelling to Huddersfield, West Yorkshire, Sadie and a team from AWI visited fabric finisher W.T. Johnson & Sons as well as vertical mill AW Hainsworth – famous for supplying wool to England's fire, military and police departments.

"The trip has made me fall in love with wool even more," said Sadie after the Huddersfield visit. "And I will definitely be using these fabrics again and again."

"As someone with a background in textiles, I have always had a massive respect for the quality of our heritage wool fabrics, but going to the mills and seeing the whole process from scratch has taught me so much about the work and skills that go into creating such a brilliant final product. Seeing the possibilities available in finishing fabrics has also got me thinking about how I may want to apply a considered and personalised finish to my textiles in the future."



London-based fashion designer **Sadie Williams** on her visit to **AW Hainsworth** in Yorkshire.

With W.T. Johnson & Sons and AW Hainsworth having more than 330 years' experience between them, there's a lot of knowledge to impart, let alone the history and changes the two companies have experienced.

"The mills used a fascinating combination of very old, traditional machinery and techniques combined with very modern and specialist ones," said Sadie. "Seeing the modern technology was great, but it was really eye opening to see some of the older machinery and the care and attention required by the people working on them."

So successful was the trip that Sadie will now be sourcing fabrics from Hainsworth and will include Merino wool in her forthcoming Autumn/Winter 2017 collection.



Sadie at fabric finisher **W.T. Johnson & Sons**.

WOOL4SCHOOL



As the 2017 **Wool4School** competition starts to heat up, we take a look at last year's Year 10 winner's design, brought to life by fashion designer **Jonathan Ward** and getting snapped by ***Girlfriend*** magazine.

With the world saying goodbye to music legends Prince, David Bowie, Leonard Cohen, Sharon Jones and George Michael in 2016, there's never been a better time to honour celebrity musicians. And AWI's Wool4School challenge is asking just that.

Registrations are now open for the 2017 competition (see box below). Students are asked to design an outfit for their favourite musician to wear on stage during a performance. The outfit, complete with wool accessory, should be made from at least 80 per cent Australian Merino wool.

Students and teachers from across Australia are encouraged to register, and for the first time, the competition is now open to Year 12 students, giving those serious about entering the fashion industry some real life, practical experience, with the winner granted a scholarship for the Whitehouse Institute of Design.

The Year 10 winner of last year's competition – which had a sporting theme – Annie Liao, from Radford College, Canberra, saw her equestrian design brought to life by leading fashion designer Jonathan Ward, and was lucky enough to feature in her very own photo shoot with *Girlfriend* magazine (pictured left).

"I was thrilled, super excited and honoured when I was contacted about how I went in the competition," said Annie. "I am grateful for this opportunity; I learnt so many interesting things about the various and diverse applications of Merino wool for clothing and the competition was definitely a super fun experience overall."

First launched in 2012, Wool4School has gone on to involve more than 40,000 students nationwide, not only learning the fundamentals of fashion design but also exploring the benefits and versatility of wool and the fabric it creates. By putting wool into the minds of Australia's future fashion designers, Wool4School encourages students to welcome innovative thinking and creative design, in keeping with AWI's tradition of fostering the wool education of the future generation.

WOOL4SCHOOL 2017 GETS MUSICAL HOW TO GET INVOLVED

WOOLGROWERS AND PARENTS

Contact your local high school and encourage them to get involved in the Wool4School program. Information for schools and teachers is available at www.wool4school.com.

YEAR 7-12 TEACHERS

Simply register your school and year groups at www.wool4school.com to receive a free Merino wool fabric pack and resource kit for the classroom.

YEAR 7-12 STUDENTS

Learn more about the exciting competition at www.wool4school.com and talk to your teacher about getting involved.

KEY DATES

Registrations and submissions opened: 30 November 2016
Registrations close: 31 May 2017
Submissions close: 26 July 2017



MERINOS PAY THEIR WAY IN WA'S CENTRAL WHEATBELT

Mixed enterprise farmers Eric, Phillip and Mitchell Innes from south-east Kellerberrin in the **central wheatbelt of Western Australia** are strong supporters of Merinos as part of their farming business and are very **confident about wool's future profitability**.

Several years ago, Eric Innes flirted with the idea of selling all his sheep.

"I confess that I didn't think about it for too long, because I really love the sheep, but there were times when it was a challenge to get the right people to do our shearing," he said.

A shearer himself for almost 30 years, Eric says finding reliable contractors to come to Western Australia's central wheatbelt had previously been a challenge.

"Thankfully we didn't ever have to go down the path because sheep have always been an integral part of our farming business, and very important in terms of weed control and cash flow," he says.

"It was simply because shearing contractors were getting few and far between out here in the central wheatbelt because many farmers had moved into continuous cropping businesses.

"We have solved that issue now and are very happy with our current arrangements."

Fast forward to February 2017, and his farm business has just sold its biggest clip in its 83-year history – 150 bales – at record prices up to 1178 cent/kg greasy.

ALWAYS A PLACE FOR WOOL

Eric, who farms with younger brother Phillip, and son Mitchell, says those thoughts of selling his sheep are long gone, and even the times when wool prices were significantly lower than they are today, he always knew there would be a place in the business for his treasured Merino flock.

In fact, Eric is so confident in the future of the wool industry that the business has invested in new sheep yards, a new wool press and new shearing heads in the shearing shed.

"Looking at the numbers now, [Merinos] are a very profitable part of the operation. There has been no frost effect on the wool!"

Mixed farmer Phillip Innes

The Innes family, who farm south east of Kellerberrin, have a mixed sheep and cropping enterprise, across 10,500 ha, with 30 per cent of the operation dedicated to their Merino sheep flock.

The brothers work well together, with Phillip as the main driver of the cropping business and Eric as the self-confessed "sheep man".

Phillip also worked as a shearer for many years and agrees the sheep flock is critical to the way they do business.

"Even during the times of lower prices, we all still believed the sheep had a place in the rotation, and we believed they paid their own way," Phillip says.

"Looking at the numbers now, they are a very profitable part of the operation. There has been no frost effect on the wool," he laughs.

The farm runs 2,800 ewes and 2,400 lambs, with the focus over the past decade on lowering the micron and increasing the yield of the clip. With sheep and lamb prices at levels not seen for years, the business is now reaping the rewards of staying in the game over eight decades, recently selling lambs at a handy \$100/head.

IMPROVING THEIR CLIP

But it hasn't always been an easy ride.

Eric says that it wasn't too long ago the business was only producing wool clips with an average of 25-micron, which he believes is relatively common in lower rainfall regions such as Western Australia's central wheatbelt.

When they were shearing, Eric says he and Phillip had witnessed many clips that were bright, fine and softer handling than their own wool, so they made it their mission to improve their wool quality.

"Previously we had parts of the fleece, usually from the back of the sheep, that we had to separate because of the dust and the poor condition of the wool, particularly if we had just come off the back of a dry and windy year," Eric says.

"To change this, we knew we had to concentrate, not only on the condition of the flock and the nutrition, but the bloodlines as well."

These days, wool with the Wichatopping brand consistently achieves 17-19 microns, and can yield up to 68 per cent.

"Those sorts of numbers were almost unheard of not too long ago, but we've been really careful with our breeding program, and we never buy rams just because we need to fill the quota," Eric says.

The Inneses have been buying rams from a local stud for many years, and Eric attributes the improvement in the wool clip to this consistent bloodline.

Wayne Button, who owns Mununda Stud in Tammin says understanding the genetic lines and knowing the backgrounds of the stud rams is critical to the improvement of the flock.

"The Inneses have been using the same bloodline for many years now, they know the rams they are purchasing and they know where the genetics come from. The proof of this strategy really has been in the consistent improvement they have seen in the quality of their sheep and the quality of their wool clip over the past three decades," he says.

"Seeing their results improve every year has been extremely rewarding, and classing a quality fleece certainly makes the job much easier."

INCREASINGLY PROFITABLE AND LOW RISK OPTION

Central wheatbelt stock agent Rex Leurs, who has been representing farmers across the region for nearly 30 years, believes more farmers should be considering Merinos in their rotations.

He says contrary to what some may believe, the drier conditions of WA's central wheatbelt are perfectly suited to Merinos.

"In areas of lower rainfall, like large portions of the wheatbelt, cropping yields can be limited and gross margins on sheep compare very favourably to grain production," he says.

Mr Luers says a wool and meat enterprise provides an increasingly profitable, low risk option, to include in the whole farm rotation profile.

"Also, there is much less volatility in the price of both meat and wool, in comparison to the annual fluctuations seen in the grain prices. The current wool and meat market means that the gross margins from a self-replacing Merino flock really are worth considering," he says.

"Unlike 20 years ago, we now have Merino breeding available locally here in the wheatbelt to produce a heavy cutting, plain bodied, fertile Merino sheep."

Son Mitchell, who returned to the farm in 2009, is also committed to retaining sheep in the Wichatopping business in the long term.

"Our clip is getting better and better every year – it's an exciting industry to be in."

Mixed farmer Eric Innes

"Apart from the fact that Dad really likes his sheep, they have much lower costs and a much lower risk profile than the grain part of the business," says Mitchell.

"We have been doing really well out of the sheep for the past few years, and they have been a part of the business for over 80 years now."

Eric is convinced sheep are an excellent fit for his central wheatbelt business.

"I get too much enjoyment out of them, it's what I like to do. And our clip is getting better and better every year – it's an exciting industry to be in," he says. **B**



The Inneses in the Wichatopping **shearing shed** in which they have recently installed a **new wool press and new shearing heads**.



The **Inneses**, pictured with sheepdog **Boof**, are so positive about the wool industry that the business has **invested in new sheep yards**.



The Wichatopping farm business has recently sold its **biggest wool clip** in its 83-year history – 150 bales – at **record prices**.

NEW STRAIN OF RABBIT CALICIVIRUS RELEASED

European rabbits are Australia's most widespread and destructive agricultural and environmental vertebrate pest, costing \$200 million in lost agricultural production every year and impacting 304 threatened native species. *PHOTO: John Schilling*

A strain of **rabbit calicivirus new to Australia is being released** at more than 600 sites across the country. It will **boost current biocontrol activity** that is already impacting pest rabbit populations and help woolgrowers increase their productivity.

In an effort to significantly reduce pest rabbit populations and their negative impact on agricultural production and native ecosystems, the new virus known as RHDV1 K5 is being released at more than 600 sites across Australia during the first week of March.

Community organisations, Landcare groups and government land managers are participating in the national roll-out of the virus, as part of the RHD Boost project funded through the Invasive Animals CRC with additional funding from AWI.

The sites were selected strategically in consultation with rabbit experts from each state. Priority was given to sites that were known to be rabbit prone, were not within 50km of the nationally coordinated intensive monitoring sites and were placed to ensure maximum coverage of areas where rabbits are distributed. Monitoring sites were selected from various rabbit affected locations around Australia to examine RHDV1 K5 effectiveness in various habitats and climates.

A commercial product of RHDV1 K5 will also be available from May.

RHDV1 K5 can be prepared as carrot or oat bait and fed to live rabbits.

Infected rabbits will spread RHDV1 K5 to other rabbits by direct contact or indirectly through faeces and 'vectors' such as insects, specifically bushflies and blowflies. The RHDV1 virus is one of the more humane

methods of controlling wild rabbits; rabbits basically end up with 'cold-like' symptoms with death generally occurring a number of hours later.

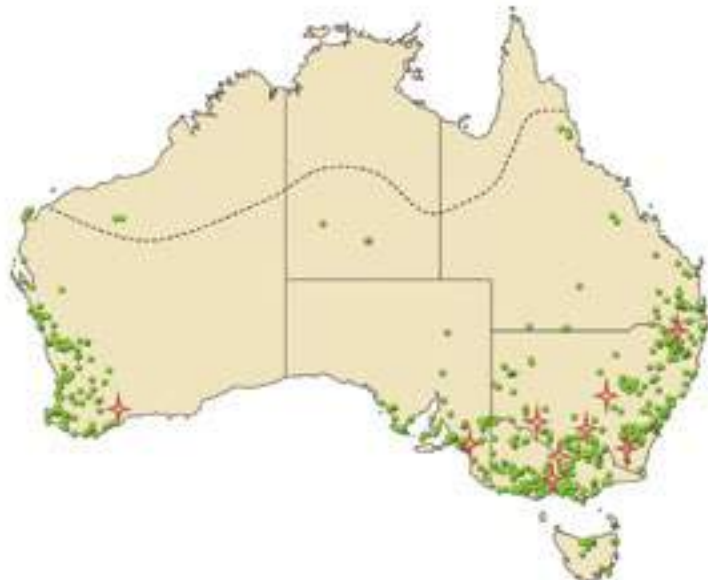
AWI Vertebrate Pest Program Manager Ian Evans said the RHDV1 K5 release will boost rabbit biocontrol in Australia.

"This is a national initiative to better control rabbits, particularly in areas where the current strain of RHDV1 has not had as much success, like the cool-wet regions of Australia," Ian said.

"Population reductions are anticipated to be improved by on average 10-15%, ranging from 0-40% depending on location and susceptibility of the rabbit population to RHDV1 K5.

"RHDV1 K5 is not a silver bullet and we need private and public land managers to be vigilant in not taking their foot off the pedal when it comes to their regular rabbit control.

"Rabbit biocontrol is beneficial when applied as part of an integrated multi-technique rabbit management program."



Release site locations of the new RHDV1 K5 virus. The stars indicate nationally coordinated intensive monitoring sites. The dashed line indicates the approximate northern limit of rabbit distribution.

INTEGRATED CONTROL METHODS

While biological control of rabbits is very effective at reducing rabbit numbers, biological control alone is not enough. It is important to apply and integrate a number of control methods. In most situations, no single method will provide adequate control of rabbits in the long term.

1. POPULATION KNOCKDOWN

The first step is to reduce the rabbit population from medium-high densities down to a manageable level. This is usually done by biological control (via natural outbreak or deliberate release) and/or chemical control (eg a poison baiting program) during the non-breeding season.

If RHD or myxomatosis are already present, then poison baiting should be delayed to allow the disease to reduce rabbit numbers. If rabbit density is low then extensive control can be started straight away.

2. EXTENSIVE CONTROL

The next part of the control program should destroy all source areas (where rabbits are living) and reduce rabbits to very low numbers. Control activities include warren ripping and destruction/removal of harbours which provide rabbits with shelter, such as fallen logs, building debris or dense vegetation. Where the use of heavy machinery is not an option for warren ripping, alternative techniques such as explosives and fumigation may be used.

Extensive control ensures that the rabbit population cannot recover quickly but it must be done thoroughly to ensure success. If any warrens or harbour are not destroyed, rabbit numbers will simply build up again. Sometimes rabbits can also dig back in and 're-open' warrens if ripping is not done thoroughly (deep or wide enough) and the collapse of the warren structure is inadequate.

3. MOP-UP ACTIVITIES

There are usually small numbers of rabbits that survive extensive control, so advanced control is necessary for long-term management. This is where follow-up techniques such as fumigation, shooting and trapping are used in rabbit-active areas.

RABBITSCAN

The popular RabbitScan app, developed through the Invasive Animals CRC, provides the ability to track the spread of rabbit biocontrol agents and viruses from a smart phone or computer, via a digital map. RabbitScan is available free at www.rabbitscan.org.au.

NSW Department of Primary Industries (DPI) researcher and project leader of RHD Boost, Dr Tarnya Cox, said farmers, land managers and the community can play an important role in recording evidence of rabbit disease which can be used to guide local rabbit management activities.

"The app takes you through a few simple steps to record details of dead rabbits and includes



RabbitScan can be used within your local area to map rabbit problem areas, and to help coordinate control after RHDV1 K5 to maximise the long-term benefits of the virus release.

images of rabbits affected by virus and disease for easy identification," Dr Cox said.

If rabbit details are recorded on the app while out of phone reception, the details are stored until the phone is in range when the user can upload records directly to the map with just one button.

"A powerful aspect of the new tracker gives people the opportunity to submit tissue samples from dead rabbits with suspected RHD virus. When users click to submit a tissue sample our research team sends a free, postage-paid sampling kit with full instructions on how to collect and send the sample.

"Once the tissue sample is analysed an update on the digital map will record the results, and the person who submitted the sample will be notified with accurate information of what virus is affecting rabbits in their area or control site, which is valuable information for their local rabbit management plan." **B**

PESTSMART NEW RABBIT CONTROL VIDEO SERIES

The people involved in the release of RHDV1 K5 at the 700 sites were all sent an information guide and a series of 10 short rabbit control videos (see right) fully funded by AWI, to help ensure an effective rollout. The aim was to also provide information on conventional control: poison baiting, and warren fumigation and ripping.



A clip from the 'Rabbit warren ripping and harbour destruction' video.

PREPARING FOR THE RELEASE OF RHDV1 K5

- An introduction to the rabbit problem in Australia
- How to spotlight count for rabbits on your site
- How to lay RHDV1 K5 on your site
- How to collect samples from a dead rabbit for disease testing
- How to collect samples from a shot rabbit for disease testing.

CONVENTIONAL CONTROL

- Poison baiting for rabbit control
- Rabbit warren fumigation
- Rabbit warren ripping and harbour destruction.

RABBITSCAN

- How to use RabbitScan to improve your rabbit control outcomes
- How to submit rabbit disease data into RabbitScan. **B**

MORE INFORMATION

The videos and information guide are available at www.wool.com/rabbits

EFFECTIVE LONG-TERM RABBIT CONTROL AT THACKARINGA

The release of rabbit haemorrhagic disease (RHD) in 1995 and subsequent ripping of rabbit warrens **removed virtually all rabbits from woolgrower David Lord's property in western NSW** and provided a huge boost to the feed base – a situation that continues to this day.

Woolgrower David Lord, who manages the family wool-growing business with his father John and son Hugh on 'Thackaringa', 40 kilometres west of Broken Hill, believes that removing rabbits from his property has provided the single biggest gain in feed base on his country.

"Coupled with genetics, what goes into sheep's mouths is one of the most important elements in improving flock productivity," he says.

"My gut feeling is that, in the absence of rabbits, we have increased lamb and ewe body weights, increased lambing percentages, and we are cutting more wool from our lambs and ewes."

In November 1995, RHD swept through 'Thackaringa', killing an estimated 750,000 rabbits, roughly equivalent to 75,000 DSE of sheep. But Mr Lord, who is the Chairman of the AWI Rabbit Advisory Group, advises farmers to not rely only on biocontrol to combat rabbits.

He says other control methods such as warren ripping can have a complementary effect and result in biodiversity gains and lift livestock productivity.

"RHD and myxomatosis were incredibly successful in this part of the world at knocking-back rabbits, but even at their very-much-reduced numbers they are still insidious – unseen but still dangerous. Rabbits select the best food – the fresh new shoots and plants – and eat it before you even see it. The scientific evidence of damage at low rabbit densities is irrefutable."

Before an extensive rabbit control program in the early 2000s, there were 28,000 rabbit warrens on the property.

"At 'Thackaringa' we took advantage of the opportunity offered to us by RHD, and the availability of some funding under the Natural Heritage Trust, to begin a big effort in 2002 to rip the remaining 22,000 warrens, having started ripping in 1988."

By March 2003, Mr Lord had completed ripping all 28,000 warrens on the property.

"Ripping the warrens on 'Thackaringa' was a slow and exacting process. Every warren location was logged by GPS and stored on computer before the arrival of the bulldozer in the paddock. We were very fastidious about the ripping."

The result has been incredible, with very few rabbits over the past 14 years, and a consequent regeneration of pasture.

"One of the amazing things that has been observed on 'Thackaringa' now is how little rain is needed to germinate and support native plants. With the recent rains, we are now seeing the true gains of RHD in both the condition of the pasture and our sheep."

Mr Lord says rabbit numbers did grow slightly – although not alarmingly – in the spring of 2015, but by the summer the numbers had dropped right off again.

"I suspect that the knock-down was possibly due to the timely arrival of RHDV2 on the property, which demonstrates the importance of ongoing biological control," he said.

"Although we have very few rabbits on the property now, I also put my hand up to be involved in the release of the new RHDV1 K5. There are still pockets of rabbits around the district, so hopefully this new virus will help reduce their numbers." **B**

MORE INFORMATION
David Lord, 0428 279 657,
thackaringa@bigpond.com

2000



2012



A holding paddock at 'Thackaringa' in 2000 (left) and 2012 (right) showing the result of an extensive rabbit control program that was introduced in the early 2000s. The second photo demonstrates vegetation regeneration due simply to the reduction in grazing by rabbits, and despite being taken during an extreme rainfall deficit.


 A photograph of Chris Box, a woolgrower, crouching in a dry, hilly landscape. He is wearing a light-colored sleeveless shirt, dark shorts, and gloves, and is setting a trap. The background shows rolling hills and some trees under a clear sky.

TRAPPING SUCCESS AT FIRST ATTEMPT

After suffering large stock losses during last autumn's lambing, woolgrower Chris Box from Carboor in northeast of Victoria began trapping for the first time, and was delighted to catch a wild dog at his very first attempt, using a trap purchased with funding from AWI.

Chris Box from Carboor, 40km south-east of Wangaratta, who runs 1,200 breeding ewes, has been undertaking ground baiting successfully on his family's property for the past ten years. However, wild dogs had a devastating effect when they attacked three of his mobs during lambing last autumn.

"Normally we have lambing percentages of about 100%, but we lost about 200 lambs during the attacks, which reduced rates in those three mobs to between 30% and 60%," Chris says. "It not only hit us financially, it was also emotionally very frustrating."

After subsequently sighting wild dogs in the area, some of which he managed to shoot, Chris decided to try trapping, using one of several traps recently purchased by his community wild dog group with funding through AWI's Community Wild Dog Control Initiative. Nobody was more surprised than Chris when he caught a wild dog almost straight away.

"I put some traps out for the first ever time, and caught a wild dog on the second night!" Chris said. "It shows how successful AWI wild dog funding is being. I certainly feel I'm getting a return in this respect on the wool levies I've been paying."

He also credits online videos about trapping, and demonstrations and advice given to him by Wild Dog Controller Matt Beach about how to set traps, for helping him achieve success.

Chris's farm is in a relatively isolated area with rough terrain, but along with other producers in the area he is part of the Carboor-Whorouly wild dog group that has been running for about three years.

"There are about 4-5 people in the group. Ideally there would be more in it, because as people move out of sheep they tend to stop wild dog control measures, so the dogs move closer in. But thankfully the land managed by the people who are in the group covers a substantial area. Group members and other stakeholders are helping coordinate the control program effectively and I'm really happy things are going well – it's definitely a worthwhile exercise."

"The group bought the traps to address the wild dog problem from all angles, and to have their own control tools into the future. Wild dog control is all about using a combination of tools – be it baiting, trapping, shooting or fencing – you can't just rely on one tool. We're going to be laying some canid pest ejectors – CPEs – this year too, for the first time."

"We lay baits – also supplied through AWI funding – in autumn, ideally early to get rid of the dogs before lambing time because the wild dogs will always prefer fresh meat. It's hard to find the time to fit in a spring baiting, because so much else is happening on the farm at that time."

"AWI-funded Community Wild Dog Coordinator Lucy-anne Cobby organises the bait drop off three times a year in April, May and June. She also keeps us in the loop about what other groups are doing, and we're able to discuss opportunities for funding and other control measures with her."

Chris says that despite these successes, there are several issues that he says add to the wild dog problem.

"I'd like to see more control on public land that borders grazing land, such as the introduction of aerial baiting 20-30km back from the boundary. The increasing number of Sambar deer also needs to be addressed because they are exacerbating the wild dog problem. It's also frustrating that the so-called Alpine dingo is protected because it is not a pure-bred dingo."

"More resources are needed to address wild dogs. Thank goodness we have AWI funding, as without that we'd really be on the back foot. I would recommend other woolgrowers with wild dog problems to consider applying for AWI funding." Chris said. B

AWI FUNDING AVAILABLE

Funding is available under AWI's 'Community Wild Dog Control Initiative' to individual groups to undertake wild dog control activities. Funding can be directed by groups to fill gaps they have identified in their control plans.

To apply, groups should download and complete the application form at www.wool.com/wilddogs and submit it along with a plan, a map and a project budget to wilddogs@wool.com. Applications are open to new groups as well as those groups that have previously received funding from AWI.

If you need clarification or assistance please contact AWI Vertebrate Pest Program Manager **Ian Evans** on 0427 773 005 or ian.evans@wool.com

EXCLUSION FENCE CONSTRUCTION UNIT

TO HELP CENTRAL WEST OF QUEENSLAND

An Exclusion Fence Construction Unit that can fence more than 4km per day is being made available to woolgrowers in the Central West of Queensland at a minimal rate thanks to a grant from AWI to Longreach Regional Council.

Landholders around Longreach are getting access to new exclusion fencing equipment to help combat wild dogs, at reduced rates thanks to AWI and Longreach Regional Council.

The Council has been awarded a grant of up to \$205,300 by AWI to build the region's capacity to construct exclusion fences. The grant has been used to procure a Caterpillar 910K loader which arrived in November last year. The loader is fitted with a hydraulic hammer and Ezywire® spinner to provide a high capacity Exclusion Fence Construction Unit (EFCU).

The equipment is available for hire at a substantially reduced fee, for dry hire, to woolgrowers in the Central West of Queensland looking to build exclusion fences on their properties.

The EFCU could play a key part in the implementation of the planned Longreach Wild Dog Exclusion Fence Scheme. In the meantime, woolgrowers undertaking their own construction can enquire with the council if they would like to know more about using the equipment on their own fencing projects.

Council's Wild Dog Control Advisory Committee Chair Greg Bowden said the EFCU would prove very useful to graziers that were planning to undertake exclusion fencing.

"This should get the job done. Hopefully having it available will mean fences go up faster. It'll make it more affordable too."

AWI Vertebrate Pest Program Manager Ian Evans said EFCU is an example of how AWI is supporting efforts to protect sheep flocks against wild dogs.



Screenshots from a video of the **Exclusion Fence Construction Unit** that is available on the **AWI YouTube Channel** at www.youtube.com/AWIWoolProduction

"Cluster fences are a key tool in combatting wild dogs for wool and sheep producers in Queensland," says Ian. "AWI is pleased to provide this first unit to assist Central West Queensland producers get their exclusion fencing up as quickly as possible."

"There is no doubt that sheep are a key driver of economic activity in rural communities in Queensland. And the sooner we can rebuild sheep numbers to take advantage of the better season across Queensland, the better off we will all be."

Based on the Caterpillar 910K articulated loader, the EFCU offers woolgrowers the capacity to drive posts and run wire with previously unbelievable ease. The hydraulic flow capacity of the Caterpillar 910K gives this machine the capacity to handle the heaviest loading, driving and lifting tasks that building a wild dog exclusion fence can impose.

The commercial grade hydraulic hammer can drive the largest steel strainer posts, including

heavy drill pipe and even railway iron. Two meter plus line posts can be driven into the toughest soils with ease.

The Ezywire® spinner can be loaded with 3 x 250 meter or 2 x 500 meter rolls of prefabricated netting up to 1.8 meter wide.

"Imagine running out up to a kilometre of fencing – already strained to the correct pre-set tension – before you have to re-load the spinner," Ian said. "All attachments feature Caterpillar's 'quick attach' coupler and can be attached and detached without leaving the air-conditioned cab."

A video of the EFCU is available to view on the AWI YouTube channel at www.youtube.com/AWIWoolProduction

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MORE INFORMATION

Further details are available from **Longreach Regional Council** on (07) 4658 4111.

WOOL CLASSING THROUGH THE YEARS

90-year-old Arthur Ward is now in his **72nd year of wool classing** for the 'Bellevue' property at Cootamundra. Is this a record?!

'Bellevue' is into the fourth generation of ownership with Arthur's son Ronald at present, and his son, Harrison, "waiting in the wings" to follow his father.

Arthur's mother was a school teacher whose knowledge of the French language probably gave rise to the property name being written with the French words for the "Beautiful View" that this 'Bellevue' farm has of the Jindalee Valley and the town of Cootamundra.

Arthur's great grandfather, Samuel Ward, came to the Cootamundra district in 1865 from Camden where he had a block on Macarthur's Camden Estate and a butchery. He settled on the Wagga side of Cootamundra at the village of Frampton naming his property 'Gilgal'.

The family history goes back to the village of Edwinstowe in Nottinghamshire, England, and the church where legend has it Maid Marian married Robin Hood. A mausoleum in this church has all the names of those connected to Wards that emigrated to Australia in 1842.

Great grandfather Samuel Ward had three sons; one was Arthur Nash Ward (Arthur's grandfather) who had five sons all of whom set up farms in the district of Cootamundra. Arthur's father, Frederick Wesley Ward, one of those five sons, married a Parramatta girl in 1925, who he met when she was teaching in Cootamundra in 1920. He built a new brick home (in which Arthur resides today) and began the 'Bellevue' story of this family.

Arthur's first training as a wool classer began at Orange Technical College in 1943, whilst attending Wolaroi College in his final year at school, and his first year wool classing exam was done at Bathurst Technical College that year.

Returning to 'Bellevue' in 1944, he completed two more years training at Cootamundra Tech under teachers Jack Croker and Bruce McCormack who arranged two weeks intensive training for the Cootamundra class at Goulburn Tech before going to Ultimo Tech in Sydney, for their Final exam. All wool classers were required to do their Final exam in Sydney in those days.

Obtaining a pass, the letter shown in the photo below came in a small brown envelope with a tuppenny half penny red stamp (King George VI) addressed to Mr A. Ward Esq., and is the report on the job done by Arthur of the 'Bellevue' clip in 1945. 'Bellevue' wool was sold in those days through Country Producers Selling Co. Ltd., one of the wool brokers of that era.

Asked about changes he has seen in the industry, Arthur said, "One of the most important was probably the ability to more accurately quantify the sale product in tests of core samples by the Australian Wool Testing Authority. This was set up and headed first by another Ward, namely David Ward, a cousin of mine, who grew up in the Jindalee Valley a few kilometres from 'Bellevue'."

Arthur said the quality of new shearing sheds has made shed work more efficient.

"Four years ago we purchased a new shed with raised boards, which helps the wool handlers clean up the belly wool, crutching and other non-fleece wool oddments on the boards before they even get to the table. We bought the shed from Eco Enterac in Tamworth; it arrived on a semi-trailer and was put up within a couple of weeks.

"The new hydraulic wool presses, with built-in weighing scales, have also been a great device to take the strain out of shed work, especially as we're not getting any younger and the manual wool presses were relatively slow and labour intensive.

"It's important to get enough and experienced wool handlers, as the shearers can shear so quickly nowadays that it doesn't give the wool handler and classer much time between sheep."

Procedures and regulations have changed over the years too.

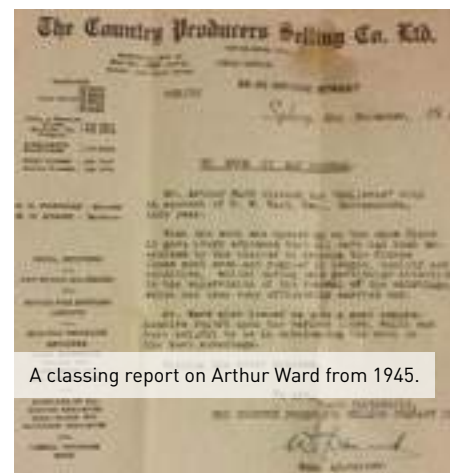
"For instance, in the 1960s, micron measurements came in – it was a different language to what we were used to. Previously fibre fineness was measured by the number of hanks that could be spun from a pound of clean scoured wool."

And even after more than 70 years, there are still new experiences for Arthur.

"This year, because of how the availability of shearers landed, we had to work on Australia Day – that was a first for me!"



Three generations of the Ward family of 'Bellevue' at Cootamundra in the South West Slopes region of NSW: 90-year-old Arthur Ward with his son Ron and grandson Harry. Arthur is now in his 72nd year of wool classing.



A classing report on Arthur Ward from 1945.

PAIN RELIEF

FREQUENTLY ASKED QUESTIONS

There has been large scale adoption of post-operative pain relief (Tri-Solfen®) during the past ten years. New pre-operative products Buccalgesic® and Metacam 20® were released in 2016. Here we provide answers to some frequently asked questions about pain relief.



Tri-Solfen®, a topical local anaesthetic and antiseptic gel spray.



Metacam 20®, a subcutaneous injection high on the neck behind the ear.



Buccalgesic® being applied to the internal cheek of a lamb.



Numnuts® prototype applicator; R&D continues.

WHY SHOULD WOOLGROWERS CONSIDER USING PAIN RELIEF PRODUCTS?

The supply chains for both wool and meat are becoming increasingly interested in their suppliers' husbandry practices.

On farm adoption of pain relief for mulesing has been rapid. In the ten years since Tri-Solfen® was first registered, 75 per cent of Merinos mulesed now receive pain relief.

Pain relief with a specific claim for knife castration and knife tail docking was first registered for use in 2016 and adoption rates will be monitored over the coming years.

Pain relief with a specific claim for ring castration and ring tail docking is not yet commercially available. R&D continues for a technique called Numnuts® which injects local anaesthetic just above the ring.

WHAT ARE THE DIFFERENCES BETWEEN ANALGESIC AND ANAESTHETIC PAIN RELIEF TREATMENTS?

Analgesics provide relief from pain while retaining most sensory function. There are a range of products with a large variation in the intensity and duration of pain relief provided. Active compounds can take 10 to 15 minutes to reach optimum blood concentration and they require the pain enzymes to be created at the site of tissue damage before they can act and the release of pain enzymes can also be slow to ramp up. They last for varying times depending on how quickly the active compound is metabolised and excreted.

- Mild to moderate pain relief:
 - (a) *Paracetamol*, also known as *Acetaminophen*,

- (b) *Non-Steroidal Anti-Inflammatory Drugs* such as aspirin, meloxicam (Buccalgesic® and Metacam 20®) and carprofen, and
- (c) mild *Opioids* such as codeine.

- Strong pain relief, *Opioids* such as morphine. Opioids act on the nervous system, rather than on the enzyme production at the site of tissue damage. They can produce hallucinations and can be addictive.

(There are also other types of drugs such as *Corticosteroids* that are injected to a site to reduce inflammation, along with *Anti-anxiety* and *Anti-depressant* drugs that also provide pain relief.)

Anaesthetics block pain and sensory function is lost. There are three main types: local, regional and general anaesthetics, most taking from 2 to 10 minutes to take effect. They typically do not provide long-lasting pain relief.

- Local (eg dental) and regional (eg epidural) anaesthetics are administered subcutaneously or topically and desensitise a defined location. (Tri-Solfen®)
- General anaesthetics create a medically induced coma, a state of unconsciousness and are administered by injection or inhaled. The patient cannot move, feel pain, remember and breathing may need to be assisted.

FOR WHOLE FLOCK TREATMENTS, ARE ANAESTHETIC OR ANALGESIC, PRE-OPERATIVE OR POST-OPERATIVE PRODUCTS BETTER?

There are no black and white answers with so many variables and factors to consider including:

- availability of a product to livestock producers and veterinarians

- availability of veterinary prescription and oversight
- throughput required per day
- restraint requirements
- time and method of treatment
- ability of the animal to breathe unassisted during treatment
- time and supervision required post treatment
- ability of the lamb to mother up
- type of husbandry practice and method used
- likelihood of adverse impact to humans
- degree of pain relief provided
- practicality and cost.

Welfare trials offer the most valuable information about how effective the treatment is, yet these still require an overall subjective expert assessment of the 30 or so measures used, because no single measure tells the whole story. For specific advice contact your veterinarian.

WHAT PURPOSES HAS THE APVMA APPROVED THE PAIN RELIEF PRODUCTS FOR?

The Australian Pesticide and Veterinary Medicine Authority (APVMA) has registered products for the following purposes:

- Tri-Solfen® for pain relief following mulesing, castration and tail docking
- Metacam 20® for alleviation of pain and inflammation
- Buccalgesic® for alleviation of pain and inflammation for castration and tail docking.

HOW MUCH DO THE PAIN RELIEF PRODUCTS COST?

DOSE AND ESTIMATED RETAIL PRICES FOR TRI-SOLFEN® (BAYER)

HUSBANDRY PRACTICE	TOTAL DOSE	COST @ 12 CENTS PER ML
Mulesing		
Lambs 5-10kg	6.0 mL	\$0.72
Lambs 11-15kg	8.0 mL	\$0.96
Lambs 16-20kg	10.0 mL	\$1.20
Lambs over 20kg	12.0 mL	\$1.44
Castration		
Lambs up to 10kg	3.0 mL	\$0.36
Lambs over 10kg	4.5 mL	\$0.54
Tail docking (if not concurrently mulesed)		
Lambs up to 10kg	1.5 mL	\$0.18
Lambs over 10kg	2.0 mL	\$0.24
Combined castration, tail dock & mules		
Lambs 5-10kg	9.0 mL	\$1.08
Lambs 11-15kg	12.5 mL	\$1.50
Lambs 16-20kg	14.5 mL	\$1.74
Lambs over 20kg	16.5 mL	\$1.98

DOSE AND ESTIMATED RETAIL PRICES FOR BUCCALGESIC® (Troy Laboratories – 1.0ml per 10 kg bodyweight)

CASTRATION AND TAIL DOCKING	TOTAL DOSE	COST @ 48 CENTS PER ML
Lambs under 10 kg	1.0 mL	\$0.48
Lambs 10.1 -15.0kg	1.5 mL	\$0.72
Lambs 15.1 to 20.0kg	2.0 mL	\$0.96
Lambs 20.1 to 25 kg	2.5 mL	\$1.20

DOSE AND ESTIMATED RETAIL PRICES FOR METACAM 20® (Boehringer Ingelheim – subcutaneous 1.0ml per 20 kg body weight)

PAIN AND INFLAMMATION	TOTAL DOSE	COST @ 165 CENTS PER ML
Lambs under 10 kg	0.50 mL	\$0.83
Lambs 10.1 -15.0kg	0.75 mL	\$1.24
Lambs 15.1 to 20.0kg	1.00 mL	\$1.65
Lambs 20.1 to 25 kg	1.25 mL	\$2.06

Prices used in the tables above are approximate retail prices at January 2017 for the product alone. They do not include the cost of labour to administer the products.

SUMMARY: AVAILABLE PAIN RELIEF PRODUCT

	PROCEDURES APPROVED BY APVMA	PRODUCT DESCRIPTION	WHEN TO USE	AVAILABILITY (APVMA SCHEDULE)	SLAUGHTER WITHHOLDING PERIODS	MANUFACTURER
Tri-Solfen®	Pain relief following mulesing, castration and tail docking	Anaesthetic: A gel spray providing a local anaesthetic and antiseptic. Its active ingredients are Lignocaine, Bupivacaine, Adrenaline and Cetrimide.	Post-operative	Available over the counter (Schedule 5)	90 days	Bayer
Buccalgesic®	Alleviation of pain and inflammation for castration and tail docking	Analgesic: A meloxicam-based Non-Steroidal Anti-Inflammatory Drug. It is a viscous liquid administered between the inside of the cheek and molar teeth of sheep.	Pre-operative	Requires veterinary prescription (Schedule 4)	10 days	Troy Laboratories
Metacam 20®	Alleviation of pain and inflammation	Analgesic: A meloxicam-based Non-Steroidal Anti-Inflammatory Drug administered by subcutaneous injection high on the neck behind the ear.	Pre-operative	Requires veterinary prescription (Schedule 4)	11 days	Boehringer Ingelheim

WHAT ARE THE SLAUGHTER WITHHOLDING PERIODS?

Tri-Solfen®	90 days (it is anticipated that with on-going R&D this will be reduced)
Buccalgesic®	10 days
Metacam 20®	11 days

WHY SHOULD WOOLGROWERS USE THE NATIONAL WOOL DECLARATION?

The supply chain for wool is increasingly interested in the husbandry practices of their suppliers. Australian Wool Exchange (AWEX) created a Mulesing Status section on the National Wool Declaration (NWD) in 2007 and the number of bales being declared by woolgrowers is steadily increasing.

The NWD is voluntary, managed by AWEX and available for all wool sold by auction in Australia. It is a scheme that is audited by AWEX, is relatively low cost and focused on wool contamination and mulesing status. Increasingly clients are asking for the wools of certain NWD categories, so growers are encouraged to declare their wool regardless of whether they mules or not. There are variable, small but increasing premiums for all categories.

There are other more detailed schemes that woolgrowers can also choose, run by wool brokers and businesses providing quality assurance schemes.

By 2015/16, eight years after the Mulesing Section was added to the NWD there were 133,910 Not Mulesed bales declared, 44,636 Ceased Mulesed bales and 342,215 Pain Relief bales, a combined 520,762 bales or 35 per cent of the total clip.

AUSTRALIAN WOOL SOLD AT AUCTION 2015/16 (Source: AWEX)

BALES	2015/16	
	% Sold	No of bales
Clip Declared	55%	818,341
Not Mulesed (NM)	9%	133,910
Ceased Mulesed (CM)	3%	44,636
Mulesed with Pain Relief (PR)	23%	342,215
NM, CM and PR	35%	520,762
Mulesed	20%	297,578
Clip not Declared	45%	669,552
Total		1,487,894

LOW WORM-RISK PADDOCKS

Whether you are in summer or winter rainfall areas, **now is a key time to be taking action on low worm-risk paddocks** – a cornerstone of successful worm control.

It's March. If you are in southern Australia's moderate to high rainfall areas, you'll be moving weaners onto a clean (low worm-risk) pasture when the season breaks. If you are in the northern, summer rainfall areas, you will have just started preparing clean lambing paddocks and be using cleaned weaning paddocks.

If you are not doing that now, there is a real opportunity to be gained from implementing a well-proven strategy for effective and profitable worm control that decreases the exposure of sheep to worms.

This reduces both production loss and the need for chemical (drench) intervention. In turn, fewer drenches result in less cost and labour and slower development of drench resistance – a winning combination all round.

Strategically preparing low worm-risk paddocks – also referred to as 'clean' paddocks – for the most susceptible classes of sheep on the property also helps the remainder of the flock because there are fewer worms on pastures to infect other mobs being moved around the property.

In summer rainfall areas, where barber's pole worm predominates (Qld and NSW north of a line through Sydney), prepare low worm-risk paddocks for lambs at weaning and lambing ewes.

In winter and non-seasonal rainfall areas and Mediterranean climates (WA, SA, Tas, Vic and NSW south of a line through Sydney), prepare paddocks for weaners to use during their first winter.

WHAT ARE LOW WORM-RISK PADDOCKS?

To merit the description 'low worm-risk', these paddocks need to have such a low level of infective worm larvae on them that when sheep are introduced (after just being treated with an effective drench) at least a few months must pass before worm numbers build up to levels that cause illness in the stock.

HOW ARE LOW WORM-RISK PADDOCKS PREPARED AND USED?

Two things must occur. Firstly, all of the existing worm eggs and most of the larvae on the paddock must die. Secondly, new larvae must be prevented from developing on that paddock during preparation.

TIME FOR LARVAE TO DIE

Generally, at least 90%, but preferably 95% of the worm larvae on a moderately to heavily worm-contaminated paddock must die. Less than this is rarely enough.

In Australia, a 6-month period (over the coldest months) is sufficient for 95% larvae to die, and this can be reduced to a 2-month period during summer months in very hot locations.

The graph below shows the rate at which barber's pole worm larvae die, but is quite similar for scour worms that exist on pasture. Choose the temperature line that fits your location in the few months prior to when the low worm-risk pasture is required and find

where larval survival (left side of graph) drops to 5% to show the number of days required for 95% of the larvae to die.

PREVENTING FURTHER CONTAMINATION

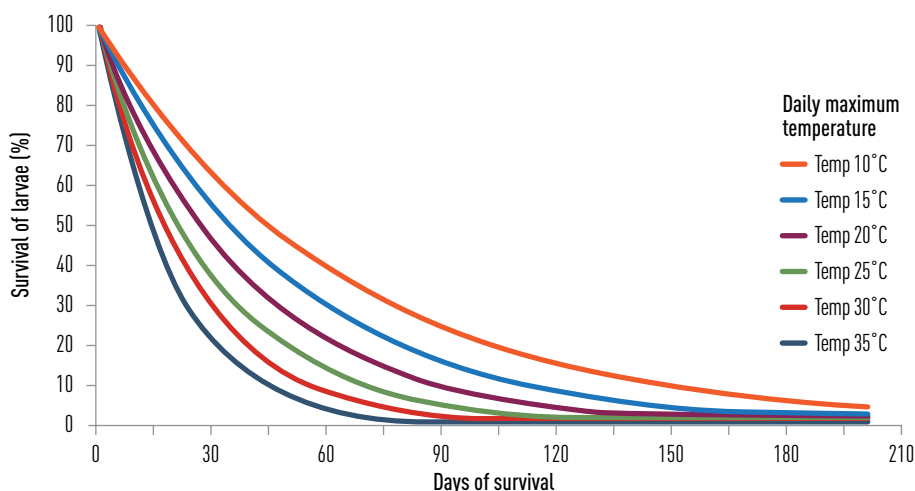
While the larvae on the paddock are dying, further contamination must be prevented. The simplest and surest way is to exclude sheep (and goats and alpacas, which share the same worms) from the pasture during the preparation period. However, this is often not the best use of the paddock.

Where possible, utilise feed by grazing with cattle or horses (not sheep, goats or alpacas). Or use the paddock for growing a crop or making hay or you can graze heavily just before the preparation period and then leave the paddock empty during the regrowth period.

You can, however, graze the paddock with sheep, goats or alpacas under very specific conditions.

After they receive a drench proven to be fully effective on your property (see DrenchTests

SURVIVAL OF BARBER'S POLE WORM INFECTIVE LARVAE ON PASTURE AT VARIOUS DAILY MAXIMUM TEMPERATURES AND 60% RELATIVE HUMIDITY.



in WormBoss), graze in the 2–4 weeks after the drench, then remove the stock:

- 2 weeks for goats
- 3 weeks for sheep in barber's pole worm areas
- 4 weeks for sheep in scour worm areas

If a long-acting product is used, grazing can be longer in line with the actual length of persistence the product provides on your property (long-acting drenches may have a shortened length of protection if worms are resistant to that product; WormTest at 30, 60 and 90 days).

When the paddock is ready to be used, drench all sheep into the paddock with the most effective drench combination you have. Ideally, prepare enough paddocks so that the susceptible stock using them will have enough feed for at least three months, to get them past their most susceptible phase. If a number of paddocks are required to achieve this, they can be prepared on a staggered timeframe to match when they will be used.

MANAGING DRENCH RESISTANCE FROM CLEAN PADDOCKS

Preparing and using clean paddocks does have a downside that needs to be managed. By removing most larvae and drenching sheep in, almost the only larvae on the paddock that will develop and reinfect the sheep will be from worms resistant to the drench group used on introduction to the paddock. There may be very few of them, but with hardly any other worms to dilute them, they will be dominant in that population.

In managing this, it is one of the few times when drench rotation is really useful.

When the sheep leave the paddock (or the whole group of paddocks prepared for and used by that mob) do the following things:

- Drench the sheep with a different drench group/s known to be effective on your farm. Using the same group again won't clear these resistant worms.
- Next graze these paddock/s with a mob that has at least a moderate worm burden and whose last treatment was a different drench group/s to that given to the first mob using the low worm-risk paddock.

This will bring in some worms that are more susceptible to the original drench, which will dilute any resistant worms.

In combination with other WormBoss strategies, low worm-risk paddocks have a major beneficial impact on worm control. **B**

MORE INFORMATION

WormBoss provides the latest information about worms and management tools including **Drench Decision Guides** and **Regional Worm Control Programs**.

WormBoss is available at www.wormboss.com.au



CASE STUDY

DEB MAXWELL AND CAMERON PEARDON

'MANNUM PARK', GUYRA, NEW ENGLAND, NSW
MERINO STUD FLOCK OF 350 EWES PLUS FOLLOWERS

Deb Maxwell and Cameron Peardon know only too well how quickly and easily barber's pole worms can take their toll. Despite Deb being a sheep extension officer for years, control of these worms was hit and miss on the Guyra property in the New England district of NSW that she manages with her husband, Cameron Peardon.

In 2011, while working for the Sheep CRC, Deb joined a team to add Programs and Drench Decision Guides to the WormBoss website. At this time she started working with Lewis Kahn who had recently completed an AWI-funded project to develop an integrated parasite management program for the New England region.

"The concepts of worm control were already well known, but Lewis's research put it all together into a simple and clear program of what to do and when to do it, and proved on commercial properties that it was highly effective," Deb said.

"We were already well ahead on breeding for worm-resistance with our stud flock and we did drench resistance tests and regular monitoring, but the Guyra climate is so suitable for barber's pole worms that paddocks became heavily contaminated in spring and summer, and the challenge in autumn was particularly high.

"The very first year we prepared and used a low worm-risk weaner paddock, we went six months without drenching them. We'd never gone more than six weeks after weaning before. This last year the 2015-drop ewes have gone over 13 months [at the time this article was written] since their short-acting weaning drench.

"Preparing low worm-risk paddocks has had a phenomenal impact on worm control here, and we have found it very easy to do. We prepare both lambing paddocks and weaning paddocks.

"I also wonder if drenching somehow interferes at times with natural immunity to barber's pole worm. It's a possibility demonstrated by the late Ian Barger working at Chiswick Research Station, Armidale, but not fully confirmed or understood. But it is known that immunity to barber's pole worms is short-lived compared to scour worms.

"We've found that by limiting exposure to worms – particularly weaners who are only starting to build their own immunity – that they get a chance for it to develop strongly with continued and gradually increasing exposure to worm larvae.

"As a result we don't see any yo-yo effect where worm levels go up and down dramatically – getting cleaned out with a drench, then rapidly re-infected.

"We simply follow the strategies in the WormBoss program for this region. We breed for worm-resistance and prepare low worm-risk lambing and weaning paddocks. Drenches now are always used as combinations and are known to be effective based on our three-yearly DrenchTests. Monthly WormTests let us know exactly what is happening with each mob, allowing drench intervention in plenty of time if needed.

"It's cheaper and less work than our previous management and it gets far better results. To top it off we don't worry that we'll find sick sheep anymore." **B**

FLYSTRIKE CONTROL USING NEXT GENERATION TECHNOLOGIES

New research aims to provide critical genetic insights into sheep blowfly biology, and act as a crucial foundation for the potential development of new drugs and vaccine for effective and sustainable flystrike control.



Dr Clare Anstead from the University of Melbourne is the recipient of an AWI-sponsored Science and Innovation Award for Young People in Agriculture.

Research into the genetic variation within the sheep blowfly *Lucilia cuprina* in Australia will soon be under way, thanks to an AWI-supported grant that aims to provide ammunition for the wool industry in its battle to protect the nation's sheep flock from flystrike.

The research will be undertaken by 30-year-old Dr Clare Anstead, a lecturer in parasitology in the Faculty of Veterinary & Agricultural Sciences at the University of Melbourne, who was presented with a Science and Innovation Award for Young People in Agriculture earlier this month.

Dr Anstead was the lead researcher on the project that in 2015 completed the identification of all 14,554 genes that make up the sheep blowfly. That project, co-funded by AWI, to decode the sheep blowfly genome discovered around 2,000 genes not seen before in any other organism. Some of these 'orphan' genes

hold the key to the parasitic relationship between the blowfly and the sheep, and could be targeted to develop a completely new method of flystrike control.

The new project supported by the AWI-funded Science and Innovation Award aims to build on this previous research by using genomic and related information to investigate genetic variation within the Australian sheep blowfly.

Approximately 100 adult blowflies (50 females and 50 males) will be collected for analysis from infected sheep and their surrounding environment, from each of ten disparate locations across Australia.

Dr Anstead says insights into the population genetics of the blowfly are critically important to provide a basis for the identification of key target genes that could be used in the design of new ways to combat the parasite.

"The ability to study and establish genetic diversity within and among blowfly populations on a genome-wide scale, and to associate variation to genes or proteins linked to important biological characteristics, could have important implications for the control of flystrike," Dr Anstead said.

"The fundamental outcomes from this project will contribute significantly to the advancement of knowledge about blowfly biology, and provide a crucial foundation for the potential development of radically novel intervention methods such as new insecticides and vaccines."

Dr Anstead said the project also aims to enhance collaboration among researchers in this and complementary disciplines to improve data collection/analysis and drive the development of frontier molecular technologies in livestock and parasitic disease research.

"I have already developed numerous strong collaborations with scientists in this and related fields, including Prof Phil Batterham of the University of Melbourne and Stephen Richards of the Baylor College of Medicine (Houston, Texas) who both worked on the previous genome mapping project and with whom I will work closely during this new project.

"The project will be a perfect platform for further cross-departmental collaborations in this area as well as inter-institutional collaborations in both the national and international scientific arenas. Communications with industry partners will also ensure that findings with commercial potential can be translated into biotechnological outcomes."

The Science and Innovation Awards for Young People in Agriculture are coordinated by ABARES and are open to young people aged 18-35 years working or studying in rural industries. The annual awards aim to encourage the uptake of science, innovation and technology in rural industries.

MORE INFORMATION
canstead@unimelb.edu.au

2017 NATIONAL MERINO CHALLENGE

Registrations open on 27 March for this year's National Merino Challenge which is being held in Melbourne. The National Merino Challenge is an AWI initiative designed to allow **young people** to engage with the Merino industry by **developing their knowledge, skills and networks**.



Students attending last year's National Merino Challenge.

The 2017 National Merino Challenge (NMC) is heading to Melbourne Showgrounds on 27 and 28 May to encourage the next generation of the wool industry.

Now in its fifth year, the annual NMC has involved 363 students and 97 teachers from more than 25 different secondary schools, universities and registered training organisations.

Run by AWI, the two-day NMC involves presentations and demonstrations from industry professionals to enable young people to develop their industry knowledge, skills and networks. The NMC is guided by a Steering Committee which includes representatives from across the sheep and wool and education industries.

Students participate in seven 'mini-challenges' across two days, testing their knowledge of Merino fleece, production and breeding and selection principles. Designed around existing industry tools

and techniques, students learn practical skills such as condition scoring, feed budgeting, ASBVs and visual assessment for animal selection and AWEX wool typing.

Techniques from several well-known industry initiatives, such as MERINOSELECT, Lifetime Ewe Management and Visual Sheep Scores, are used throughout the NMC, giving students a realistic and practical insight into the tools available to growers to make more informed decisions.

Other highlights of the 2017 NMC program include a careers session in which a panel of young professionals already in the industry provides students with advice on entering the agricultural sector, a presentation on the importance of effective woolhandling techniques for good clip preparation, and a shearing demonstration.

An NMC Industry Dinner will also be held enabling the students to spend an evening with a range of wool industry

participants, from woolgrowers to wool brokers and researchers.

Kristy Walters who competed last year as part of the Murdoch University team and who won the individual award in the tertiary division said, "It was a privilege to be able to travel over east and compete in the 2016 National Merino Challenge. What a fantastic opportunity for young people interested in the Merino industry to directly engage with industry professionals and meet others studying similar courses across the country, at the same time competing to develop skills and knowledge. It's great to see the event growing each year and inspiring such enthusiasm and passion in the future generation."

MORE INFORMATION

To register for the **2017 National Merino Challenge** in Melbourne or for more information, visit www.awinmc.com.au. Registrations open on 27 March and close 30 April.

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Alex Direen

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AUSSIES UNDERTAKE FOOT-AND-MOUTH DISEASE TRAINING IN NEPAL

To help ensure that Australia's livestock industry stays free of the highly contagious and potentially devastating foot-and-mouth disease (FMD), industry representatives and veterinarians from Australia **attend FMD identification and response training programs in Nepal.**

An ongoing foot-and-mouth disease (FMD) training program attended by Australian and Nepalese veterinarians and industry representatives was held in Nepal, a country in which the disease is endemic and causes substantial economic losses.

The program, developed and delivered by the European Commission for the Control of Foot and Mouth Disease (EuFMD), and the Food and Agriculture Organization of the United Nations (FAO), with support from the Australian Government, aims to improve Australia's early detection and response capacity for an outbreak of FMD whilst assisting with disease management in Nepal.

The training enables participants to see first-hand how FMD symptoms develop in affected livestock and gives them the experience of tracking infections and responding to the disease. Participants meet with local Nepalese farmers to learn about the disease and share practical on-farm knowledge about FMD management and treatment and to discuss biosecurity practices.

The Federal Government's Department of Agriculture and Water Resources, in an agreement with the EuFMD, has provided the opportunities for key people to take part in the courses since 2012. To date, nearly 200 Australians have been trained. Industry groups, such as WoolProducers Australia and the Sheepmeat Council of Australia, contribute to ongoing funding for industry participants to attend alongside their government veterinarian colleagues.

Fifth generation woolgrower Heidi Reid from 'Yarrabin' at Berridale on the Monaro attended one of the courses in December, funded by the Sheepmeat Council of Australia for which she used to work as a Policy Advisor in the areas of animal health and welfare.

Heidi said Australia is being proactive in training up a diverse range of professionals to identify and respond effectively and immediately to the disease if it was ever found in Australia.

"The course is building up a greater awareness of emergency animal disease management in Australia. There was a real mix of people on my course, including regional government vets, producers, agents, sale yard managers and rural retailers.

"We worked closely with Nepalese veterinarians and farmers to gain experience in identifying the disease and management should an outbreak occur. We had two hands-on field trips; the first was to an area in which there had been a fresh outbreak of the disease where we had to suit up in biosecurity gear and provide an assessment of the property's situation; the second trip was to a property where there had been an outbreak six months previously, where we reviewed the impacts and handling of the outbreak.

"Coupled with lectures on current technical considerations, our group then provided recommendations back to the Australian and Nepalese Governments and Australian industry groups."

Heidi says the course consolidated her understanding of the devastating impact that FMD would have on our industry and livelihoods.

"Australian producers deservedly have a reputation of producing world's best products that are clean and green, which allows us ongoing access into markets around the world. However, to safeguard this access, it's important that we continue to practice strong biosecurity.

"This may be as formal as meeting our requirements through the National Livestock Identification System (NLIS), such as filling out the National Vendor Declarations (NVDs)

correctly, through to discussions with our next door neighbours, local farming groups and DPI vets about disease identification and management and issues such as swill feeding of pigs.

"There is also a significant need for this information to flow to the hobby farmer that may live just down the road or households in urban areas such as Sydney that may have a couple of pigs. We can only ensure success around biosecurity and ongoing market access as a broader community."

Heidi was especially conscious of quarantine procedures to prevent her from bringing the disease to Australia after her training had completed.

"I chose to leave behind everything I had taken to Nepal which I used at on-site visits and spent a further two weeks away from infected areas before coming home to ensure I did not bring FMD back into Australia and back to our farm. I also had reassuringly thorough questioning from the customs and quarantine personnel when I landed back in Australia."

An outbreak of FMD in Australia would have a devastating impact on our livestock industries. One of the most important aspects of addressing an outbreak is early reporting. If you suspect FMD in any way, phone the EAD Hotline (1800 675 888) or your local vet immediately.

B



Foot and mouth disease training in Nepal in December.



The Australian wool industry's emergency animal disease (EAD) preparedness research, development and extension strategy for 2016/17-2018/19 aims to minimise disruption to flows of Australian wool to the world's markets, should an EAD outbreak occur.



The previous EAD preparedness strategy won an Australian Biosecurity Award in 2014. Pictured are AWI's Dr Paul Swan; FAWO Secretary, Bianca Heaney; FAWO Chair, Robert Ryan OAM. PHOTO: Steve Keough Photography

BEING PREPARED

FOR TRADE IMPACTS OF EXOTIC DISEASES

The Australian wool industry has a robust strategy to minimise the potential trade impacts on the industry if an emergency animal disease (EAD) outbreak was to occur.

Australia's biosecurity framework is strong by international standards. However, prompted by foot-and-mouth and mad cow disease outbreaks in other countries during the past two decades, Animal Health Australia (AHA) and its members, notably the Department of Agriculture and Water Resources, have sought to strengthen Australia's biosecurity system.

WOOL INDUSTRY'S EXPOSURE

The Australian wool industry's strong export orientation, absolute dominance of global fine apparel wool production, and efficient logistical systems are unique strengths and great achievements. However, they also pose a major risk to the global wool textile industry should Australia ever face an outbreak of an EAD affecting sheep, such as foot and mouth disease (FMD), or sheep and goat pox.

A number of these disease agents, such as FMD virus, can survive on greasy wool for a period of up to months, leading to a situation where shorn wool in bales is potentially infectious. Given the scale and efficiency of our logistical system, where bales of wool can be shorn in Queensland and sold and containerised for export in Melbourne within weeks, the post-farm gate aspects of EAD

management are critical, and quickly take on an international trade dimension.

"If history is a guide, our trading partners would immediately place a ban on imports of Australian 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 General Manager Research, Dr Paul Swan. "In the recent past, other countries have had greasy wool exports banned for months. In our case, this would be enormously disruptive to the global supply chain, and would place enormous pressure on our domestic systems for ensuring rapid bale traceability, decontamination and disinfection – at a time disease control authorities would be very focussed on localising and eradicating the disease at farm level."

While scouring wool is known to kill the disease agents, there are currently only three wool scourers in Australia, with a total scouring capacity of 15.5mkg, which is nowhere near sufficient to process Australia's annual production of 240-245mkg greasy wool to meet demand in a timely way.

An EAD outbreak would impose very substantial financial costs on the wool industry. The trade impact alone was estimated in 2013 by ABARES to potentially

cost the Australian wool industry \$2.2 billion over ten years, although the revenue losses would be relatively low for wool compared with other commodities such as meat and dairy.

WOOL INDUSTRY'S RESPONSE

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 has developed a three-year Australian wool industry EAD preparedness research, development and extension (RD&E) strategy for 2016/17-2018/19.

FAWO Chair Robert Ryan says this strategy is an update of the first such plan, which spanned the preceding three-year period.

"Changes in this revised strategy take account of progress made under the first plan and some minor developments in the EAD operating environment," Mr Ryan said.

"The strategy aims to ensure that the wool industry has in place all the components of an effective EAD response. Just as importantly, it aims to establish in the industry the systems and culture that will ensure EAD preparedness is subject to an approach of continuous improvement.

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

This strategy specifically addresses the shorn wool pipeline from farm to market; that is, it is concerned with the mitigation

CONTINUED OVERLEAF (BOTTOM)

2017 IWTO CONGRESS

Registrations are now open for the International Wool Textile Organisation's (IWTO) annual Congress which is taking place 3-5 May 2017 in Harrogate, England.

Sunset at Almscliffe Crag near Harrogate. PHOTO: Jez Campbell

The IWTO Congress is the annual gathering of the entire wool industry, connecting farm with fashion and everyone in between. Woolgrowers, spinners, weavers, garment manufacturers, designers and retailers will be united at the upcoming Congress to maximise the opportunities for wool.

Keynote speakers will explore the Congress theme, Wool in a Digital Age, by examining at the impact of digitalisation on the wool textile pipeline, from farm gate to retail.

Other sessions at the Congress include: Sustainability through Wool Textiles; Product Wellness; Wool in Interiors; UK

Textile & Fashion Industry with a Focus on Education; Campaign for Wool Update; Wool Innovations and Technology; Market Intelligence, Outlook and Trends in Wool; and Young Professionals Programme.

IWTO Working Group meetings will take place on the day before the Congress (2 May) and an optional visit to a sheep farm in Yorkshire Dales is arranged for the day after the Congress (6 May).

Harrogate is a lovely spa town that's been voted the happiest place to live in Britain for the third year in a row. It is set in one of the most spectacular districts of the UK with attractive towns and villages, imposing

historic houses, castles, abbeys, beautiful countryside and a host of other natural attractions, including a number of wool mills in the vicinity.



MORE INFORMATION

Further information including the draft program, costs and full registration details are available at www.iwto.org/events

CONTINUED FROM PAGE 41

of supply chain and trade risks (such as product traceability), rather than disease response risks (such as diagnostic capability or vaccination).

"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," Dr Swan said. "The Sheep Production portfolio of AWI's own Strategic Plan for 2016/17-2018/19 aligns with the new industry EAD strategy."

Australia's EAD response system is closely aligned to the existing international framework for the management of animal health and disease in respect to trade, ensuring that, as far as possible, the trade response to an EAD outbreak in Australia will be based upon the results of internationally-agreed scientific research. Australia's EAD response system is coordinated by AHA, which is a partnership between the Commonwealth and State/Territory governments, livestock industries and other stakeholders such as the Australian Veterinary Association. WoolProducers Australia is the wool industry member of AHA and is the woolgrower representative body in the Emergency Animal Disease Response Agreement (EADRA) between the Commonwealth Government, State and Territory Governments and livestock industries.

MORE INFORMATION

The 'Australian Wool Industry Emergency Animal Disease Preparedness RD&E Strategy 2016/17-2018/19' is available at www.wool.com/publications and www.woolindustries.org.

WOOL INDUSTRY'S EAD RD&E STRATEGY

The Australian wool industry EAD preparedness RD&E strategy contains six programs, summarised below. These programs are coordinated through the FAWO EAD Working Group.

PROGRAM	KEY DELIVERABLES
1. Traceability	A project completed under the previous Strategy demonstrated that wool can generally be traced forward from property of origin with a high degree of accuracy. The final report from the project made a series of recommendations for future initiatives to enhance the traceability of wool: <ul style="list-style-type: none"> Enhancements to existing software systems to enhance traceability. Regular conduct of simulation exercises to maintain traceability preparedness. Development of a decontamination protocol and EAD response plan for wool handling facilities. Modifications to the classers' specification to enhance traceability.
2. Bale disinfection	Under the previous strategy, a prototype device to enable high-throughput disinfection of the outside of wool bales with a citric acid solution was developed by AWTA with AWI funding. Under the new strategy, the following initiatives would be undertaken: <ul style="list-style-type: none"> Fully-functioning bale disinfection unit manufactured. Disinfection unit evaluated, with protocol/operational manual and report delivered.
3. Wool disinfection	<ul style="list-style-type: none"> Establishment of a system for recording the accumulated heat*time units experienced by wool in storage or transfer, sufficient to demonstrate deactivation of disease agents. This will help convince trading partners that Australian wool poses them no biosecurity threat.
4. Codification	<ul style="list-style-type: none"> AUSVETPLAN manuals updated to incorporate the latest wool industry knowledge.
5. Capacity building	<ul style="list-style-type: none"> Establishment of a database of key positions and personnel throughout the international pipeline (especially key markets, ie China). EAD preparedness and response training for industry personnel.
6. Coordination & relationships	<ul style="list-style-type: none"> Maintenance of strong relationships between FAWO members and other stakeholders to ensure implementation of programs.

URUGUAY TO HOST 10TH WORLD MERINO CONFERENCE



The eyes of the Merino world will be on **Uruguay in April 2018** when the Uruguayan Merino Breeders Society (Sociedad Criadores Merino Australiano del Uruguay) hosts the **10th World Merino Conference** in Montevideo.

Under the patronage of the World Federation of Merino Breeders (WFMB), World Merino Conferences are held every four years, fulfilling one of the federation's purposes of providing a global network for information exchange relating to all facets of Merino breeding and the use of Merino wool, meat and related products.

A pre-conference tour commencing on 7 April 2018 will lead up to the conference on 12 and 13 April where the theme 'The quality of global Merino production' will be explored. Pre- and post-conference tours in Chile and Argentina are also planned.

Member of the WFMB, the Australian Association of Stud Merino Breeders (AASMB), invites readers to join the Australian delegation to Uruguay, with further tour particulars to be announced in the coming months.

The delegation will be led by AASMB president, Georgina Wallace of 'Trefusis' at Ross in Tasmania, who looks forward to learning more about the Merino industry in Uruguay and seeing first-hand the performance of Australian genetics in that

country as well as sharing the exchanges of information and experiences with fellow travellers.

"Along with many fellow Australian Merino breeders I am very much looking forward to attending the 10th World Merino Conference in Uruguay in 2018," she said.

"This is a fantastic opportunity, not only to see Uruguay, but also to visit major Merino studs, shows and judging.

"We also look forward to sharing knowledge and learning from their industry," Mrs Wallace said.

"It is very important for us as a global Merino community to meet and network every four years with many like-minded people to further improve the Merino breed for both wool and meat traits."

With an estimated population of 3.5 million, the independent South American state of Uruguay which covers some 175,215 km², is bordered by Argentina and Brazil with a 660 km coastline to the estuary of the River Plate and the Atlantic Ocean. The

capital, Montevideo, home to the conference, has a population of 1.5 million.

The economy of Uruguay is based on agriculture and farm produce, mainly sheep, cattle and dairy with Uruguay being the second world wool top exporter after China.

A country of natural rolling pastures and low hills with a temperate climate, sheep breeding is mostly concentrated in the north of the country and the hills in the eastern parts.

Similar to Australia, the Uruguay sheep population has declined since 2000, now sitting around nine million with Corriedale the predominant breed (60 per cent) followed by Merino at 20 per cent. It is estimated that 95 per cent of the Merino industry is based on Australian genetics.

The Dohne Merino which was introduced into Uruguay in 2002 from Australia has also had a rapid development.

This will be the second World Merino Conference in Uruguay, that country also hosting the highly successful 4th conference in 1994. With more than 300 attendees at the most recent world Merino conferences, the Uruguayan organisers are expecting a similar number with local and neighbouring Merino-breeding countries joined by industry members from throughout the world.

The five-day technical tour which will precede the coming conference will include visits to plant and woollen mills and Merino studs, finishing in the north west of Uruguay with exhibitions and a show at Salto. This area is home to a majority of the 60 registered studs that make up membership of the Uruguayan Merino Breeders Society. **B**



There will be plenty of opportunity to talk with woolgrowers from Uruguay at the conference and during tours. PHOTO: Gabriel Becco

MORE INFORMATION

The AASMB offers the only official delegation to the **10th World Merino Conference** and has appointed **Carol-Ann Malouf** to coordinate the programme. Further details of the itinerary for conference and tours as well as registration information will be available as they come to hand through 2017. Expressions of interest can be directed to Carol-Ann on (02) 6895 2274 or 0427 119 535 or email carol-annmalouf@bigpond.com



AWI provides funding for Lifetime Ewe Management training aimed at wool and sheep producers keen to improve lamb and ewe management and survival.



The LTEM course is very hands-on; it is based in the sheep yards, shearing sheds and paddocks of the participating woolgrowers. The course is run in groups of five to seven woolgrowers who meet six times in a year with the support of a trainer.

LIFETIME EWE MANAGEMENT

Lifetime Ewe Management (LTEM) seeks to improve understanding of the influence of ewe nutrition and management on overall reproduction rates through lamb and ewe survival.

Since 2008 more than 3,000 sheep producers across Australia, managing almost a quarter of the national ewe flock have participated in LTEM.

AWI has partnered with Victorian based training organisation Rural Industries Skill Training (RIST) to support Lifetime Ewe Management (LTEM) training across Australia. It is proposed that the support will run through until July 2019.

Over the next three years it is expected that another 1,500 woolgrowers will be supported through the LTEM project to undertake this leading training course.

Woolgrowers interested in improving business outcomes through improvements to reproduction and survival rates are encouraged to contact RIST ASAP (on 03 5573 0943 or email info@rist.edu.au) to discuss course options in their area.

ABOUT THE LTEM COURSE

The LTEM course is aimed at wool and sheep producers seeking to improve number of lambs marked, weaner death rates, ewe death rates and overall business outcomes.

The course is run in groups of five to seven woolgrowers who meet six times in the annual sheep calendar (normally within a year) with the support of a group trainer. The course is very hands-on, being based in the sheep yards, shearing sheds and paddocks of participating woolgrowers.

During each of the six sessions it is normal for participants to visit all of the group's properties to share and learn from one another. Days are typically long, full and

very satisfying. During the LTEM process, woolgrowers develop the skills to manage their ewes to achieve condition score (CS) targets to improve lamb survival, explore economics of supplementation and pasture management to review stocking rates and potentially to increase whole farm profitability.

LTEM is structured to maximise knowledge through doing and seeing to both develop skills and also to effect sensible practice change. The program involves professional facilitation of like-minded discussion groups, practice by doing, on-farm demonstrations and learning from one another.

The timing of each meeting is linked to critical stages in the management of the ewe's reproductive cycle. All sessions involve a visit to each participant's farm and focus on condition scoring, pasture production, food on offer (see page 46) and feed budgeting activities. Activities are very practical in nature and are considered very relevant to many farm businesses.

Woolgrowers will also have a very hands-on demonstration of the LTEM App which is a smartphone-based decision support tool which makes handling the 'numbers' and collecting the detail from the paddock and yards so much easier (see far right column opposite).

LTEM evaluation shows significant benefits to participants through improving weaning rates and reducing ewe mortality. LTEM participants in 2015/16 increased the number of lambs weaned by about 6% (102% before LTEM to 108% after LTEM) and reduced ewe mortality by over 20% (3.4% pre-LTEM to 2.6% post LTEM).

LTEM has been 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.

LTEM 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 we work for, and it will continue to generate benefits for many years to come. **B**

MORE INFORMATION

For more information, or to set up an LTEM group in your local area or to join a group in your area, call **RIST** on freecall 1800 883 343 or (03) 5573 0943 or visit www.rist.com.au
AWI: www.wool.com/LTEM

KEY TOPICS COVERED IN THE LTEM COURSE

- Principles and practices of LTEM
- Weaning and preparing ewes for next year's joining
- Linking ewe condition at joining with lambing potential
- Pregnancy management and the impacts of ewe nutrition
- Looking forward and planning for lambing – optimising lamb survival and future productivity
- Potential reproductive rate and the impacts of ewe nutrition in late pregnancy
- Setting up for joining in the second season – manipulating ewe condition and preparing rams
- Economic analysis of different feeding strategies.

LAMB SURVIVAL INCREASES WITH IMPROVED EWE NUTRITION

One of the **key learnings** from Lifetime Ewe Management is that ewe **nutrition** is **key to lamb weight and survival**.

Around 70% of lamb mortality that occurs between birth and weaning occurs within the first 48 hours of a lamb's life. Lamb survival is related to lamb birth-weight, which is strongly related to the nutrition of the ewe during pregnancy, particularly late pregnancy.

Research indicates that the optimum birth-weight to maximise chances of lamb survival is between 4.5 and 5.5 kg. Lambing conditions and whether lambs are single or twin also affect the response.

As shown in figure 1, as body condition score decreases so too does lamb birth weight with a one unit fall in CS reducing lamb birth-weight by 0.4 to 0.5 kg in both single and twin lambs. Birth-weights are most sensitive to changes in ewe condition in late-pregnancy. Obviously very fat ewes are not desirable either with such ewes experiencing other serious lambing problems and cost/return issues.

Lamb birth-weight is determined by ewe nutrition both in early pregnancy (during placental development) and in the last third of pregnancy, which is a period of rapid foetal growth.

If single bearing ewes are kept in a condition score of around 2.8, and twin bearing ewes in condition score of around 3.0 for lambing the chance of lamb survival will be improved. The condition score of ewes becomes even more critical in circumstances where a poor lambing is more likely due to weather or feed limitations (see figure 2).

Extensive research over many years has clearly shown that ewes in poor condition at lambing have significantly impaired maternal behavior (mothering instinct) and very slow milk letdown. These effects are on top of the lamb's own survival instincts. These factors combine to make a very deadly combination with ewes in low body condition tending to produce small vulnerable lambs with a predisposition to die rather than thrive.

This case study of lamb survival in Figure 3 (see right) shows that about 15-20% more lambs survive when born to ewes in condition score 3 compared to ewes in condition score 2.2.

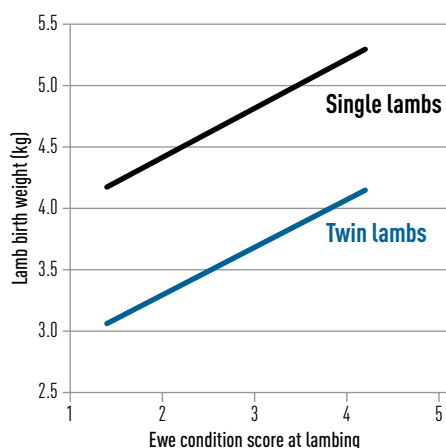


FIGURE 1
Ewes in better condition at lambing have heavier lambs (Source: Lifetime Wool)

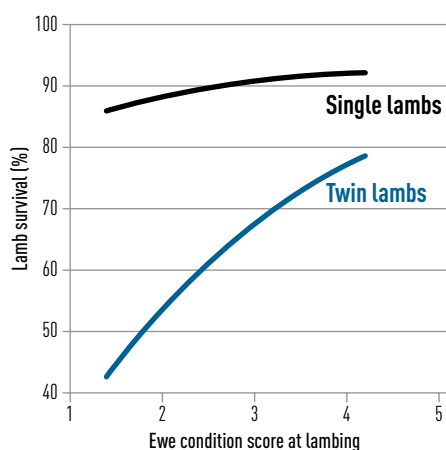


FIGURE 2
Ewe condition score at lambing and lamb survival (Source: Lifetime Wool)

	CS at lambing	Survival of singles (%)	Survival of twins (%)
Western Victoria (4 sites)	2.2	74	38
	3.1	86	56
All states (16 sites)	2.2	83	57
	3.0	90	67

FIGURE 3
Lifetime Wool farmer case studies: ewe condition score at lambing and lamb survival (Source: Lifetime Wool)



UPDATED LTEM APP REACHES FOR THE CLOUD

The latest version of the Lifetime Ewe Management (LTEM) smartphone application is now available with various updated features.

With more than 1,500 downloads of the original application, significant feedback has been incorporated into the latest version, including cloud capability to aggregate farm information from multiple users, new pasture assessment data, location settings and a new feed on offer (FOO) assessment tool.

A free application for both Apple and Android phones, the LTEM App is a digital extension of the popular LTEM course offered through Rural Industries Skills Training (RIST). The course trains woolgrowers to maximise productivity by accurately measuring and managing the energy requirements and inputs of their ewe flock through the reproduction cycle (see page 44).

The LTEM App incorporates all the key estimations and calculations of FOO, condition scoring, feed budgeting and supplementary feeding calculations.

This App was largely created in house at AWI with assistance from RIST together with many who helped roadtest the App in paddocks and sheepyards across the country. Within the App there are various tutorials taking users through the various functions it contains.

The development of the LTEM means users can carry with them millions of dollars of research and extension in their pocket and make day-to-day decisions to optimize flock management.

This is an example of how AWI is creating innovative, practical and low-cost solutions to help woolgrowers improve the profitability of their businesses.

The LTEM App is not a substitute but an addition to the LTEM course offered by RIST and funded through AWI.

MORE INFORMATION

The LTEM App is now free and is available at the iTunes store and soon through Google Play store.
www.wool.com/LTEM



FEED ON OFFER PHOTO GALLERY

Members of the Lifetime Ewe Management (LTEM) group at Frankland in the Great Southern Region of Western Australia learning how to use objectively measured Feed On Offer assessments.

Estimating the quantity and quality of paddock Feed On Offer (FOO) is central to the skills developed through the Lifetime Ewe Management (LTEM) course.

The performance of sheep is largely determined by the quality and quantity of available pasture which, when known, enables better decisions to be made regarding allocation of stock to paddocks or supplementary feeding.

To help producers to better assess Feed On Offer (FOO) in their pastures, AWI in 2013 funded the development of a web-based photo library of 500 FOO standards. This online photo library allows producers to estimate the FOO and nutritive value of grazed pastures by comparing their own pastures to reference photos in the online library.

FOO is central to the skills developed through the Lifetime Ewe Management (LTEM) program. The photo library can be used in conjunction with the LTEM feed budgeting tables available at www.lifetimewool.com.au

The library is searchable which allows users to access photos relevant to their region. It covers a wide range of production zones, including cool climate, Mediterranean, warm temperate and pastoral species.

The 500 available records were collected by experienced agronomists across Victoria, NSW, Queensland, WA and SA, from typical pastures in each region in summer, autumn, winter and spring with a range of FOO values at each harvest.

Every photo comes with a full set of nutritional information including protein, digestibility, metabolisable energy (ME) content, legume content, ground cover and pasture height.

HANDY NEW PDF REFERENCE DOCUMENTS EASE USE

To help in the retrieval of relevant photos/information by those producers that might have issues with sorting and downloading data in the current online library, due to

the size of the gallery, a series of 53 PDF documents (containing the FOO photos and corresponding nutritional information) have been pre-extracted from the website and recently made available to producers.

There are 38 'state and climatic region' PDF documents and 15 'pasture species' based PDF documents. They are set up to be printed as A5 pages. If not all photos and data in the PDF are required, you can simply select the required pages in the PDF print option.

TIPS FOR ASSESSMENT

Use the photos as a guide only. Cutting, drying and weighing the amount of herbage in a 0.1 m² quadrant will give the most accurate results. Feed on Offer (FOO) is measured as kilograms of dry matter per hectare and includes all above ground herbage.

- **Bare ground percentage** – has a big effect on the amount of dry matter per hectare.
- **Density** – it is important to feel how thick the pasture is.
- **Height** – taller pastures for the same FOO value will allow higher animal production than short pastures.
- **Grazing pressure** – this will affect pasture density and height. Closely grazed clover pastures can have a very high FOO at a relatively low height.
- **Season** – pasture moisture content is high in winter and decreases in spring to summer as pastures flower and senesce. Therefore, the fresh weight of herbage can give a misleading estimate of dry matter.

Not all species and pasture types are available for every state and climatic region. Therefore, consider using FOO data from other states with similar climatic regions if data is not available for your area.

The photo library will be redeveloped later this year to accommodate additional photos and data, and improve access. **B**

MORE INFORMATION
www.wool.com/foo
www.lifetimewool.com.au



Example results containing pasture images and corresponding nutritional information from the **online Feed On Offer photo library** available via www.wool.com/foo. You are able to download the search results as a PDF document directly to your computer.

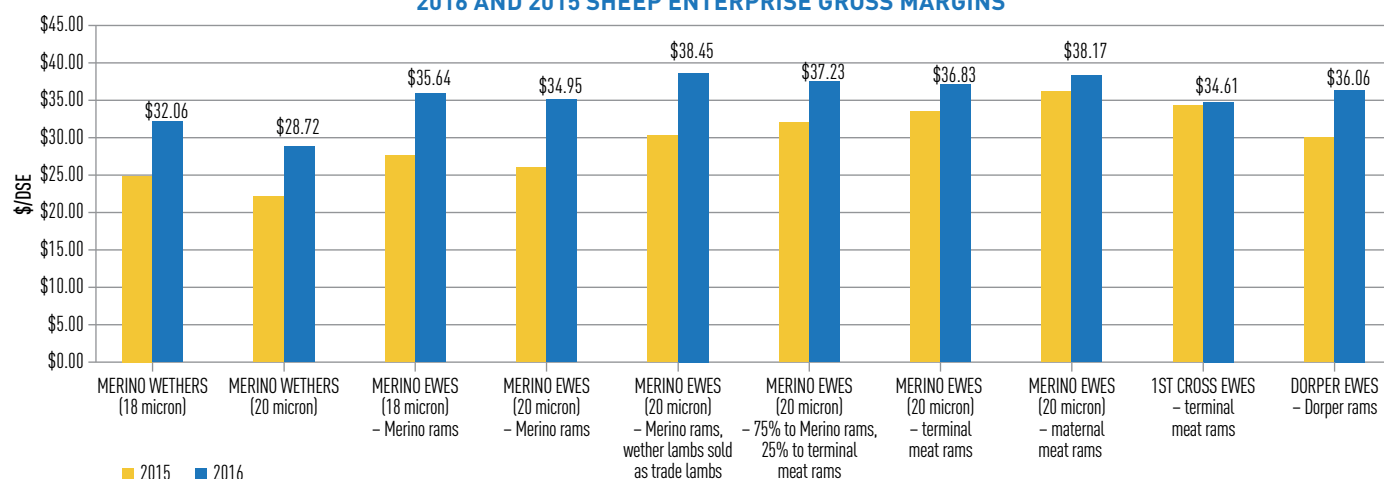


To help producers access key information from the photo library, AWI is also making available at www.wool.com/foo **PDF documents that have already been specially prepared** for a range of 53 key state and climatic regions and pasture species. Pictured is a page from the 8-page 'NSW Summer' PDF document.

MERINO ENTERPRISES' IMPRESSIVE GROWTH IN GROSS MARGINS

According to analysis by **NSW Department of Primary Industries** of the gross margins of 10 wool and sheep meat enterprises, **buoyant Merino wool and sheep prices are rewarding sheep producers** that have stuck with Merinos.

2016 AND 2015 SHEEP ENTERPRISE GROSS MARGINS



* The analysis was based on average wool and sheep price from 1 March to 30 September for each year.

The latest NSW Department of Primary Industries (DPI) report on sheep enterprise gross margins has delivered good news with gains across the industry.

DPI sheep development officer, Geoff Casburn, said all breeding enterprises were performing well with high wool and sheepmeat values and demand for breeding ewes supporting strong performances across the board.

"Merino wool enterprises had the greatest growth with gross margins increasing up to nine dollars per dry sheep equivalent (DSE) compared with 2015 figures," Mr Casburn said.

"Of the 10 sheep enterprises analysed, the highest gross margins were \$38.45 per DSE for the 20 micron Merino self-replacing enterprise selling trade Merino wether lambs and the enterprise joining 20 micron ewes to maternal rams at \$38.17 per DSE.

"Wool incomes have steadily increased in the last four years to reach levels close to, or greater than, the highs experienced in 2011 and 2012."

Mr Casburn said this upward trend has increased confidence in the industry and reduced reliance on sales of lambs and surplus ewes.

"The value of breeding ewes remained high due to the strong performance of sheep enterprises, which increased demand for sheep," he said.

"All of which was good news for enterprises with a focus on breeding ewes for sale, such as those breeding first cross Merino ewes, and enterprises with surplus ewes to sell, yet not so good for those buying replacement ewes.

"There was a bittersweet scenario for 20 micron first cross ewe breeding enterprises – they needed to purchase 220 replacements to benefit from selling 429 first cross ewe hoggets."

"Higher wool values are the main reason for the large jump in performance of Merino based enterprises. For the 2016 year, wool made up nearly 80% of income for wether enterprises and 53% and 51% for 18 and 20 micron ewes joined to Merinos. These enterprises have also benefited from higher meat values and lower grain prices, while the self-replacing Merino enterprises also benefited from higher surplus ewe values."

NSW DPI sheep development officer, Geoff Casburn

Changes in price and production variables saw each enterprise perform differently and weaning rate variations had the greatest impact.

A 10% increase in weaning rate, where there were no extra costs to lift the rate, increased the gross margin by 10% for enterprises which bred their replacements and 14% where replacements were purchased.

For wool focused enterprises, a 10% increase in wool cut results in an approximate GM increase of 15% for the wether enterprises, and around 5% for Merino ewe based enterprises.

All enterprises, except those joined to 100% terminal meat rams, have performed in 2016 well above their average over the long, medium and short term (8, 5 and 3 year periods).

"It is great that all sheep enterprises are performing well and it is also great that wool and meat complement each other. They provide a balance over the longer term, as prices fluctuate both across years but also within years. Obviously wool provides more flexibility when it comes to the timing of sales which can also be beneficial."

The aim of the farm enterprise budgets prepared by NSW DPI is to provide producers with an additional planning tool to help evaluate their own budgets and options. The budgets also include sensitivity tables that allow producers to assess the impact that changing prices and production levels will have on the gross margin.

MORE INFORMATION
www.dpi.nsw.gov.au/agriculture/farm-business/budgets/livestock
 Geoff Casburn, NSW DPI
 Wagga Wagga, (02) 6938 1630,
geoff.casburn@dpi.nsw.gov.au



Trainer **Karl Goodman** flanked by Tenterfield High School students **Erica Hickey** and **Michael Benstead** at an AWI-funded shearing and wool handling school. PHOTO: Tenterfield Star

ATTRACTING THE NEXT GENERATION

AWI is undertaking **hands-on practical courses** for school students to help attract them into the wool harvesting industry and make them job ready for shed work.

A week-long shearing and wool handling school held in December at Tenterfield in the New England region of NSW taught 19 local high school students the key aspects of wool harvesting.

AWI shearing industry development coordinator Jim Murray said the course at Tenterfield was supported for the second year in a row by AWI to help attract new entrants into the industry.

"The aim of courses such as this one is to have the students come out of the week ready to be safely engaged in shed work during their school holidays, with some of the students able to be employed as crutchers. It also provides good grounding for a career in shearing," Jim said.

"The course teaches how to identify different types of wool and practical wool handling skills. It also teaches handpiece skills and how to safely handle sheep – imperative skills for crutching and shearing.

"It's important to have people entering the industry job ready. Shearing contractors

are more likely to employ a youngster if they already have good skills – the higher the better."

The sheep that were shorn by the students from Tenterfield High School were supplied by woolgrower Hughie McCowen who is also the Agriculture Assistant at the High School.

"Tenterfield High is committed to providing its students with every opportunity to be prepared and equipped for employment," Mr McCowen said. "The AWI shearer and wool handler training has been a strategic addition to what the school offers its students. The hands-on approach and methodical training by Karl and Mel has allowed many students to grasp the techniques required and really shine. This has been evident by many students asking local woolgrowers if they can help out or work in sheds during holidays."

The shearing and wool handling initiative at Tenterfield High started with a conversation between Phil Jones who is the Tenterfield High School Agriculture Teacher and Hughie McCowen when Phil commented about

a shearing school that a local man Jim Koch used to run many years previously. Phil asked if there was anything like that still available as he thought it would be great to get a shearing and wool handling school going as part of what Tenterfield High offered students. Hughie immediately thought of the shearer and wool handler training offered by AWI, and so contacted Jim Murray at AWI.

"After speaking with Jim it just all fell into place," Mr McCowen said. "AWI, Jim, Karl and Mel have been great to work with and nothing has been a problem as we have coordinated the training.

"The training provided by Karl and Mel Goodman was through AWI's Independent Coaching Program. Karl is a very holistic trainer, in that as well as teaching how to improve shearing technique he also talks about the importance of things like diet and how a positive mental attitude can help the youngsters achieve their goals in the industry and life in general.

"Karl also talks to the students about how the shearing industry can be a useful and flexible way of earning money through their careers, from helping put them through university, to buying a home or putting a deposit on a farm. You can still have a very rewarding career in the industry well past 40."

Karl himself first got started in the shearing industry 32 years ago when he had just turned 16 and left school, and he is still going strong.

"So it's great to give back to the industry that has provided me with a career, and help give these youngsters a step up in shearing and wool handling," Karl said.

"When I left school, I got a job as a wool handler through a friend that knew a shearing contractor, and I learnt to shear through many of the friends I knew through the shearing industry. But if I had my time again I would certainly attend a shearing school, and I'd continue to do schools throughout my career because there are always opportunities to hone your technique.

"Shearing schools are one of the best things that have been created for the shearing industry. Good quality shearing is all about professionalism. I teach my students about the responsibilities of their work; care about what they do; don't just treat it as a job, treat it as a living.

The course was held in the Shearing Complex at the Tenterfield Showground, with shearing equipment provided by woolgrowers Peter and Lou Holley. Tenterfield High School is very thankful for the community support and assistance it has received to help run the training.

AWI's funding of hands-on practical training in the shed aims to not only attract and retain new entrants into the wool harvesting industry, but also build the capacity and longevity of existing staff,

WORLD SHEARING AND WOOLHANDLING CHAMPIONSHIPS

Performing in front of more than 4,000 spectators at Invercargill in New Zealand, the **Australian team did extremely well with all teams finishing in the top 3.**

Sophie Huf who was attending her first world championships had an stellar result, reaching and coming 4th in the finals of the woolhandling competition. Along with Mel Morris, Sophie won Australia the highly creditable runner's-up spot in the team event.

Both Australian representatives in the blade shearing competition, Ken French and John Dalla, reached the finals of their individual competition, coming 5th and 6th respectively, with the pair coming 3rd for Australia in the team event. Ken also came 5th in the All Nations Blade Shearing final.

Twice world champion Shannon Warnest narrowly missed out on reaching the final of the machine shearing competition finishing eighth in the semi-finals, with teammate Jason Wingfield finishing 15th in the heats. In the team event they together improved on their 5th place at the previous Championships by taking out third place for Australia.

Other notable performances from Australians included a 5th place in the All Nations Intermediate final by Tom Brewer (SA), and a 4th place in the Senior Speed Shear semi-finals by Lee Harris (Vic).

A highlight for the crowd was seeing New Zealand Prime Minister Bill English, who was brought up on his family's sheep property,



Sophie Huf and Mel Morris on the way to earning Australia a second place in the woolhandling competition at last month's World Championships in New Zealand. Back in Australia, Sophie and Mel are wool handler trainers through AWI's Independent Coaching Program *PHOTO: Flick Wingfield.*

take on and beat shearing legend Sir David Fagan in a one-sheep-match.

Dave Brooker (SA) was the Australian team manager; David Lawrence (WA) was a shearing judge; Kylie Rigby (Tas) was a woolhandling judge. World council delegates were Steph Brooker-Jones (SA) and Paul McCormack (Vic).

Shearers Shannon Warnest and John Dalla, and wool handlers Sophie Huf and Mel Morris, are trainers through AWI's Independent Coaching Program, which demonstrates the high calibre of training being funded by AWI.

AWI provided funds for the Australian team's travel, accommodation and uniforms for the World Championships.

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 woolhandling competition based on Sports Shear Australia criteria, you may be eligible for support from AWI. Contact Jim Murray at AWI on 0427 460 007 or jim.murray@wool.com to find out more about what support might be available for your event.

AUSTRALIAN TEAM RESULTS

Machine shearing

- Shannon Warnest (SA): 8th in the semi-finals (6 qualified for the final)
- Jason Wingfield (Vic): 15th in the heats (12 qualified for the semi-finals)
- Won by John Kirkpatrick (New Zealand)
- Australia 3rd in the team finals (won by New Zealand).

Blade shearing

- Ken French (Vic): 5th in the final
- John Dalla (SA): 6th in the final
- Won by Mayenzeke Shweni (South Africa)
- Australia 3rd in the team finals (won by South Africa).

Woolhandling

- Sophie Huf (Vic): 4th in the final
- Mel Morris (Tas): 5th in the semi-finals (4 qualified for the finals)
- Won by Joel Henare (New Zealand)
- Australia 2nd in the team finals (won by New Zealand).

MORE INFORMATION

The results of all the competitions are available at www.worldshearingchamps.com

and increase returns to woolgrowers through improved clip preparation practices.

"AWI-funded training covers a wide range of experience, from learner to professional shearers and novice to professional wool handlers. It is also offered as short term, intensive workshops across a range of skill levels," Jim says.

"The Independent Coaching Program, which was introduced by AWI four years ago, is now entrenched and proving very successful. It provides AWI with an avenue to contract directly with experienced trainers, reducing administrative costs; it is proving to be a cost-effective way of delivery."

MORE INFORMATION

To arrange training in your state, contact Jim Murray on 0427 460 007.

TRAINING VIDEOS AVAILABLE ONLINE

As well as providing support for wool shearing and wool handling schools, AWI also makes available training resources such as shearing and wool handling videos. The videos, which are available on AWI's YouTube channel, are a complete reference guide for shearers, wool handlers, woolgrowers, instructors and students working in various areas of wool harvesting.

Packed with tips, hints and practical advice, the videos include advice from experienced shearers, wool handlers and wool classers such as



Karl Goodman (above), Shannon Warnest, Dwayne Black and Rachel Hutchinson.

MORE INFORMATION

www.youtube.com/AWIWoolProduction

MARKET INTELL

AVERAGE MONTHLY EMI COMPARISON

EXCEPTIONAL PERFORMANCE FOR MID AND FINER MICRONS

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 (November 2016 – January 2017) in Australian dollar terms compared with the previous five years November 2011 to October 2016 (circles) and the decade previous to that, November 2001 – October 2011 (squares).

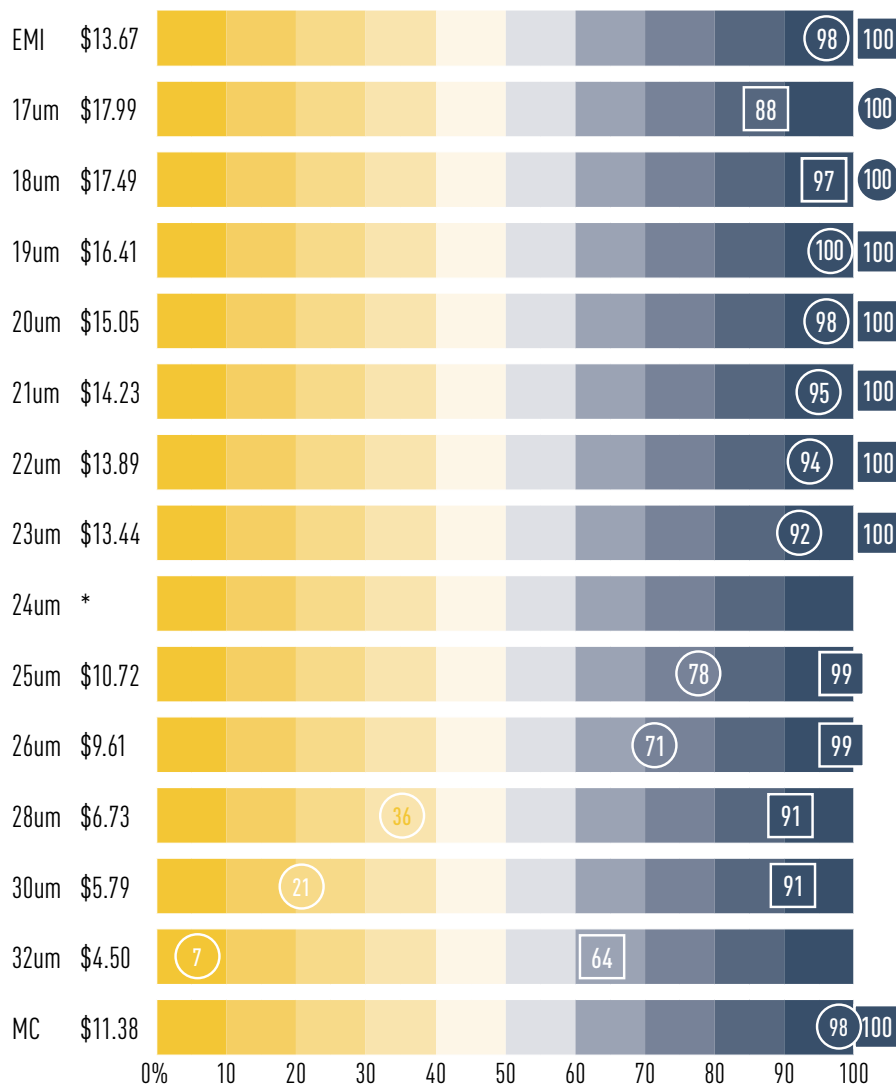
For the past three months, the monthly EMI averaged at \$13.67, tracking at the 98th percentile against the previous five-year monthly EMI. The percentile value (98th) indicates that the five-year monthly EMI recorded a price lower than \$13.67 for 98% of the time. Or to put it another way, in the previous five years the monthly EMI has recorded a price higher than the current \$13.67 (November 2016 – January 2017) for only 2% of the time.

While the EMI is tracking at the 98th percentile over the previous five years, it is at the 100th percentile when compared to the decade November 2001 – October 2011. This means the current EMI of \$13.67 (November 2016 – January 2017) is higher now than it was for all that decade.

The mid and finer microns and Merino Cardings (MC) have performed particularly well recently. For the past three months Merino Cardings averaged at \$11.38, operating at the 98th 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 \$17.49 (100th percentile and 97th percentile respectively), 21 micron averaged at \$14.23 (95th percentile and 100th percentile), and 28 micron averaged at \$6.73 (36th percentile and 91st percentile). **B**

AVERAGE MONTHLY EMI FOR NOVEMBER 2016 – JANUARY 2017 COMPARED WITH
 ● PAST 5 YEARS NOVEMBER 2011 – OCTOBER 2016
 ■ THE DECADE NOVEMBER 2001 – OCTOBER 2011



MARKET INTELLIGENCE: FREE VIA SMS

In a new initiative, AWI is sending wool prices and market intelligence direct to woolgrowers' mobile phones.

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 new free SMS service, either call the AWI Helpline on 1800 070 099 or email the following details to feedback@wool.com

1. Your first name
2. Your last name
3. The mobile phone number to get the SMS
4. Optional information; ideally: (a) your business name; (b) address; (c) email address; (d) AWI shareholder/levy payer number).

You can unsubscribe from the service at any time by opening the AWI SMS message and replying the word STOP to the message.

MORE INFORMATION
www.wool.com/market-intelligence



IGENCE REPORT

WOOL PRICES IN HISTORICAL PERSPECTIVE

From 1991 to 2001 the price of wool was generally suppressed due to the hangover from the abandonment of the reserve price scheme (RPS) in 1991. A stockpile of 4.7 million bales had accumulated prior to the cessation of the RPS and had to be disposed of which took to around the year 2001 to do so. The seasonal average moved from just 671ac in 1991 to 784ac a decade later in 2001 representing a yearly average rise of just 1.45%.

The next 10 years saw prices move just 1% yearly from the 2001 price of 784ac to the 872ac mark at the start of 2010. The first decade of the millennium had a run of events and crises that shook the global economy. This included the terrible events of September 11 2001, the stock market crash of 2002, the SARS virus global epidemic in 2003 that mainly affected China, the global war on terror, the sub-prime housing collapse of the US from 2007 and the resultant Global Financial Crisis.

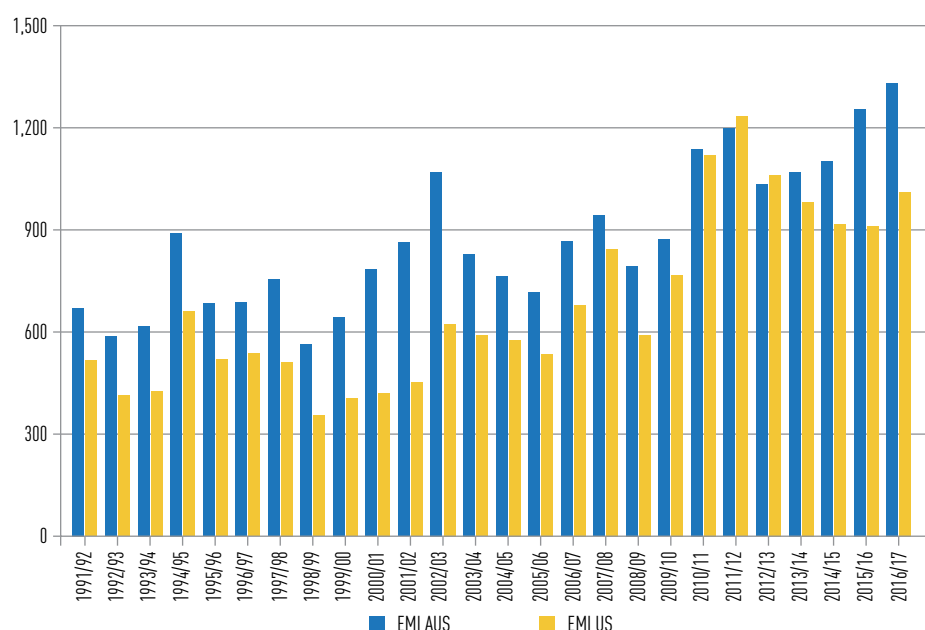
These negatives that faced the wool industry through the period of 1991 to 2009 contributed therefore to production losses in terms of the national sheep flock and wool clip. Whilst there were some good years for income through that period, at just a raw 1 to 1.5% increase of annual wool value, wool, as well as sheep meat, was simply underperforming against all profit indicators and the Consumer Price Index which drove landholders to alternative on farm enterprises.

Production and sheep numbers stabilised from 2010 to 2015, but exceptionally good meat prices and widespread economic advice pointing to food over fibre, has led to more growers joining to meat breeds (crossbreds). Sheep numbers have remained somewhat similar, but the percentage mix of the breeds of animals being farmed has altered to represent far more dual purpose or crossbred. Thus, figures are showing lower volume of wool produced as the meat sheep in general cut much less wool per head (around 3.5kgs for a retained crossbred (ewe) compared to around 6kg for a medium wool Merino).

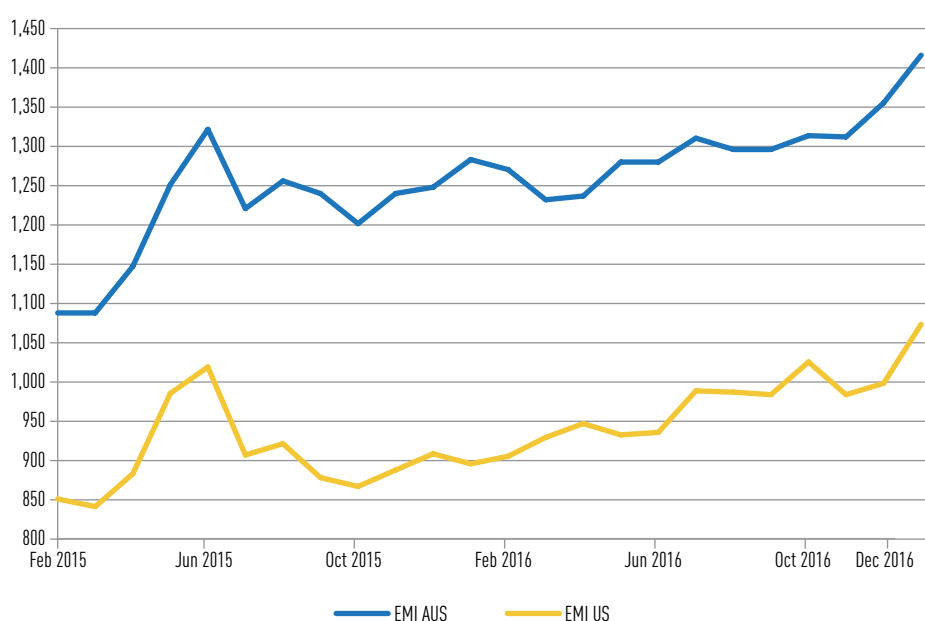
From 2010 to today there has been a significant upswing in wool prices, resulting in an annualised increase in returns of 4.3% or a compounded 35% increase in wool values over the past 7 years. The gains in themselves are significant, but what is more compelling is the manner the prices have chartered. Levels have consistently and steadily improved season on season and is strongly indicative of demand overtaking supply as the key price influencer.

EASTERN MARKET INDICATOR IN CENTS/CLEAN KG – 1991 TO 2017

seasonal average prices



EASTERN MARKET INDICATOR IN CENTS/CLEAN KG – PAST 2 YEARS



During the past few years prices have been rising at a healthy rate. Furthermore, it has been at a relatively consistent rate, without large peaks and troughs adding weight to the sustainability of the price.



Wool agent Lizzy Shen

AN INSIDER'S VIEW ON CHINA

China-based wool agent Lizzy Shen provides in this article, written especially for *Beyond the Bale*, her latest frank and informative insights into the Chinese wool industry, from an insider's perspective.

As a wool agent, Lizzy represents many Australian exporters and constantly assists them to make substantial sales each year into Chinese textile markets. She is extremely well respected throughout the wool supply chain both in Australia and China.

What has pushed the prices of fine micron wool so high? Aussies say "China". However, Chinese ask me "Are Aussies intentionally trying to push the market up?" I tell them no existing Australian exporter is in a position to manipulate the market. We have seen quite a number of disastrous cases both in Australia and China of companies which had tried and failed – with some Chinese players even incarcerated after attempts to do so which eventuated into huge losses.

Last week, I talked to a worsted vertical mill who buys wool from all origins. The quantity of 16.5 micron fleece wool they have bought this season has matched the total quantity of the past five years combined, mainly for local use. After talks with a couple of worsted and carding clients, I would like to extend the following reasons.

1. THE GENERAL TREND IS GOING FINER IN MICRON AND BETTER QUALITY.

When I started my agent business in 1995, the main microns I sold were 24.1 average and 22.6 average fleece. After the year 2000, 22.6 micron and 21.0 micron became more popular, much less 24.1 micron. For the past five or six years, 21.0 micron has the most quantity in my order book among all Merino fleece, while 24.1 micron has almost disappeared. From this season however, 19.5 micron has the tendency to replace 21.0 micron at the top. With living standards improving and labour costs climbing in China, the demand is going finer and the manufacturers can also find better profits in higher quality products.

2. CHINA RAILWAY UNIFORMS ABSORB GOOD QUANTITY OF 18.5 MICRON AND FINER.

When the Chinese railway uniforms finished all designs last March, the price gap between greasy 17.5 micron and 21.0 micron was within 1 USD/kg, so why not use finer and better quality wool? When the tender details were shown, the whole industry was surprised that they had specified finer micron wool than previous uniforms, with 18.5 micron and 17.5 micron playing the main role.

All the tenders for caps, garments (coats, suits, sweaters, shirts), belts and shoes were open to the public and closed in early May. The Australian wool prices went up quickly after the tender, so all the confirmed prices could not work. Months later, another tender took place to re-find suppliers with renewed biddings. This uniform influence on the wool prices is still there as the garment makers have not finished sourcing all fabrics yet.

3. WHEN THE DEMAND OF FINE MICRON COMES, AUSTRALIA IS THE ONLY SUPPLIER, THUS THE RISE IS QUICK AND SHARP.

China may get a small quantity of 17.0-18.5 micron from New Zealand or South America, but Australia is the only country that can supply quantity. Australia has no competitor in 18.5 and finer microns. If we look at 16.5 micron FNF greasy price at 27 USD/kg in 2011 (AUD:USD rate was 1.05 at that time), it can be said that the current prices being paid for fine microns are not ridiculous seeing today's price is less than 17 USD/kg.

4. DOUBLE FACE IS A BIG CONTRIBUTOR IN WOOL CONSUMPTION.

Double faced fabrics (which use carded wool) keep selling well in China this season. These use 70% more wool than single faced fabric. Manufacturers have all different ways to make these fabrics, but all use carbonized wool, open tops, fleece tops and/or cashmere – while some lower priced fabrics blend 20-50% synthetic fibres. These fabrics have not only pushed all the carding prices higher, but also fine fleece and pieces prices as more and more open top makers break the long tops into shorter after combing. With all the 17.5 and finer orders I have sold this season, I estimate close to half of the clean weight goes to carding clients. Because of smaller availability, the shorter (58HM and under) wool is more keenly sought than the longer lengths in 17.5 micron and finer.

Crossbred wool is still suffering, especially 28.8 micron and broader. We have not seen any signs of improvement in demand in the coming six months. The traditional users are now busy making synthetic tops, carrying heavy stocks of crossbred in greasy, tops, yarn or fabrics. They made good profit in the past ten or 20 years, so most of them are in a position to hold the stocks.

Many Chinese say 2017 is a carbon copy of the year 2011. Those who have booked good stocks of greasy fine wool are happy, but those who have oversold wool tops to their customers for future months are having headaches.

After all, we should all have a big heart, then all things are small.

TRANSITIONING TO A NEW WOOL WORLD



John Roberts, AWI General Manager
– Eastern Hemisphere

AWI's General Manager for the Eastern Hemisphere, John Roberts, says the current buoyant wool prices are a reflection of the underlying dynamics of supply, demand and consumer priorities that are looking favourable for wool.

When one looks at the current greasy wool price and reads the never ending stories of consumer behaviour shifting towards natural and sustainable fibres, it is hard not to be just a little optimistic about wool's future. However this is not the first time we have been flushed with good news and positive sentiment only to see wool prices spike and then fall just as rapidly. But something feels different this time and wool seems to be transitioning to a new world of uncharted circumstances.

There are many circumstances that define this 'new wool world', but it essentially comes down to a paradigm shift in global wool supply versus demand and a groundswell change in consumer behaviour.

Whilst we can all rejoice at the recent wool prices being enjoyed by woolgrowers it is important to understand how the market got to these levels and more importantly whether or not they can be maintained. The fact that 21 micron wool prices have recently cracked through 1,400 ac/kg is not a result of sudden acceleration in demand or dip in supply. It is the result of far more long term evolution. Prices have been hovering above 1,000 cent per kilo for 7 years as users of wool globally have had to come to terms with the fact that wool supply is no longer 'on tap'. It has been almost 15 years since the last bale of stockpile wool was sold and since then sheep numbers have almost halved in Australia. This had been prompting global processors and more recently retailers and consumers to understand that our fibre is a precious natural product of finite supply.

This new balance in supply versus demand has seen wool prices become far more

resilient in recent years. Previously the price appeared to be far more heavily affected by global events, whereas now it looks to be less impacted. A good example of this is the strength we saw in prices in 2011 and 2012 despite the Australian dollar averaging more than the US dollar. In addition to this, wool has broken the 3 to 1 price ratio nexus between cotton, polyester and acrylic. Previously whenever the price of wool exceeded the 3 to 1 ratio against those other fibres it would be pulled back down to earth reasonably promptly. However since 2010 wool has been averaging more than 5 to 1 and has not dropped below 4 to 1 suggesting that it is scarcity or the way it is regarded or valued in textile circles has changed. Finally people are realising our fibre is not an abundant and bottomless supply source... it is a rare and highly valued product.

So can this seemingly buoyant time for wool be maintained? Given the pressure on wool production from competing land uses like cattle and cropping it is reasonable to expect that wool production is not likely to undergo any major increases in the near future which should contribute to longer term price stability. Wool's exclusivity through scarcity is now being compounded by a global shift in consumer values. Almost every partner we engage with through our international network speaks of a significant change in their customers' values and priorities. What is so encouraging is that this shift in values is moving directly in wool's favour. All the natural qualities and functional benefits of wool are becoming a priority for a growing wave of consumers globally. Themes of sustainability, corporate and social responsibility and provenance dominate

all our dealings with partners through all facets of the industry from supply chain and product innovation to fashion and retail.

Another interesting trend in consumer behavior is a move to what is referred to as 'minimalisation'. It concludes that in many established wool wearing economies there is a movement away from 'fast fashion' and the lure of big brands. The idea of only wearing a garment just seven times is less appealing, and regarded as wasteful and non sustainable. The philosophy of 'buy once but buy better' is central to this idea. Again, wool aligns well with this. The fact that wool is natural, renewable and biodegradable and highly resilient will be of great interest going forward.

So it seems that the underlying dynamics of supply, demand and consumer priorities are aligned well for wool. Whilst this is good news for many it is likely to present some challenges to early and mid stage processors who will be looking to pass these strong greasy wool price rises up the supply chain to a retail and consumer level. Whilst there is clearly an appetite for our beautiful fibre at a consumer level it takes time to feed price increases up the chain. In the Eastern Hemisphere a good deal of our time and resources are spent working with topmakers and spinners who have raised concerns about the rapid increases in prices and their ability to extract the same increases from their upstream customers. High prices are not the problem, more so it is an issue of volatility. Most mills can accept that wool is on an ascendancy but believe that a gradual and steady rise in raw wool prices will benefit all industry players from woolgrowers through to brands and retailers.



WIN!!!

If you submit a photo that gets published in Readers' Photos, you'll receive an autographed copy of Andrew Chapman's *'Woolsheds'*.

This 216-page hardback book is an invaluable historical record of an Australian icon. It is also available to purchase from www.andrewchapmanphotography.com and good bookshops.

POSSUM MAGIC

Russell Cunningham of Tasmania sent in this photo of a possum in Russell's sheep feeder. Russell had gone to fill his feeder with grain and was greeted with the possum that had squeezed in where there is a small dent and was unable to get out because of a full belly.



CUTTING A SWATHE TO THE SHED

Jeff and Jane Rogers of 'Colly Plains North' at Quirindi on the North West Slopes of NSW sent in this photo of a mob of Merinos coming in for shearing in mid-October. Luckily there was a good leader which picked her way through the abundant growth in more or less the right direction.



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.

Here are a few photos that we have recently received from readers.

BLAST OFF!

Sheep classer Bill Walker of Murray Bridge in South Australia sent in this photo (taken by Jonesy) of him and Lone Gum principal Stuart Everett holding on to the top priced (\$4,000) Lone Gum poll at the stud's 2016 on-property sale at Crystal Brook. The ram was making a last-ditch effort to escape prior to loading!



MOVING SHEEP

Jordan Hill of 'Lynstan' at Morawa in the Mid West region of WA sent in this photo of mustering sheep.



PEEKABOO!

Wendy Sheehan of 'Trinidad' at Quilpie in Queensland sent in this photo of her little boy at shearing time.



NETALLIE SEASON

Sheep classer Bill Walker of Murray Bridge in South Australia sent in this photo he took of the Netallie Station woolshed near Wilcannia in north west NSW after an overnight thunderstorm dropped an inch of rain.



WOOLLY AT DENI

Pam Wettenhall of **Deniliquin** in the Riverina of **NSW** sent in this photo of her granddaughter **Emma** playing amongst the wool bales during shearing time.



LOST SHEEP RETURNS TO FLOCK

Rhonda Carnegie of Tambellup in **WA** sent in this photo of a lamb named Heidi who had hidden under the seat of the ute while ewes and lambs were being moved. After a bag of lamb starter milk, Heidi rejoined the flock.



WOOLLY WEDDING

Chris and Carole Patterson of 'Woolkabin' at **Woodanilling** in the Great Southern region of **WA** sent in this photo of their woolshed decked out for the wedding of their daughter on 7 October. The wedding was held just two weeks after the on-property ram sale at which 200 individually penned rams were sold. After the sale, it was all hands on deck to strip out the pens, scrub the floor and build a new kitchen, so family and friends from all over Australia could experience the Pattersons' favourite place.



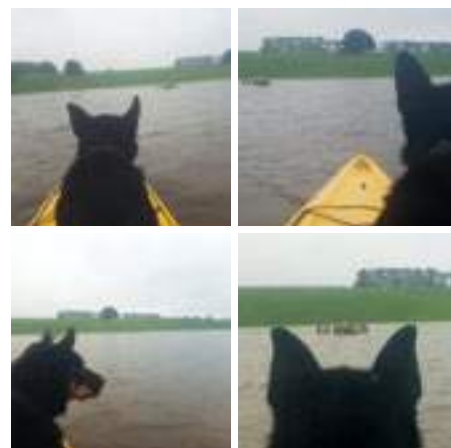
SUNSET AT BARADINE

13-year-old Jimmy Bunner from near **Baradine**, 30km north west of Coonabarabran in **NSW**, sent in this beautiful photo of some sheep at sunset on his family's property.



RINGO A STAR!

Sherri Symons of **Ellerslie** near Mortlake in the Western District of **Victoria** sent in this collection of photos of her kayaking out, with her dog **Ringo**, through floodwaters to rescue some of her sheep in September. With the help of Ringo the sheep were mustered to higher ground.



BUNINJON, ARARAT

Alexander and Ann Sloane of 'Savernake Station' in the southern Riverina region of **NSW** sent in this photo of Ann's uncle, **Bert Coad**, who at the great age of 93 is still actively involved in his family farm, 'Buninjon', near Ararat in south-west Victoria. Alexander says Bert's instinctive knowledge of agriculture and interest in history is amazing. 'Buninjon' has been in the Coad family since 1865, and is now farmed by Bert's son **Chris** and family.



OFF TO THE SHED

Mary Anne Bunn of **Braidwood** in the Southern Tablelands of **NSW** sent in this photo of late lambs heading off to the shed for marking.



FIRST SHEARING

Karla Whittaker of **Lockhart** in the Riverina of **NSW** sent in this photo of the first day in the shearing shed for her three-week old daughter, **Mia Hosie**.



WOOLMARK OPTIM WR JACKET

100% Merino wool fabric
Water and wind resistant

– Stocks are
limited
– Selling fast

The **WOOLMARK OPTIM WR JACKET** has been produced exclusively for this woolgrower offer, to enable wool levy payers to experience the benefits of Merino wool in an innovative way.

The fabric used in this Woolmark certified jacket has recently been commercially launched and is being used in both the fashion and outdoor markets.

\$150*
for wool
levy payers
(\$200* for the public)

UNIQUE, HIGH PERFORMANCE FABRIC

- Resistant to water and wind, while retaining all Merino wool's fine properties, such as breathability.
- Uses the latest Optim™ technology – the Merino wool is pre-stretched and spun into yarn before being woven.
- An immensely dense fabric, due to the combination of a dense weave and fine yarns.
- Made from 100 per cent Australian Merino wool of 19-micron.
- Unisex style
- Available in S, M, L, XL, XXL and XXXL
- Lightweight (174 gsm)
- Front zip
- Hood with adjustable elasticated drawstrings
- Cuffs are adjustable with Velcro, and have reflector strips
- Zipped side pockets
- Side vent zips on both sides
- Adjustable elasticated drawstring at base of jacket
- Shoulder and hip 'bag grips' to stabilise shoulder-straps of bags
- Internal bag into which the jacket can be folded/stored
- PURE NEW WOOL (with the Woolmark logo) printed down the right-hand sleeve, and the Woolmark logo printed on left chest
- Warm gentle machine washable or dry cleanable

JACKET FEATURES

HOW TO PURCHASE

The jackets can be purchased only online at:
www.wool.com/woolstore

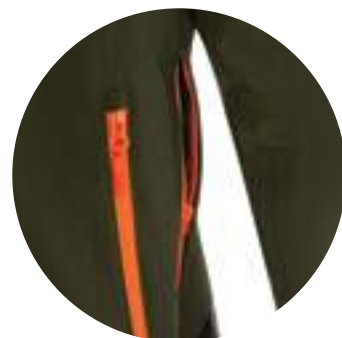
Payment by only Visa or Mastercard is accepted.

* Prices include GST and shipping; shipping is only available within Australia.

AVAILABLE IN 4 COLOUR
COMBINATIONS



Mid grey,
with orange trim



Khaki green,
with orange trim



Inky blue,
with yellow trim



Mid grey,
with burgundy trim

As shown on the front
cover of this magazine.