

Beyond the bale

ISSUE 84 SEPTEMBER 2020

PROFIT FROM WOOL INNOVATION

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THE
WOOLMARK
COMPANY



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**ASTON MARTIN'S
WOOL INTERIOR**

Beyond the bale

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FRONT COVER

This beautiful picture was taken by photographer Rachel Gordon who grew up on a Merino sheep property in south-west NSW and today lives with her family on a small farm near Millthorpe, in the Central Tablelands of NSW. Visit www.rachelgordon.com.au to view more of Rachel's work.

Rachel is available for commercial photography work and can also visit you on your property to create an album that records your life on the farm. Email her at rachel@rachelgordon.com.au or call her on 0410 696 400 for details - and please mention that you saw her work on the cover of *Beyond the Bale*!

 This magazine is printed on PEFC (Programme for the Endorsement of Forest Certification) paper stock.



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AWI INVESTMENT STRATEGIES

- Marketing
- Sheep Production, Science & Technology
- Consultation
- Processing Innovation & Education Extension
- Traceability

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AWI-supported networks are present in each state.

- Sheep Connect NSW
- Sheep Connect SA
- Sheep Connect Tasmania
- BESTWOOL/BESTLAMB (VIC)
- The Sheep's Back (WA)
- Leading Sheep (Qld)

Find your grower network at www.wool.com/networks or call the AWI Helpline on 1800 070 099.






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AWI E-NEWSLETTERS:

To subscribe to the free monthly AWI e-newsletter for woolgrowers, and the weekly wool market review e-newsletter, visit www.wool.com/subscribe

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GETTING ON WITH BUSINESS



Stuart McCullough
Chief Executive Officer
Australian Wool Innovation

Throughout the global coronavirus pandemic, AWI has continued to work relentlessly for woolgrowers to ensure the sustainability of our industry and the profitability for your enterprises.

MARKETS RECOVERING

The coronavirus pandemic continues to be a terrible health crisis that impacts the world economy. Thankfully, many countries are recovering, although the prevalence and scale of second waves and their impact on markets remains unpredictable.

Economically, although a recovery is under way in the clothing sector as stores begin to trade again, clothing sales are still at relatively low levels. This especially applies to suiting and more formal attire.

While this has had a serious impact on the EMI, it is important to note that the bottom has not dropped out of the wool market. There are still wool processors buying our raw wool and I am certain that the wool industry and woolgrowers are more than robust enough to get through these uncertain times.

Although retail sales have been hit very hard, the wool industry is fortunate that the worst of the pandemic didn't occur during the traditionally high turnover autumn/winter seasons of our all-important northern hemisphere markets. We certainly hope for an increase in purchasing during the next few months.

On a positive economic note, most governments have been very proactive in supporting businesses and protecting the jobs and incomes of affected employees. Consumers do seem to have money to spend; the challenge is to facilitate purchases, by way of ecommerce. While a lot of bricks and mortar stores are struggling due to social distancing and a reluctance of people to be amongst crowds, there has been a boom in online retailing, which has reached new high levels with

significant growth during the pandemic.

This increase in online purchasing of goods also applies to wool products, as is demonstrated in the market feedback we have received from Australian brands with mature ecommerce platforms that sell mainly Merino wool apparel (see pages 5-7). I am confident that there is still decent underlying demand for the premium and natural qualities of our fibre along the supply chain right through to consumers.

ADAPTING TO CHANGE

AWI must be particularly smart about when, where, and indeed whether it is prudent to actually spend woolgrower funds – and this is especially the case with our marketing activities at the moment.

I have directed our marketing teams across the world to focus in the short term on retailers and brands that have proven and robust digital retail platforms. Secondly, I have asked our marketing teams to focus on large volume, high consumption sectors.

Thirdly, I have directed them to look more closely at those clothing categories which are seeing a rise in demand, such as active wear and commuter wear. Many people are avoiding public transport and are finding more active forms of commuting, such as cycling and walking – the performance benefits of wool are very suitable for these purposes.

RESEARCH AND DEVELOPMENT

Much of our off-farm textile innovation R&D projects across the world continue as normal under close monitoring, and those projects that were put on hold are beginning to resume. In the student and trade education space, we continue to focus

on online training; and while we will not be physically attending any trade shows during the remainder of 2020, we will very much be exhibiting digitally on the shows' new online platforms.

Most of our on-farm R&D projects continue as normal and we closely monitor their progress and budgets. I'm delighted with the resumption of many face-to-face industry events for woolgrowers, and especially the recommencement of in-shed shearer and wool handler training.

AWI REVENUE AND EXPENDITURE

AWI's revenue, which is largely dependent on wool levy income, continues to deteriorate. This is due to a combination of three things. Firstly, the fall in the EMI, currently about 50% down on the record prices we had during 2018/19. Secondly the reduction in the rate of wool levy from 2% to 1½%, which came into effect on 1 July last year. Thirdly, the fall in Australia's wool production caused by the drought.

AWI operates in a lean, efficient and transparent manner, but just like any business with a reduced income, we have had to make cutbacks in staffing and projects.

STAY SAFE

I hope you have all been safe and well during these unprecedented times and remain so. While rural areas thankfully do not seem to have been directly affected by coronavirus infections as much as metropolitan areas, it is important that people everywhere remain vigilant.

The AWI AGM is scheduled to be held on Friday 20 November in Sydney. However, due to the coronavirus situation, the AGM might be changed to a virtual meeting on that date. I hope you can attend.

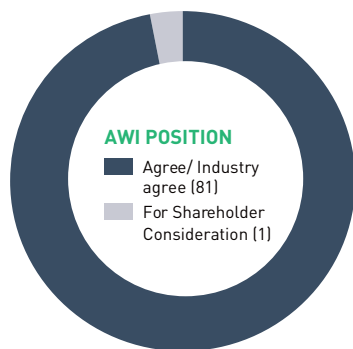
REVIEW OF PERFORMANCE RECOMMENDATIONS AWI'S PROGRESS OF IMPLEMENTATION

As part of AWI's three-year business cycle, an independent review of performance (ROP) of AWI is routinely undertaken to assess the company's performance. The latest ROP was undertaken by Ernst & Young (EY) for the period 2015-2018. EY's report, which was published in July 2018, included 82 recommendations.

In September 2018, AWI launched its ROP Implementation Portal at rop.wool.com to provide detailed and up to date information to woolgrowers about the progress made by AWI in implementing the 82 recommendations. Displayed right is a summary of the overall progress, and the progress across each of the seven themes of the recommendations.

Further information is available at rop.wool.com

99%
OVERALL
IMPLEMENTATION
PROGRESS



THEME IMPLEMENTATION PROGRESS

CONSTITUTION 24 out of 24 recommendations complete.	100%*
GOVERNANCE 21 out of 23 recommendations complete.	98.2%*
MONITORING EVALUATION & REPORTING 16 out of 16 recommendations complete.	100%*
COLLABORATION 3 out of 3 recommendations complete.	100%*
PEOPLE & CULTURE 6 out of 7 recommendations complete.	97.9%*
CONSULTATION 4 out of 5 recommendations complete.	95%*
ROP RECOMMENDATIONS & IMPLEMENTATION 4 out of 4 recommendations complete.	100%*

* Percentage figure is calculated on the cumulative completion rate within each theme. Remaining recommendations at various completion stages. To view individual recommendation progress rates, visit rop.wool.com

LODGEMENT OF WOOL RETURNS HAVE CHANGED WHICH APPLIES TO ALL WOOL LEVY PAYERS

From 1 July 2020, wool returns must be submitted online via the Department of Agriculture, Water and Environment's 'Levies Online' lodgment portal. Wool brokers are now required to include a wool levy payer's email address and/or phone number when they submit a wool return.

In line with other Australian agricultural commodity levies, the wool levy has moved to a more time- and cost-efficient method of lodgment via a digital portal, known as Levies Online, which is available via www.agriculture.gov.au/levies.

All agents (such as wool brokers) or levy payers must submit levy payer returns digitally via Levies Online. For most wool levy payers, this lodgment is undertaken by their wool broker.

The Levies Online portal is accessible to the individual levy payer and is a single site on which all agricultural levies paid by the levy payer's entity will show.

From 1 July, the key change in data that

needs to be reported is the addition of the levy payer's email address and/or phone number. **Therefore, be aware that your broker might well request this information from you.** This additional data will be reported as part of the contact information along with the existing address details.

Under the relevant legislation, the required levy information to be reported now consists of the following:

- The name, address, contact details (phone and/or email address) and ABN (if any) of each person who has paid, or is liable to pay, a wool levy
- The total amount (in kilograms) of the wool sold, bought, exported, used or processed; and

- The sale or free-on-board value of the wool.
- If you have questions about this notice of change, email the Department of Agriculture, Water and Environment at levypayers@awe.gov.au or call 1800 020 619 and leave your contact details.

If you have queries or require help in lodging returns, or if your software needs attention, AWI provides a helpline service to assist the Department of Agriculture, Water and Environment. Please call (02) 8295 3100 during business hours and a staff member for each state will be on hand to support your transition to Levies Online. **B**

MORE INFORMATION
www.agriculture.gov.au/levies

HOW'S BUSINESS BEEN?

The economic effects of the coronavirus have been very tough on retail during the past six months. However, many brands with a strong online presence have been bucking this negative trend. Here we speak to three Australian brands that specialise in selling Merino wool apparel online, and ask them "How's business been?"



Woolerina is an Australian family owned and run business, headed by Warwick Rolfe who founded the company 15 year ago. The company specialises in Merino wool clothing for men, women and children. The cutting and sewing of the complete Woolerina collection are done at Forbes in central NSW.

Woolerina founder Warwick Rolfe says business has been affected during the past few months – however "it has all been very positive" for Woolerina.

While there has been a major decline in its sales to retail outlets around Australia, and the company could no longer sell at shows and events that had been cancelled, the compensating factor has been the significant rise in its online sales.

"As a result of the significant increase in our online business, we has been able to keep all our staff working as normal," Warwick said.

"We believe there are several factors which have contributed to the rise in sales. Our marketing team has been utilising social media channels more to promote our brand,

the State government's promotion of 'buy local', the 'Buy from the Bush' campaign driven by Grace Brennan, and the willingness of the Australian public wanting to support Australian Made.

"It would appear there is significant interest in locally produced products; it is a conversation on many people's minds. It also looks like people are much more aware of the benefits of Merino wool."

"We have seen a significant increase in sales of our Merino products through our online store."

Warwick Rolfe, Woolerina

Warwick said there has been an increase in demand across all their product lines, but their base-layer singlets for adults and youngsters along with several key products from the company's women's range have been particularly popular.

"There has been an increase for all our styles but significantly for baby and children styles, and most notably our Merino singlets. We have also seen a much larger demand for our women's Happy Pants – likely as a desire to wear something ultra-comfortable but still a little stylish."

Warwick says the entire team at Woolerina is extremely excited and positive not only for their Woolerina range but also for the future of Merino wool as a fibre.

"Woolerina is very fortunate to be based in regional NSW where it has access to people with great work ethics, close to the raw material we are passionate about and to have the knowledge base in all areas of production, from selection of the raw material to a finished garment," he said.

"Government incentives resulting from the pandemic have prompted Woolerina to make several investments in new equipment to assist in production and increased productivity. Later stage processing of our Merino wool here in Australia remains a concern. Should these sectors diminish further, we may not be in position to have these processes done in Australia.

"We hope that consumers continue to support Australian Made long after the current crisis, that they don't forget what this shift in mindset has done and will do for Australian manufacturing and small business.

"Woolerina is very appreciative of the support we have received not only from our customers but also industry bodies."

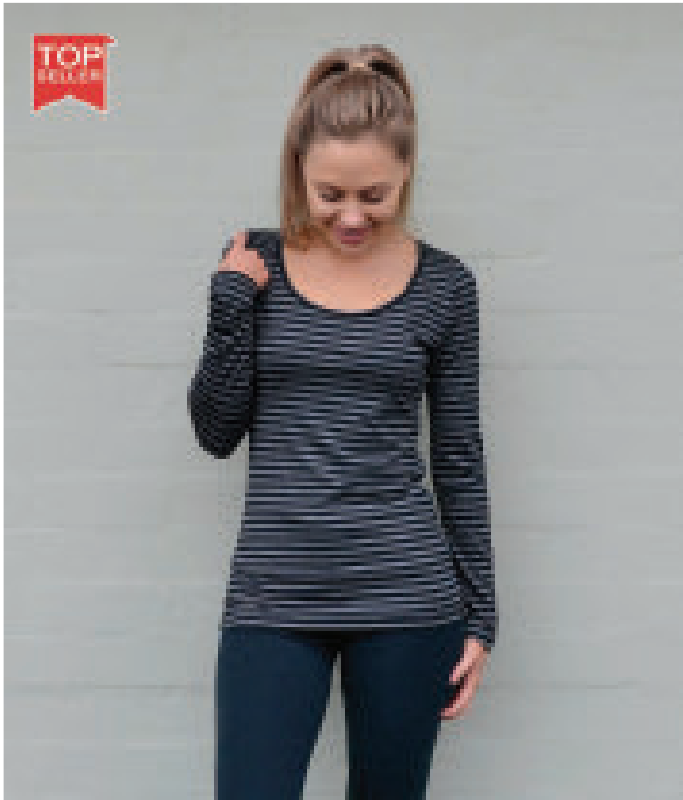
MORE INFORMATION
www.woolerina.com.au

Founder **Warwick Rolfe with the team** at Woolerina.



Woolerina's **singlets** and **Happy Pants** have been very popular during the past few months.



Smitten Merino's leggings, base-layers and pjamas have been very popular.

Smitten Merino is a family business born in Hobart in 2007. Husband and wife team Carl and Nicola had a dream to design lightweight Merino clothing that was stylish, comfortable and practical, and get it manufactured in their home state of Tasmania. Approximately 80% of Smitten apparel is women's fashion.

Nicola Mason of Tasmania-based Smitten Merino says her company has "miraculously been affected positively in this uncertain and difficult time" with their production uninterrupted and sales very much up.

The Smitten business has always had three sales arms: online, a flagship boutique and weekly Salamanca markets – and the business immediately lost the latter two of those overnight in March when COVID-19 hit face-to-face retailing.

"That was a shock and very worrying, we only had our online store left. However, we saw a huge uptake in online shopping, so people who previously shopped at our boutique were buying online instead," Nicola said.

"We were fortunate through the first three months of COVID-19 as we had two national magazine articles come out in March that raised our profile both digitally and print wise. This created a strong platform for us to increase our social media and email campaigns enabling us to reach a much wider audience than ever before. Whilst the whole of

Australia was in lockdown, we suddenly had a captive audience for warm soft loungewear!

"As a result, we have had consistently strong online sales for this time, essentially 50% higher month on month."

"We have had consistently strong online sales, essentially 50% higher month on month."

Nicola Mason, Smitten Merino

There were initially some delays for the company in accessing Merino wool and fabrics as some of their suppliers were closed for a while, however fortunately they had a stockpile of Merino fabrics that they could use.

"We decided to instigate a 20% off discount storewide online early in the crisis as we wanted to reduce our inventory due to the sudden future economic uncertainty. This definitely helped add to our appeal; we were local, we were on sale, and we were still posting worldwide every day," Nicola said.

"Having an Australian-made brand and such local Tasmanian manufacturing proved to be one of the best selling points for us.

"Communication was critical early on with our customer base as we knew they were worried about our business viability and future, as well as about their orders! We were diligent about talking directly to our

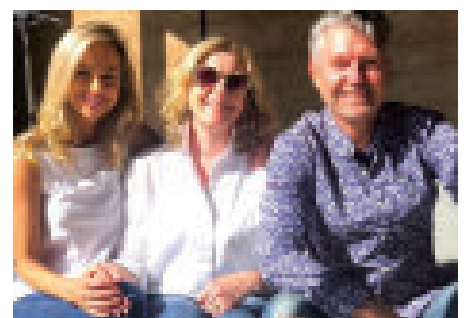
customers via all social channels and email so they felt confident to buy from us."

Nicola says they have had some definite bestsellers during the past few months.

"We clearly saw our most popular items being leggings, lounge pants, cardigans, base-layers, sleepwear, ponchos and scarves. There was a shift away from winter Merino professional dresses toward more 'work from home' clothing and fortunately for us we had a wide range of soft stretchy Australian made options ready for them to choose from.

"Merino wool clothing is clearly seen as warm and comforting in times of distress and uncertainty and we already had a great range of lounge and activewear. So we started out in a good position." **B**

MORE INFORMATION
www.smittenmerino.com



Holly, Nicola and Carl Mason – the family behind Smitten Merino.

MERINO COUNTRY



Merino Country founder **Kerrie Richards**.

Merino Country was established by Kerrie Richard 27 years ago in outback Queensland. Now based between Brisbane and the Gold Coast, Merino Country produces a wide range of Australian Merino clothing and underwear. All fabrics are knitted and dyed in Australia, and all garments are sewn in its own factory.

Business has been booming during the past few months for Queensland-based brand Merino Country, according to the company's founder Kerry Richards.

"We have been extremely busy with a huge increase in sales. Our best seller has been our 100% Australian Merino wool face mask," she said. "But our Comfy Pants have also been a very big seller with so many people working

from home. Other very popular items have included leggings, men's boxers, women's full briefs and thermals."

Kerrie says the company has been inundated with orders for the 100% Merino wool face mask.

"When COVID-19 started to hit Australia, we had so many requests from our customers for a face mask made from our 100% Australian Merino fabric. So we got to work and produced this reusable, natural face mask," she said.

"The soft Merino face mask fits comfortably on your face providing a barrier whilst wicking moisture away and letting you breathe easily."

The masks are made from three layers of soft 100% Australian Merino wool fabric, with cotton-covered rubber at the top and sides for a firm fit to the face. They have adjustable straps and are available in a range of colours.

They are washable and reusable too, so they have minimal impact on the environment, in contrast to disposable face masks.

The face masks are available in one size for adults (18 x 14cm) and one size for kids (14 x 12 cm) and cost \$30. (They are not a P2 mask or surgical mask.)

Merino Country also produces a range of 100% Australian Merino neck gaitors and neck warmers for adults and neck gaitor for kids. As well as being worn around the neck to keep you warm, they can be lifted over the mouth and nose for extra coverage.

"We have been extremely busy with a huge increase in online sales across our range, but especially our 100% Australian Merino wool face mask."

Kerrie Richard, Merino Country

Kerrie says that the trend for consumers wanting to know the provenance of the products they buy has increased since the coronavirus pandemic.

"In this time of lockdown, customers are more aware of traceability, locally made, ethically produced clothing and the supply chain. There has been a huge shift in people wanting Australian Made products and being able to trust where their garments are coming from," she said.

Looking to the future, Kerrie is positive about the prospects for Merino wool and her business, but she is looking at ways to bring more wool processing back to Australia.

"We want to do more value adding here at our premises in Queensland to secure consistency and supply of product. The future is exciting!"

MORE INFORMATION
www.merinocountry.com



The Merino wool face masks and Comfy Pants have been Merino Country's recent best sellers.



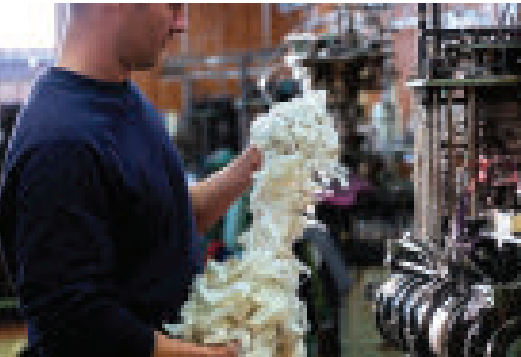


Kenneth Wheelwright of 'Roslyn Estate' and **Andrew Lindner** of Lindner Quality Socks holding the Roslyn socks from Lindner's Tablelands collection. The Wheelwrights are one of the local woolgrowers whose 18.5 micron wool is used in the Lindner Tablelands collection. The Roslyn socks are named after the locality in which the Wheelwrights' property lies. *PHOTO: Jay Lioz Photography*



SOCK IT TO THEM, CROOKWELL!

Family-owned Lindner Quality Socks, located in Crookwell on the Southern Tablelands of NSW, has a sock making heritage that can be traced back to the early eighteenth century in Germany. The company's most popular socks are made from Merino wool, much of which is sourced from local woolgrowers.



Andrew Lindner of Lindner Quality Socks in the Lindner factory at Crookwell, holding fleecy grown by the Wheelwright Family of 'Roslyn Estate'. *PHOTO: Jay Lioz Photography*

The Lindner Quality Socks story started in the 1920s in Germany when Max Lindner set up a factory at Thalheim, a town in Saxony with a flourishing hosiery industry. However, a family line of Max's father-in-law includes sock-knitters in every generation as far back as the 1730s.

By 1970, the company that Max Lindner founded had grown significantly and had even begun making socks under contract for adidas. In 1974, the West German football team won the soccer World Cup wearing adidas socks manufactured by Lindner. In the mid-1980s, the two brothers that owned the family business decided to split the company, with one of the brothers, Wilfred, moving his family and half of the Lindner machines to Australia to set up Lindner Quality Socks in Goulburn, NSW.

In 1997, the family moved 50km to a new home in Crookwell, taking the machines to a new factory and shopfront on the main street of the town. In this location, the great grandson of Max Lindner, Andrew, and Andrew's mother Gisela, continue the family tradition of making quality socks.

"Our factory and shop have been a fixture in Crookwell for more than 20 years, and while we're growing our business and selling globally online, Crookwell is and will remain our home. We love being a part of our community; we appreciate the connectedness, the support we receive, and the pace of life here," said Andrew, who also owns a nearby 55-hectare property.

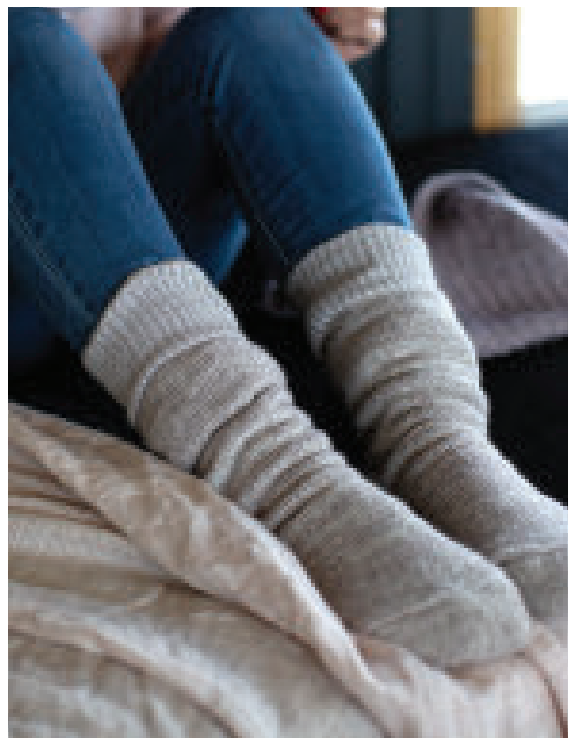
"We're committed to giving back to the community, whether that's shopping locally, volunteering with the Rural Fire Service and Landcare, donating to local grass-roots causes, or supporting local events; they're all part of the fabric of rural life."

The Crookwell town and community have welcomed the family, with many of the locals proudly wearing their Lindner socks from the "Sock Shop" as they call it. Over the years, the shop and factory have become one of the town's attractions for tourists and visitors, some of whom specifically travel to Crookwell to stock up on socks.

"People buy from us because they appreciate a quality product. At Lindner, we value the old skills and knowledge. We use traditional knitting machines that produce unique socks, and every sock is

hand finished and checked for quality," Andrew said.

"We love meeting and talking to our customers – and informing them about wool's natural benefits and where it is sourced. Wool has a wonderful story which our customers really appreciate."



Laggan socks from the Lindner Luxury Collection, pictured at the Eldorado Cottage Airbnb at Laggan, NSW. *PHOTO: It's a Beautiful Life Photography*

MERINO WOOL SOCKS

Lindner produces a range of sock styles, from outdoors and casual/everyday styles to more formal fine-knit socks for dress shoes. Most of their socks include Merino wool.

While summers are warm and dry at Crookwell, winters are cold and wet, often with heavy frosts and sometimes snowfall. Working outdoors through these chilly winters, farmers and tradesmen on the Southern Tablelands have affectionately nicknamed Lindner's popular Max Thick Full-Cushioned style of wool socks as "concrete socks" because the socks allow them to stand comfortably all day on cold, hard concrete without their feet getting sore, cold or tired. The socks are knitted using 22.5-micron Australian Merino wool. A knee-high version is popular with motorcyclists and skiers.

The company's Tablelands Collection uses 18.5 micron Merino wool grown locally by farmers on the Southern Tablelands. The names of the sock styles are borrowed from localities around Crookwell and the Upper Lachlan Shire, to acknowledge the provenance of the Merino wool from which they are knitted – and the home of Lindner Quality Socks.

"Our most popular socks are our Merino wool range. In Crookwell, we are surrounded by many great breeders of Merino sheep and we have a passion for creating the best quality socks from some of the best Merino wool to be found anywhere," Andrew said.

"The unique qualities of Merino wool make it ideal for socks and we encourage people to invest in well made, good quality Merino wool socks. While the use of a premium fibre such as Merino means the socks are not as cheap as mass produced cotton or nylon socks, the benefits of greater comfort and longer lasting socks mean your real cost may actually be less."

The company also now stocks an ever-growing range of scarves, beanies and rugby style jumpers using the same Merino wool sourced from local woolgrowers. **B**

MORE INFORMATION
www.lindnersocks.com.au

15% DISCOUNT FOR 'BEYOND THE BALE' READERS

Lindner Quality Socks is offering Beyond the Bale readers a 15% discount on all its full priced products. The offer closes on 30 September.

You can order online at www.lindnersocks.com.au, by phone on (02) 4832 0202 or in-store in the **Crookwell shop**. Use the discount code **BTB0920**.



WOOL FACE MASKS

Wool face masks offer a protective covering and a natural alternative to disposable synthetic face masks.

BENEFITS OF WOOL FACE MASKS

- **Soft on skin** – superfine Merino wool has superior softness and proven skin benefits when worn next-to-skin.
- **Breathable and moisture regulating** – wool acts like a second skin, keeping your skin comfortable
- **Reusable** – wool face masks can be hygienically washed and re-used.

The global coronavirus pandemic has meant that wearing face masks has become prevalent for many people across the world including Australia.

Face masks made with Merino wool provide the wearer with a reusable face mask that is soft and comfortable, hygienic and a natural alternative to disposable synthetic face masks.

Different face masks provide different functionality. For instance, some wool face masks use superfine Merino wool for both the outer and inner next-to-skin layer, some use a water resistant wool fabric as a protective outer-layer, some use silver micro-particles on the inner layer for extra antimicrobial properties, some are designed to enable a filter to be inserted as a mid-layer, and some are made from

Merino/nylon blended yarn for fast drying.

Wool face masks can be worn again and again, provided they are washed correctly after each use. And unlike, disposable synthetic masks, wool is a 100% biodegradable fibre and will decompose when they are eventually disposed of.

Several brands have produced face masks that incorporate wool – see www.woolmark.com/facemasks for several options. One popular option here in Australia is the Merino Face Mask from Merino Country that has three layers of 100% Merinos wool fabric (see page 7).

Another innovative option is the SilverTech Face Mask from KnitWarm in Hong Kong. AWI's technical team based in Hong Kong supported KnitWarm, an award-winning company with which AWI was already working, in the mask's development.

The KnitWarm SilverTech Face Mask uses a densely woven wool fabric (made using Optim technology) as the outer layer, which provides natural water resistance to protect the wearer from water droplets and splashes, such as from coughs and sneezes. The inner layer uses a pure silver coated yarn that is antibacterial. The functional 3-D knitted design also allows for a filter, which could be a non-woven wool felt filter, to be inserted between the outer and inner layers of the mask for enhanced protection.

KnitWarm is offering a 10% discount for readers of *Beyond the Bale*. Use the promotion code **kw723wm** when buying the face mask at www.knitwarm.com/facemask. The face mask is not a surgical mask. **B**

KARL LAGERFELD AND WOOLMARK

'KNIT KARL' MERINO WOOL PROMOTION ACHIEVES SPECTACULAR PARTICIPATION



777 Knit Karl boxes were available to be won by knitters and fashionistas across the world. The boxes included eight skeins of Australian Merino yarn, knitting needles, badges and a Karl Lagerfeld pattern. **The knitting yarn** is made from 100% Australian Merino wool spun at Zegna Baruffa Lane Borgosesia in Italy.



The **KARL LAGERFELD** brand was a key partner in the initiative. The brand promoted Knit Karl on its website, social media and in its stores. Pictured is a post on its Facebook site that portrayed one of the unique codes with a bale of Australian Merino wool.

158 fashion influencers from 21 countries were engaged to upload Knit Karl promotional images to their large fan-bases on social media. Pictured is American socialite Olivia Palermo (who has 6.4 million followers on Instagram) wearing the Knit Karl jumper and scarf.

Sharing a history dating back to 1954, **KARL LAGERFELD** and **The Woolmark Company** earlier this year launched a competition in which the prize was one of **777 limited-edition 'Knit Karl' boxes** that included **Australian Merino yarn for winners to create one of four exclusive designs.**

The renowned fashion designer Karl Lagerfeld and his namesake brand both share a longstanding relationship with The Woolmark Company. The late designer first rose to fame after he won the 1954 Woolmark Prize in the coat category. Then just 21 years old, the win launched the start of his extraordinary career that would change the face of fashion.

In 2018, the idea of a collaboration with The Woolmark Company was born and together the two companies developed the Knit Karl promotion, which resulted in a very effective campaign run earlier this year. Furthermore, beginning with the Autumn 2020 collection, all **KARL LAGERFELD** knitwear will be made using Woolmark-certified premium wool.

"The Knit Karl campaign has very successfully raised awareness of the premium qualities of Australian Merino wool amongst an audience of knitters and fashion-forward consumers," said AWI Regional Manager Western Europe, Damien Pommeret.



Knitting patterns were a key element of the competition's prize. Winners can create one of the four unisex designs imagined by Karl Lagerfeld: a jumper, scarf, cap or headband.

"The campaign highlighted that Merino wool knitting yarn can be transformed into very fashionable garments. The Woolmark brand also gained great exposure."

'KNIT KARL' COMPETITION

Knitters and followers-of-fashion from 181 countries across the world took part in the Knit Karl digital scavenger hunt, searching for unique codes for the chance to win a limited edition Knit Karl box.

Each Knit Karl box contained all the elements, including skeins of Australian Merino wool, to craft one of four KARL LAGERFLD designs specially created for the unique project – a jumper, scarf, cap or headband – each showcasing the softness and beauty of Merino wool.

There were 777 knit boxes created – an ode to the iconic designer's favourite number. The competition ran from 7 February until 7 March, with the winners announced on 7 April. In China, the competition ran 2–31 March.

Designed for the digital-native generation, the competition involved searching for exclusive codes, to be entered by competition entrants at the special website **KnitKarl.com**. The codes had been hidden online in the websites, press and social media posts of The Woolmark Company and the KARL LAGERFELD brand and the competition video.

Codes were also hidden offline in 'street marketing' (eg posters, stickers, projections, pavement stencils, window displays) in cities across the world, in-store at KARL LAGERFELD's European stores, at events and in the press.

MERINO PROMOTION A GREAT SUCCESS

The initiative certainly proved popular and created a real buzz, especially amongst a very engaged knitting community.



Left - **Winners of the Knit Karl box** posted photos of their winning boxes on social media, continuing the visibility of the initiative long after the closing date of the competition.

Right - **Vogue** was the media partner for the initiative in several countries. *Vogue* posted content about Knit Karl on its website (pictured) and social media and print edition.

COMPETITION PLAYERS WERE FROM **181 COUNTRIES**

KNIT KARL REACHED A GLOBAL AUDIENCE OF **540 MILLION PEOPLE**

A GLOBAL PR VALUE WAS RECEIVED WORTH **\$4 MILLION**

THE CAMPAIGN'S KNITKARL.COM WEBSITE PAGE RECEIVED **7.6 MILLION VIEWS**

PARTICIPANTS PLAYED THE COMPETITION **972,000 TIMES**

THE WOOLMARK COMPANY'S DATABASE SUBSCRIPTIONS **INCREASED BY 29,000**

Nearly a million games were played by the competition entrants and the KnitKarl.com website received 7.6 million page-views.

Traffic to the competition's KnitKarl.com website was powered by a strong social campaign, with 47% of traffic to the website coming from social media (Facebook and Instagram). 158 key fashion influencers from 21 countries were engaged to post on social media about the initiative and 360 other micro-influencers created content on social media. The peaks in traffic to the website were mostly generated in response to posts by the fashion influencers.

There was a dedicated homepage banner and a landing page on the KARL LAGERFLD brand's Karl.com website during the competition period, as well as on The Woolmark Company's Woolmark.com, both of which together contributed to traffic to

the KnitKarl.com website.

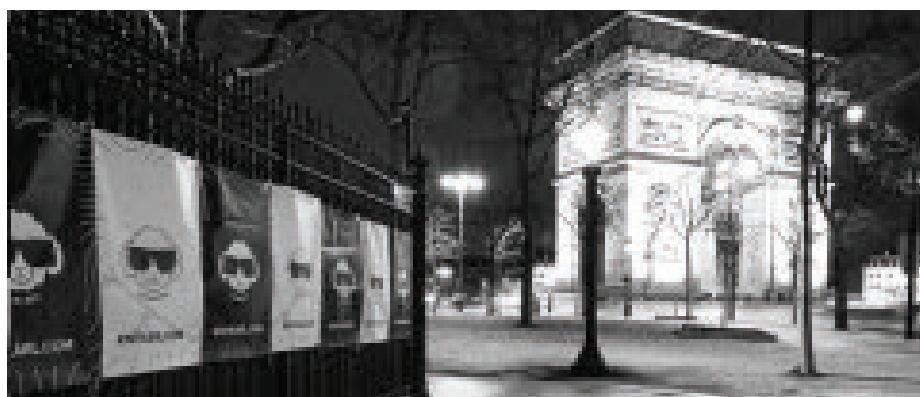
E-communications advertising the promotion were emailed to The Woolmark Company's database, reaching 136,000 people. The campaign also resulted in 29,000 new subscriptions to the database.

"Knit Karl was certainly the best tribute that could be made to Karl Lagerfeld."

Vogue

The media partner was *Vogue*. However, other top fashion magazines such as *Marie Claire*, *Cosmopolitan*, *Grazia*, *ELLE*, *GQ* and *Harper's Bazaar* also shared a code and wrote about the Knit Karl project in their media. **E**

MORE INFORMATION
www.knitkarl.com



Street marketing was undertaken in cities across the world, including Paris, Milan, London, and New York. Pictured here is an example next to the Arc de Triomphe in Paris.

EXCLUSIVE DESIGNER KNITTING PATTERNS

To help increase the demand for yarn made from Australian wool, AWI brought together five International Woolmark Prize alumni to release a series of exclusive knitting, crochet and cut-and-sew patterns, which can all be created from the comfort of home.

With so many people across the world spending more time at home, there has never been a better time for consumers to pick up a pair of knitting needles, order some wool yarn and knit away.

To make the most of this growing trend towards knitting and to highlight the versatility of Australian Merino wool, AWI launched in June a series of knitting patterns (including crochet and sewing) created by five International Woolmark Prize alumni.

The free patterns, plus links to buy related products such as wool yarns and knitting needles, are available on the Woolmark.com website, and are being promoted on social media. The AWI initiative is proving popular with a high volume of traffic headed towards the patterns on the website.

There have been 16,750 views of the knitting patterns page on Woolmark.com. **B**

MORE INFORMATION

www.woolmark.com/knitting-patterns



WOOL BEANIE BY KYE

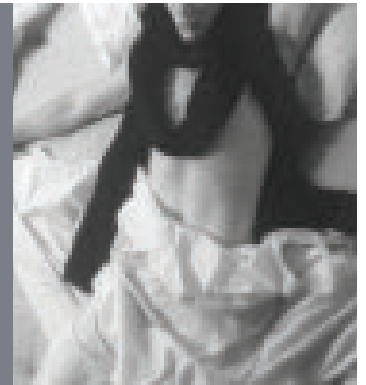
Known for innovative and extraordinary designs, Seoul-based fashion label KYE delivers fun, humour, wit and a sense of optimism through bold colours and patterns. Designer Kathleen Kye offers a free knitting pattern for the label's best-selling signature item: a retro-style ribbed beanie.

"It's fairly simple to make so could be a great gateway knitting project to start during a time like now," said Kye. "Try personalising the front with your own initials too."

SUPER SCARF BY STRATEAS CARLUCCI

Melbourne-based label Strateas Carlucci delivers a free knitting pattern for its Python Scarf. Measuring 4.3 metres in length, this Merino wool super scarf uses an open-coarse knit.

"We love how it wraps and stacks around your neck," said Mario-Luca Carlucci and Peter Strateas. "We also love it because it's knitted from Australian Merino wool, which is temperature regulating and really soft on your skin and a great natural fibre."



TOTE BAG BY CMMN SWDN

With more and more cities banning single-use plastic items, such as the dreaded plastic bag, Swedish-based fashion label CMMN SWDN is offering a free knitting pattern for a tote, using Merino wool, naturally.

"As designers we have long been champions for a sustainable fashion industry," said designers Saif Bakir and Emma Hedlund. "During this unprecedented time, it's more evident than ever that we all must adapt to a more sustainable way of life."



HAT BY I-AM-CHEN

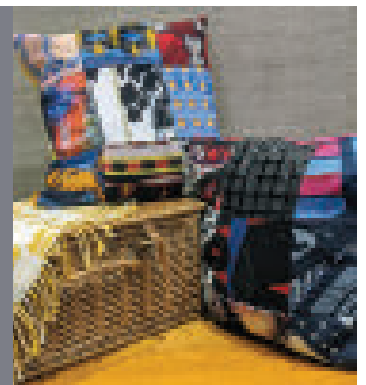
Hailing from Hong Kong, i-am-chen is a knitwear label that strives to bring a fun and light-hearted spirit to its audience. i-am-chen's free pattern is for a part cap, part beanie – a modern interpretation and reminiscent of a swimming cap from the Bauhaus period, which is crocheted using 100% ultrafine Merino wool yarn.

"The reason why I chose Merino wool is because it's warm, healthy and a gift from nature," said designer Zhi Chen (pictured).

CUSHION COVER BY TEATUM JONES

Okay, so this one is for the non-knitters of the world. By following this simple step-by-step guide, you too can create a Teatum Jones-designed cushion cover that stitches together your own personal story. Choose either a cut-and-sew pattern or patchwork pattern.

"Zero-waste is a really important part of our business; it's part of our mission," said design duo Catherine Teatum and Rob Jones. "Everything we create gets used and nothing gets thrown away."





CAMPAIGN FOR WOOL: LOVE TO KNIT

In April, the Campaign for Wool collaborated in the UK with three-time best-selling author and wellness expert, Jasmine Hemsley (pictured), on a 'how to start knitting' guide to encourage people at home during the lockdown to take up knitting with wool as a way to pass time and be creative.

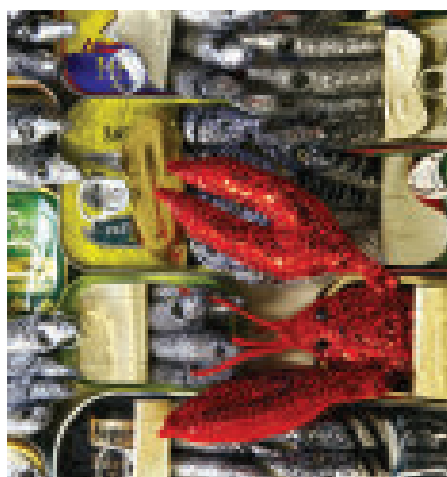
The instructions are simple to follow, so that the whole family can take part, and outline with creative tips how to create a scarf. Jasmine has captured her knitting experience, while she was self-isolating at home, in a video shared on her Instagram channel (114K followers).

Links to wool yarn and needle stockists, free patterns and online knitting tutorials are available via the Campaign for Wool website. **B**

MORE INFORMATION
www.campaignforwool.org/knitting

WITTY KNITS

Knit and crochet artist Kate Jenkins from Brighton in England is famous for taking a quirky and original look at everyday food items, crafting them with wool... and a sense of humour.



Kate's journey with wool began in her childhood home in Wales when at the age of eight she learned to knit and crochet.

"Right from the beginning I was engrossed with creating things with yarn and my passion has never abated," she said.

After graduating with a BA Honours in Fashion & Textiles from the University of Brighton in 1995, Kate built a successful career as a fashion consultant. Her knitwear designs have been used by some of the world's most famous labels, including Missoni, Donna Karan, Ralph Lauren to name just a few.

"I was always looking for different ways to use my love of wool, textile and colour. And that's how my art was born. The everyday has always fascinated and inspired me, particularly food. So I began to take things we all know and love – like fish and chips – reinventing them in wool."

Throughout her career, Kate has always used lambswool yarn from Z. Hinchliffe & Sons near Huddersfield in Yorkshire, a company that

sources its lambswool mainly from Australia.

"The lambswool is easy to use and manipulate and is lovely to handle. I wouldn't use anything else," Kate said.

"So far my journey as an artist has enabled me to stage exhibitions across the world, from London to New York, from Barcelona to Hong Kong. I mainly work on commissions for public and private collections across the world – most recently Viking Cruises, Royal Mail and the fashion label Anthropologie – but I also sell my work on my website. I've been especially busy these past few months, as people have spent more time at home and been furnishing their homes with artworks.

"While my journey has been varied and exciting, one thing never changes. Whatever I create, whether it's a carton of French fries, a tin of sardines or a box of frogs I always include lots of warmth and a dash of wit. Above all, I want my work to make people smile." **B**

MORE INFORMATION
www.katejenkinsstudio.co.uk



The Luna Rossa AC75 yacht, displaying the Woolmark logo on its sail.



Team Director and Skipper, **Max Sirena**, wearing the official sailing team's waterproof and breathable jacket: "It showcases the best characteristics of wool: suitable for high levels of performance and comfortable at the same time." The jacket is available to purchase in selected Prada stores and online on Prada.com.

SAILING PERFORMANCE WITH ECO-CREDENTIALS

With rising levels of pollution and microplastics in the world's oceans, The Woolmark Company's partnership with the America's Cup team Luna Rossa Prada Pirelli is not only an opportunity to showcase the performance attributes of wool in the team's sailing uniform, it also provides a platform for the team to highlight the natural and biodegradable properties of wool.

The 36th America's Cup presented by Prada is the showcase for the greatest sailors in the world to race the fastest boats on stadium-style racecourses in front of live audiences of hundreds of thousands, broadcast globally to millions of fans across multiple platforms.

As the official technical partner of the Luna Rossa Prada Pirelli team, The Woolmark Company positions Australian Merino wool as a premium performance fibre, influencing global consumers to consider, and ultimately purchase, Australian Merino wool for activewear.

The collaboration has already generated much media exposure for Merino wool (see above), however most of the benefits of the partnership will be associated with the races that begin in December in Auckland, leading up to the 36th America's Cup, the oldest trophy in the history of sport, in March.

The Woolmark Company's commitment to championing innovation has seen the development of a Merino wool-rich uniform to support the entire Luna Rossa team and crew during training and sailing. The Woolmark-certified uniform includes: waterproof jacket (commercially available on the Prada.com website), soft shell jacket, polo shirt, T-shirt,

2019/20 PROJECT RESULTS, TO JUNE 2020

EARNED MEDIA REACH: **302 MILLION PEOPLE**

EARNED MEDIA VALUE: **\$1 MILLION**

VIDEO VIEWS ON WOOLMARK PLATFORMS: **3.5 MILLION**

UNIQUE VISITORS TO JACKET ON PRADA.COM: **80,440**

wet jacket, blouson, wetsuit and base-layers.

For the Luna Rossa Prada Pirelli team, the sea is their office and their playground. But day by day, they are witnessing the impact that humans' detrimental way of life is having on this ecosystem.

For this reason, the Luna Rossa Prada Pirelli team is actively committed to mitigate its environmental impact. The team's uniforms perfectly align with this aspiration.

"Choosing a fibre like wool, that is both natural and biodegradable, is closely tied to our goal of minimising ocean pollution, an

issue to which our team is very sensitive," said Team Director and Skipper, Max Sirena.

While the eco-credentials of the fibre are important, Max says it is imperative that their uniforms also provide a high level of performance and comfort compared to other teams.

"The competitive advantage comes from the employment of wool. Wool is the best performance natural fibre for any sport. Thanks to its versatility, wool perfectly matches the needs of a team such as ours, where we are used to working in all weather conditions," he said. **B**

THE AUSTRALIAN IN THE TEAM

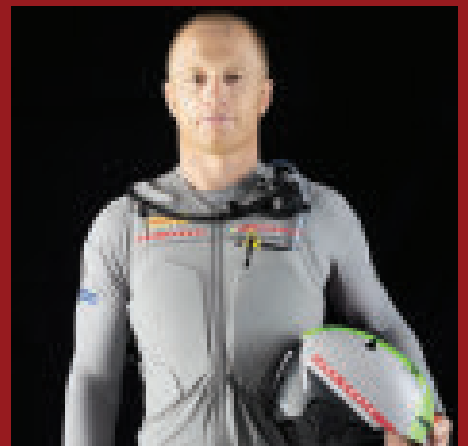
James Spithill, born in Sydney, has won the America's Cup twice and this is his seventh America's Cup campaign.

"The America's Cup is F1 on the water and you are looking for any technology edge that you can get, and clothing is no different. These boats reach speeds up to 90 kms an hour and the guys get incredibly hot, with a super high heart rate, for around a 30-minute race," Jimmy said.

"You really need a product that is breathable and can deal with a thermally changing body. I've been blown away with the gear from The Woolmark Company and the new technology they have come up with.

"It's just one of the many little things that I think will give us a competitive

advantage. In addition, it is a sustainable product, natural and biodegradable and, let's face it, we all must really focus on these concepts now." **B**



PAOLO ZEGNA

RECEIVES TOP AUSTRALIAN AWARD

Count Paolo Zegna, the Chairman of Italian luxury brand Ermenegildo Zegna, has been appointed as an Honorary Member of the Order of Australia (AM) for significant service to Australia's bilateral relationship with Italy and to the Australian wool industry.

The announcement made by the Australian Governor-General, states:

Count Paola Zegna, the Zegna family and its business operations have provided significant support to the Australian wool industry since the 1920s in sourcing the finest Australian Merino wool; sponsoring awards since 1963 to incentivize wool growers; signing the first Woolmark licence in the world; opening Zegna stores and corners in the major cities in Australia and investing directly in wool production through the Achill farm near Armidale, New South Wales.

Count Zegna has actively contributed to the consistent improvement in the quality of Australian wool, creating a virtuous circle par excellence and is a key player in wool being, once again, Australia's largest export to Italy. He is a major international figure in business, fashion and the wool industry and has shown significant support for Australian business, wool and the Australian-Italian relationship.

On the basis of his longstanding commitment and service to advancing Australian-Italian relations, and significant support of Australia's wool industry, his distinguished service is worthy of Australia's formal gratitude and recognition by appointment as an Honorary Member in the General Division of the Order of Australia.

AWI Chair Colette Garnsey congratulated Count Zegna on receiving the award.

"This is an award richly deserved for the commitment to the Australian wool industry and the broader relationship between our two countries. Ermenegildo Zegna has had a strong relationship with Australian wool for many decades and we thank Count Zegna and the company for their continuing commitment to the quality of Australian superfine wool," she said.

The Ermenegildo Zegna Group is one of the world's leading luxury menswear brands, with total Group revenues of €1.159 billion (AU\$1.89 billion) in 2018. It has more than 500 shops in 64 countries, and 6,500 employees worldwide.

It has had a relationship with Australian wool for more than a century and is one of the most important buyers of quality Australian Merino wool. The company became the first Woolmark licensee in 1964.

Recognised as one of Italy's best-known dynamic family businesses, the company was founded by Ermenegildo Zegna in 1910 in Trivero, in the Biella Alps of Italy.

His vision was in many ways ahead of his time: to source the best quality natural fibres directly from their country of origin, to innovate in product and production processes, and to give back to the environment of his suppliers and workers. This vision continues through the third



Count Paolo Zegna receiving the Order of Australia from the Australian Ambassador to Italy, Dr Greg French, at the Australian Embassy in Rome.

generation of the Zegna family to enter the business, including Paolo (Chairman) and his cousin Gildo (CEO).

The company's dedication to wool quality was highlighted when it established the inaugural Ermenegildo Zegna Wool Trophy in Australia in 1963, the oldest and most prestigious competition in the world of wool, which continues to this day. The aim then, as it is today, was to award and encourage Australian woolgrowers to improve the quality of superfine Merino wool.

A second award, the Vellus Aureum Trophy, was introduced in 2000 to reward the woolgrower who has produced the finest of the finest Merino fleece in the world. In 2016, the winning fleece (from David and Susan Rowbottom of St Helens in Victoria) was recorded at an exceptional 9.9 microns, making it still an unbeaten world record.

The quality of Australian superfine wool allows Ermenegildo Zegna to continually improve the beauty and the performance of its products. The fibre is the key to some of its best and most prestigious fabrics. **E**

Count Paolo Zegna has been a friend of the Australian wool industry for many years. He is pictured here in April 2013 with Judy Blanch of 'Westvale' at Wollun, NSW, during an initiative to mark the 50th anniversary of the Ermenegildo Zegna Wool Awards, in which 100 international media travelled to wool-growing properties in the New England district of NSW to be showcased Australian Merino wool.



TAGGING USES TECH TO GET SMART

Smart tags on apparel provide an opportunity for The Woolmark Company to work with brands to educate consumers about the wool in their garments, enhancing the relationship with the customer.

ALBUS LUMEN NFC-EMBEDDED TRAVEL COLLECTION

The Woolmark Company partnered with Albus Lumen to create a traceable travel collection made of Merino wool sourced from 'Anlaby Station' in South Australia. The six-piece collection is made using 19-micron Merino wool and comprises a sweater, 3/4-sleeved

T-shirt, leisure pant, eye mask, travel poncho and a shawl. Each piece is embedded with a washable NFC chip that allows the user to trace the garment from farm to garment production. For more information about the collection, head to www.woolmark.com/albuslumen.

Customers can now receive via smart tags more tailored information about a garment, without having to go away and spend time researching it themselves. This could be information such as care instructions, the supply chain or provenance of an item.

Smart tags enable brands to deliver information in as seamless a way as possible, helping to increase engagement (regardless of where in a garment's lifecycle the interaction may occur) – and sales.

Smart tags can also facilitate other connections, such as the ability to connect to a store's point of sale system, to a smart wardrobe or washing machine or even to help enable quicker recycling through identifying accurately a garment's composition.

COMMON SMART TAG TECHNOLOGIES

NEAR FIELD COMMUNICATION (NFC)

NFC is a method of wireless data transfer that can enable digital interaction with consumers. Most commonly, we know NFC as the chip technology used in the tap & pay function of credit cards and smartphones. However, NFC can be integrated into a swing tag, or a garment by sew-in care label or embedded in other creative ways such as directly into the fabric.

RADIO FREQUENCY IDENTIFICATION (RFID)

RFID is mainly used for inventory management, smart check-out and theft prevention. The technology allows almost any object to be wirelessly identified using data transmitted via radio waves. It requires a specific reader and tagging items with RFID allows users to automatically and uniquely identify and track assets and inventory.

QR CODES

QR codes can be read by most smartphone cameras and are an economical alternative in comparison to NFC and RFID. Easy to generate, QR codes can store data including URL links, geo coordinates and up to 4000 characters of text.

AUGMENTED REALITY (AR)

AR is an interactive experience of a real-world environment where the objects are enhanced and illustrated by computer-generated information. AWI currently has the Woolmark AR app which can be downloaded via the App Store or Google Play.

DOUBLE RAINBOU NFC-EMBEDDED SHAUN THE SHEEP JUMPERS

As part of the Shaun the Sheep campaign with The Woolmark Company, Australian fashion brand Double Rainbouu created fully traceable jumpers made of 100% Australian Merino wool of 19.5 micron sourced from 36 properties from across Australia. Each jumper comes with an NFC chip in the swing tag and care label that activate with NFC-enabled smartphones, taking customers on a unique journey to learn about where and how their jumpers were made. For more information or to purchase, head to www.woolmark.com/shaunthesheep.

PHOTO: piskunov

WANTED: WOOL PROCESSING MARKETS

Buying about three-quarters of all Australian greasy wool, China is an important processing (and consumer) market for Australian wool. The Australian and Chinese wool industries have a very good relationship and this will continue.

However, due to the increased cost of wool processing, AWI is looking for wool processing opportunities in new markets to reduce the dependency on China.

Accessing the most efficient, sustainable and cost competitive manufacturing hubs available will ensure that Australian wool can maintain its competitive relevance. An expanded number of processors will also mean an increased number of buyers of Australian wool, which could result in growing demand for the fibre.

SUCCESS IN VIETNAM

AWI has worked in Vietnam for the past decade, launching in 2012 its 'Out of Vietnam' program to help encourage a new manufacturing hub for wool products.

AWI General Manager Eastern Hemisphere John Roberts says, as the country's economic and social environment has evolved, AWI has witnessed Vietnam's growing use of Australian wool to produce quality garments.

"With the support of AWI, Vietnam now has an established wool supply chain that includes worsted spinning through to weaving, knitting, dyeing and finishing for both international and domestic markets. Supply chain partners have grown from zero in 2012 to more than 85 today," he said.

"Our supply chain partners in Vietnam have grown from zero in 2012 to more than 85 today."

John Roberts, AWI General Manager Eastern Hemisphere

"Our program has successfully helped future-proof Australian wool's prospects by opening up a new and expanding processing destination for our fibre. Our heritage in wool

To reduce the Australian wool industry's risk of being too reliant on China as the major buyer of Australian greasy wool, AWI has an 'Emerging Markets strategy' to identify and encourage potential new manufacturing hubs in Southeast Asia and the Indian sub-continent. The strategy aims to replicate the success that AWI has had in helping develop new manufacturing supply chains for wool products in Vietnam.

research and development together with Vietnam's solid background in the textile industry made a perfect combination."

AWI's success in Vietnam can be attributed to a number of key factors including a rapidly growing economy, a rich textile culture, a competitive workforce, increasing production costs in China, and more recently, China's trade dispute with the USA.

"While AWI's primary aim in the country has been to develop new manufacturing supply chains for wool products, we have also witnessed the market for wool now extending far beyond the manufacturing sector, allowing AWI to help introduce apparel made from Australian Merino wool to consumers in the Vietnam domestic market," John added.

THE NEXT BIG THING

AWI is now looking to identify, foster and build the "next Vietnam". Through its Emerging Markets strategy, the company is currently evaluating and prioritising key target markets in Southeast Asia and as far as west as the Indian subcontinent: including Bangladesh, Cambodia, Myanmar, Laos and Sri Lanka amongst others.

In each market, AWI is researching the types of manufacturers in the market, which companies are already working with wool, what wool (yarn, fabrics, garments) is being produced there, and who wants to work with wool and how AWI would help them to do so.

Key data being analysed also includes each market's economic status, textile sector size and growth, current political status and other important information such as free trade agreements.

"Analysing this data will help us gauge which markets are best suited to introduce wool or support more wool in their supply chains. We will then use our findings to determine what resources AWI should deploy in which markets," John added.



AWI General Manager Eastern Hemisphere **John Roberts** presenting at the Merino Wool Awareness Day held in June 2018 in Hanoi, Vietnam, attended by more than a hundred international and local experts, experienced designers, suppliers and manufacturers in the textile and garment industry.

EU LABELLING TO DISPLAY ENVIRONMENTAL CREDENTIALS



FAST FACTS

- AWI funds scientific research into wool's environmental footprint, to help the wool industry market Australian wool to the fashion and textile trades – and consumers – as the 'planet-friendly' fibre of choice.
- Through the IWTO, AWI is engaging with the EU's Product Environmental Footprinting (PEF) project, which is expected to soon become the most influential market-facing reporting system for environmental credentials.
- AWI advocates for robust science to underpin the PEF's rating methods, thereby maximising wool's reputation and minimising the risk that wool could be disadvantaged.
- In May, a full cradle-to-grave Life Cycle Assessment (LCA) for a Merino wool jumper was published; funded by AWI, it is the first full LCA for a textile fibre that has ever been published in a peer-reviewed journal. It will help the wool industry's engagement with the PEF project.

Within a couple of years, products for sale in the European Union (EU) could be required to include a label that provides consumers with the EU's assessment of a product's environmental credentials – this is both a risk and an opportunity for wool. AWI's continued funding of scientific research into wool's environmental benefits not only helps the wool industry's ongoing marketing of Australian wool but also aims to help ensure the EU develops an accurate and positive rating for products containing wool.

Wool is natural, renewable and biodegradable – and therefore well placed to take advantage of the increasing consumer demand for more earth-friendly products.

But the wool industry faces an issue. Environmental ratings agencies don't yet account for factors such as natural, renewable and biodegradability in their ratings tools, so have historically rated wool poorly against synthetic fibres, which has put wool at a disadvantage, particularly as these ratings have been used by brands to help choose what fibre to use in their products.

This issue has recently become more significant, with the European Union (EU) now putting policies in place to have environmental labelling on consumer

products, including apparel products, as soon as 2022, in an effort to guide consumers towards choosing the most sustainable products (see opposite page).

"AWI continues to be dedicated to generating scientific evidence of wool's true environmental credentials. It is only by undertaking and publishing technically sound scientific studies that wool's true environmental credentials will be established, leading to improved environmental ratings for wool," said AWI's Program Manager for Fibre Advocacy and Eco Credentials, Angus Ireland.

"This is a prime example of where AWI's R&D and marketing are aligned and working hand in glove for a better future, not just for woolgrowers and regional Australia, but for the planet."



LIFE CYCLE ASSESSMENT

There are many ways to assess environmental sustainability, but one popular and effective method is Life Cycle Assessment (LCA). LCA is a tool that attempts to tell in technical terms the environmental story of products across their *entire supply chain* – from raw material production; through processing, manufacturing and distribution; to a product's use, repair and recycling; and finally to a product's end-of-life and disposal. All these phases of a product's supply chain affect the environment in some way.

Wool has a great environmental story to tell, so why have ratings agencies rated wool poorly? Until recently, assessments have looked only at the production part of the supply chain (where natural fibres such as wool and cotton are scored poorly), not at the whole supply chain. This means that, for example, the fact that wool is 100% biodegradable (in contrast to synthetics) has not been taken into account by the agencies.

During the past ten years, AWI has been funding research to improve the body of LCA studies and provide a more accurate analysis of wool's environmental benefits.

A ground-breaking new study funded by

AWI has recently been published. It is the first cradle-to-grave LCA of a textile fibre to be published in a peer-reviewed journal, in this case *The International Journal of Life Cycle Assessment*.

The study demonstrates that consideration of the length of time a garment stays in active use is critical in LCA – see following page.

"The study brings together the last decade of AWI's eco-credentials research across all life stages, from the farm to end-of-life, and contributes to our strategy of positioning wool as a forward-looking industry, carefully stewarding the environment," Angus said.

"By undertaking the study, we are now in a 'knowledge-powerful' position regarding wool's supply chain and understanding its impacts. The work is especially timely as it will assist the wool industry's engagement with the European Union's Product Environmental Footprinting project."

EU PRODUCT ENVIRONMENTAL FOOTPRINT PROJECT

The EU has become the driving force of environmental footprinting for all product types, not just textiles, through its Product Environmental Footprinting (PEF) project. The project is expected to supersede previous environmental rating systems such as the Sustainable Apparel Coalition system.

It is anticipated that the PEF project will become the most influential market-facing reporting system for environmental credentials, with point of sale collateral (such as labels) communicating the EU's assessment of products' environmental credentials. It is predicted to be market ready in the EU by late 2022 and may then be mandated in, for instance, France soon after.

"The wool industry has a seat at the table at key technical forums in the EU. We are working to ensure the environmental footprint of garments is correctly assessed at all stages of a product's life," Angus said.

The EU PEF has some advantages over previous rating systems, such as it being a government-initiated and -led system so its principles are better and more scientifically robust. It is also more comprehensive and includes 16 impact categories, from toxicity to climate change, although there are still some notable omissions such as microplastics – see box top right. Importantly, the PEF does include the 'use phase' and the 'end of life' of the garment which helps somewhat in leveling the playing field for wool.

While there are advantages to the PEF system, the requirement for point of sale labelling is still a risk for wool if the EU does not give wool a fair rating. The EU will provide a product with a single rating, rather than providing separate ratings for all 16 impact categories.

At this stage, it is not clear how well wool

WHAT ABOUT MICROPLASTICS?

The release of microplastics into the environment is not currently assessed by LCA because there is no established method to assess its extent or impact. To address this knowledge gap, AWI recently partnered with environmental services company Quantis and other stakeholders in the **Plastic Leak Project**.

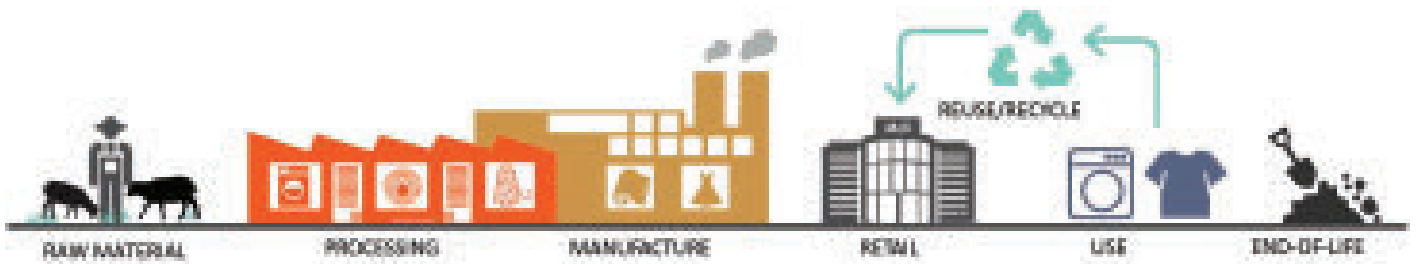
This project has now released a methodology for businesses to map and measure plastic and microplastic leakage across their value chain. However, a further phase of work is required to account for the impact of these microplastics on the environment.

Because wool biodegrades in marine environments, the inclusion of microplastics in LCA should benefit wool's standing in comparison to synthetic fibres. See www.quantis-intl.com/plastics for more details.

will be scored by the EU. However, initial modelling suggests the EU's rating of environmental impacts from wool may be higher than some competitor fibres because of, for instance, a high weighting for on-farm greenhouse gas production.

AWI is working hard to improve the assessment for wool in the following areas:

- Addressing errors in LCA methods. For example, an AWI-funded study has proposed an improved method for allocating environmental impacts across co-products, given that wool is produced alongside meat, which gives a more positive assessment of wool's environmental credentials.
- Investigating impact categories in which little work has currently been undertaken (eg land use) and 'hot spots' that might not be as positive for wool (eg greenhouse gas emissions, particularly at the farm stage – see page 21).
- Ensuring methane is accounted for correctly, given its relatively short life in the atmosphere before being broken down into other compounds.
- Advocating for regionally relevant methods for issues such as nutrient loss at the farm stage. The circumstances that the EU methodology uses are Europe-centric which are quite different to many other parts of the world, especially Australia.
- Rewarding products that are washed less frequently. Providing evidence regarding the less frequent washing of wool garments will strengthen the case for wool compared to other fibres.
- Addressing the weaknesses of other fibre types, for example by urging the inclusion of indicators such as microplastics and methods to address short-lived fashion types. **B**



Life Cycle Assessment measures the environmental impact of a product across its entire lifespan, from cradle to grave. The 'use phase' is critical because the more often a garment is worn, the less overall environmental footprint it will have.

WORLD-FIRST STUDY SHOWS 'USE PHASE' OF A GARMENT IS CRITICAL TO DETERMINING ITS ENVIRONMENTAL FOOTPRINT

A ground-breaking new study that examined the environmental footprint of a wool garment shows that to fully understand the eco-credentials of a garment, it is crucial that its whole lifespan be considered, especially the time after the consumer has purchased it – which is good news for wool because wool garments tend to be used and kept for longer.

Wool apparel is produced in long supply chains, from the production of greasy wool on sheep farms, through processing to garment make-up, retail, consumer use, and end-of-life. Up until now, studies in Life Cycle Assessment (LCA) have focused on just particular segments of the supply chain.

However, a world-first new study funded by AWI provides a *full* cradle-to-grave LCA for the supply chain of a Merino wool jumper. This is the first full LCA of a textile fibre to be published in a peer-reviewed journal. It reports on the environmental impacts of a lightweight Merino wool jumper made from <math><20\mu\text{m}</math> Australian wool, processed in China and sold and worn in the EU.

The study helps demonstrate the eco-credentials of wool in a world where there is increasing concern about society's trend towards 'fast fashion' and disposable clothing, and the effect on the environment of synthetic textiles.

AWI Program Manager for Fibre Advocacy and Eco Credentials, Angus Ireland, says the study demonstrates that consideration of *the length of time a garment stays in active use* is critical in LCA as it strongly affects the garment's overall environmental impact.

"Consumers who are aware that their wool clothes require less washing – because of

wool's natural resistance to odour, stains and wrinkles – have the greatest influence on the sustainability of their garments by maximising their active lifespan," Angus said.

"The fact that wool clothes need less frequent washing not only reduces energy and water consumption, it also preserves the as-new look of the garment, enabling consumers to continue wearing it for longer.

"The length of a garment's lifespan, that is the number of times that the garment was worn, is the most influential factor in determining a garment's footprint on the planet."

Angus Ireland, AWI Program Manager for Fibre Advocacy and Eco Credentials

"The impact on the environment is further reduced by a longer lifespan because the garment has to be replaced less often. This is good news for wool because woollen garments are on average kept for longer periods of time than garments made from other fibre types, plus they are more likely to be recycled."

The study also found that there are ways to improve the efficiency of production, processing, and garment care, which could also

reduce the environmental impacts from wool.

"This is an opportunity for wool as it helps AWI to identify and focus our efforts on environmental 'hot spots' (such as the on-farm production of greenhouse gases – see opposite page) that will most effectively reduce wool's footprint," Angus added. **B**

MORE INFORMATION

Access the AWI-funded study 'Environmental impacts associated with the production, use, and end-of-life of a woollen garment' published in *The International Journal of Life Cycle Assessment* at www.rdcu.be/b4oXW.



Wool clothes require less washing than many other clothes – because of wool's natural resistance to odour, stains and wrinkles – which not only reduces energy and water consumption, it also preserves the as-new look of the garment.

COOLING DOWN THE GREENHOUSE GAS DEBATE

Global warming has become one of the foremost environmental challenges of modern times, with agricultural industries being particularly scrutinised. The Australian wool industry is working collaboratively with other livestock industries to accurately assess and mitigate their greenhouse gas emissions.

AWI-funded studies of Life Cycle Analysis (LCA) have shown that to fully understand the eco-credentials of a wool garment, it is crucial that its whole lifespan be considered – from the production of greasy wool on sheep farms through to the garment’s end-of-life (see opposite page).

While the length of time a garment stays in active use has been found to be the most influential factor determining the garment’s environmental impact, the results of the LCA studies are also helping AWI to identify and focus its efforts on environmental ‘hot spots’ that will most effectively reduce wool’s footprint.

The largest ‘hot spot’ in the wool supply chain is the on-farm production of greenhouse gases (GHGs) – primarily methane belched by sheep. The methane is produced by micro-organisms in the stomach of sheep to assist with digesting fibrous materials such as grass.

“With growing international alarm at global warming and climate change, many if not all industries are under increasing scrutiny to assess, report and mitigate their greenhouse gas emissions,” said AWI’s Program Manager for Fibre Advocacy and Eco Credentials, Angus Ireland.

“The risk is that the wool and other livestock-based industries could be harmed if consumers’ purchasing decisions or governments’ regulatory decisions are based on ill-informed information, which is why AWI is undertaking objective research that provides scientific evidence to back up wool’s eco-credentials.”

RESEARCH INTO GHG MEASUREMENTS

AWI collaborates with other rural Research & Development Corporations on several GHG-related projects, including a project that is investigating whether the impact of methane emissions from livestock on global warming is being accurately assessed.

The current global standard metric for reporting GHG emissions and impacts (known as GWP100) uses a unit of measurement of ‘carbon dioxide equivalents’ over a timeframe 100 years. However, while carbon dioxide is a ‘long-lived climate pollutant’ and stays in the atmosphere indefinitely, methane is a ‘short-lived climate pollutant’ that has a far shorter atmospheric lifetime of about 12 years.

“Therefore, GWP100 arguably does not accurately reflect the decomposition of methane and has limitations as a metric,” Angus said.

“This is particularly important for ruminant-based agricultural industries as their emissions of GHGs contain a considerably higher proportion of methane compared to other greenhouse gases, such as carbon dioxide and nitrous oxide.”

An experimental method of accounting for methane, known as the GWP* method, is currently being investigated. GWP* uses ‘carbon dioxide warming equivalents’ as a unit of measurement and specifically aims to rectify the problems identified in the GWP100 method.

AWI is funding a study to calculate the GHG emissions at the individual wool-growing property scale as well as the national scale; the study will provide a comparative assessment of the flock’s emissions calculated using the experimental GWP* method and the current GWP100 method. In addition, the study will model and assess two hypothetical scenarios for the flock: a 25% decrease and a 25% increase in flock numbers.

Analysis of the national flock emissions will identify the long-term, industry wide implications if the GWP* metric were applied.

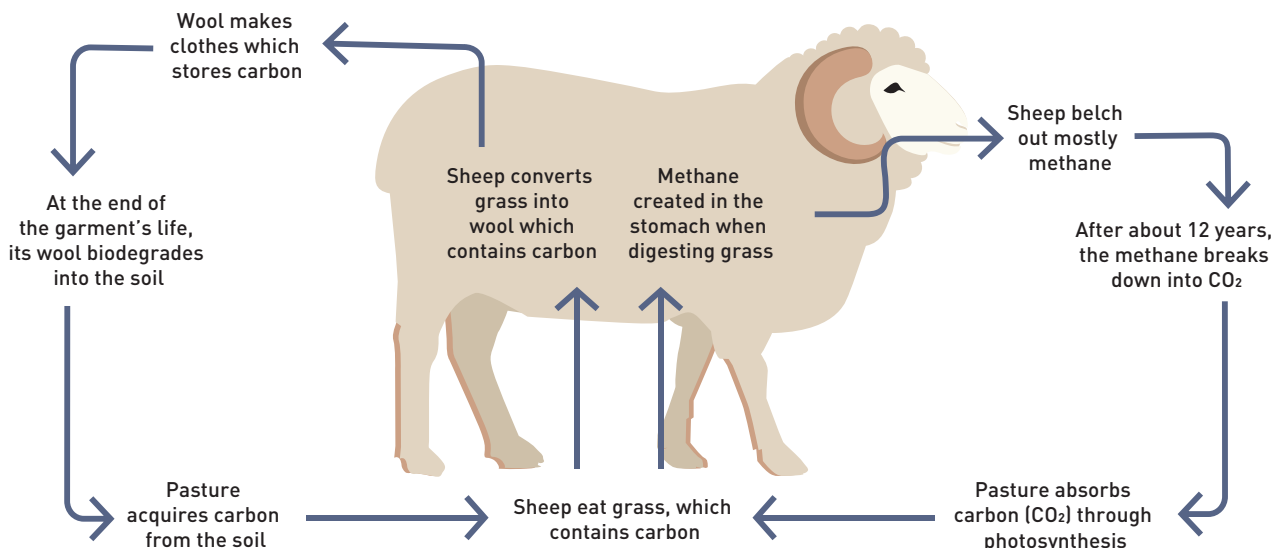
MITIGATION STRATEGIES FOR LOWER EMISSION WOOL

Significant research is also under way to assess and identify the technical feasibility, the cost-benefits, and the key opportunities, risks and barriers to achieving lower emission wool.

It aims to identify plausible mitigation strategies for the wool industry, capitalising on previous industry research, and assess potential adoption rates, including an economic assessment of the cost to woolgrowers of implementing the mitigations options.

Potential GHG mitigation strategies to be examined could include options such as feed additives or low methane pasture species, improving soil management, tree planting and increasing flock productivity (producing more lambs and wool from each sheep). **B**

THE TWO CARBON CYCLES IN SHEEP



AWARD SPONSORSHIP BOOSTS A CAREER WITH WOOL

In 2018, knitwear design student Matthew Briggs won an award sponsored by The Woolmark Company at TexSelect, the UK's leading graduate design prize. Two years later, he is working at renowned British luxury brand Burberry in a role in which he works a lot with Merino wool.

Shining the spotlight on the best emerging textile designers studying at universities across the UK, entrants for The Woolmark Company TexSelect Award had to incorporate a minimum of 60% Merino wool into their textiles and demonstrate a good understanding of the fibre's qualities and potential application in fabric.

The Woolmark Company **TexSelect Award 2018 winner Matthew Briggs** in September 2018 at the Première Vision trade show in Paris, with the Award judges **Eda Karadogan** (Ipekis), **Natasha Lenart** (Victoria Beckham) and AWI's **Birgit Gahlen**.

Through the sponsorship of awards such as this, AWI aims to foster the education and development of tertiary textile and fashion students – inspiring them in the early stage of their careers about the properties and benefits of Merino wool, and encouraging them to continue to use the fibre in their designs as they progress through their professional lives.

Royal College of Art (RCA) graduate Matthew Briggs won the 2018 Award. Two years later, he is an assistant knitwear and jersey designer for Burberry, a role that he acquired not long after winning the TexSelect award.

"I use a lot of wool at Burberry. The vast majority of our men's knitwear collection for runway is Merino wool. Working for a brand with the heritage that Burberry has with using wool, suits me quite well at the moment. I hope in the future to work more

closely with the fibre, specifically within the wool industry," Matthew said.

KNITWEAR STUDIES

Matthew grew up in Kent in south-east England and went to Manchester University to originally study biochemistry.

"I was the first person from my family to go to university and I wasn't really sure what to study. It wasn't until I was actually at the university that it dawned on me that what I did there would really determine what I was going to do for the rest of my life. So I switched to a BSc in Textile Design and Design Management.

"The course looked really appealing when I went to see the department's facilities. It had a lot of industrial knitting machines – including Shima Seiki, Stoll and Protti – something which was quite uncommon.

"It was during my first year that I met a knitwear tutor at the University, Kandy Diamond. We got on really well and she got me quite excited about the knit industry. She told me about the possibilities with fabric design and she was genuinely inspiring. I think that's why I ended up specialising in knitted textiles."

Matthew went on to do his Masters at the RCA in London and had the opportunity to meet other designers that were working in the knitwear industry.

"Speaking to them about how to get things produced and how the textile supply chain worked was really useful. I think industry involvement during university is crucial. Otherwise you kind of explore and learn a bit blind. Ultimately you need to know the industry you are going into.

"I learnt a lot about different fibres in general from the yarn technician at the RCA, Sheila Clark. She has a wealth of knowledge about the benefits of wool and introduced me to Merino wool, through yarns by Italian spinners such as Zegna Baruffa and Loro Piana.

"I was working with a lot of colour at the time and I started using wool because of its ability to take colour well. I really began to appreciate the benefits of using the fibre. It was easier to knit with. It was more stable. It gave a more masculine feel to my garments, especially when I used yarns with a drier handle."





A close-up of an example of wool knitwear that Matthew worked on for the **Autumn/Winter 2019 Burberry menswear show**.

TEXSELECT AND BEYOND

Matthew says he felt his knowledge of wool was really strong coming out of the RCA and into TexSelect.

"But being a part of TexSelect greatly increased my interest and enjoyment of using wool; specifically, more about the wool industry and Woolmark in general," Matthew said.

"Winning the award was amazing. It gave me the ability to go to the Intertextile trade show in Shanghai and meet a wealth of different designers and buyers. I sold a lot of swatches to different Asian brands and without this prize, this wouldn't have been possible.

"During my trip I also had the opportunity to do a day's teaching at Hong Kong Polytechnic University. I absolutely loved this. I got to speak about my collection and the ways I mixed fibres in my work. I talked about how I enjoyed using Merino wool in sections of knit, supported by nylon and wool blends."

Matthew says he hopes to further his career within research.

"This is something that really interests me, exploring more technical aspects of knit for sustainability, maybe working more directly with mills instead of within the apparel design industry." **B**



Aston Martin's DBX SUV is available with Australian wool in its interior.

ASTON MARTIN AND THE LICENCE TO THRILL

Luxury car manufacturer Aston Martin has entered the luxury SUV segment, with its award-winning DBX model. The DBX interior is available with Woolmark-certified fabric made from Australian wool.

British manufacturer Aston Martin is renowned for its luxury sports cars – driven by film stars, royalty and those who like performance with style.

However, Aston Martin last year unveiled a bold new chapter and a landmark moment in its illustrious 107-year history, with the unveiling of its first SUV, the DBX, which Aston Martin hopes will propel the brand to new heights worldwide.

Described by Aston Martin as "an SUV with the soul of a sports car", the DBX signals a new era in Aston Martin's pursuit to deliver exceptional performance, style and usability in a segment previously unexplored by the world-famous manufacturer.

This includes the interior of the car, in which there are many natural material options available, including an 80% natural wool blend used in its car seat covers, centre consoles, doors and instrument panels.

Aston Martin states in the DBX's promotional information: "The material is made with carded yarns from fine Australian lambswool that are then mixed with synthetic fibres to create a luxurious felt-like fabric. It is the first automotive fabric with such a high content of wool and has attained the Wool Rich Blend certification from The Woolmark Company. As well as being very environmentally

sustainable, it is also highly durable and naturally water repellent."

Aston Martin uses the Woolmark logo in its marketing collateral for the DBX.

The DBX was named at the GQ Car Awards 2020 as the year's Best Luxury SUV. "Sensationally good, an expert fusion of Aston's classy creativity, charisma and chassis wizardry," was how GQ described the DBX.

It looks like the SUV will be a commercial success as well as a critical success, with Aston Martin Lagonda Executive Chairman Lawrence Stroll recently stating the DBX "has a strong order book behind it extending into 2021".

"Based on these successful initial orders for DBX, we plan to unveil future derivatives starting from 2021," he continued.

The DBX is a key part of Aston Martin's core product launch in 2020. Deliveries are scheduled to begin during the current northern hemisphere summer, with deliveries to Australia soon after.

Aston Martin is not the only luxury car brand to introduce wool in its interiors. For example, BMW uses wool in its i3, Range Rover uses wool in its Evoque and Velar, and Toyota uses wool in its Century. Bentley uses wool in its Mulliner, as well as its State Limousine which is an official state car for the Queen. **B**

MORE INFORMATION
www.astonmartin.com

Phoebe Edwards (back row, far left)
with the other the finalists of the
2018 Woolmark Performance Challenge.



SPORTY KNITS A WINNING START TO A CAREER WITH WOOL

Since competing as a finalist in the 2018 Woolmark Performance Challenge, Phoebe Edwards from England has gone on to forge a career in which Merino wool plays a significant role. She is particularly interested in how innovative and sustainable yarns can be used in technical knit structures for sports and performance wear.

Phoebe Edwards was one of ten finalists in the inaugural edition Woolmark Performance Challenge, AWI's annual competition for tertiary-level academics across the world to develop innovative new product applications for Merino wool within the sports and performance market.

Launched in 2018, the Woolmark Performance Challenge aims to push the limits of product innovation and ultimately increase the demand for Australian Merino wool in the activewear sector, the fastest-growing sector of the global textile business. To date, the program has partnered with sportswear heavyweights adidas and Helly Hansen.

Phoebe competed in the competition while completing her MA in Fashion Knitwear Design at Nottingham Trent University in England, a course in which she received an 'Exceptional Distinction'.

WORKING WITH WOOL

Phoebe has since been employed as Wholegarment Knitwear Designer for seamless knitwear manufacturer Skinwear Limited, working with many athleisure brands such as Sweaty Betty, Shackleton, Snow Finel and Iffley Road to name a few.

"Merino wool, alongside lambswool and wool blends, was a big player with the brands with

which I worked at Skinwear Limited. I had many great experiences educating customers about the fibre's amazing performance benefits for skiing, yoga, workout, mountaineering and running," Phoebe said.

"I had many great experiences educating customers about the fibre's amazing performance benefits."

Phoebe Edwards

"It's wonderful how so many brands are refocusing their ethos towards how specific yarns interact with the body, and especially how the brands are exploring Merino wool's hypoallergenic, soft touch, and multiple performance benefits.

"It is also incredibly rewarding having customers engage with what I am teaching them about Merino wool – and for them to understand how sustainable Merino wool is, and the cyclical process of how the fibre gives back to the planet."

Since leaving university, Phoebe was also approached by Chinese knitwear manufacturer Xinao for freelance work to create a yoga collection for showing at trend and trade shows.

"This was an incredible opportunity in which I was able to challenge my creativity while using Merino wool," Phoebe said.

NEW OPPORTUNITY

Phoebe has recently had a change in her professional career and is now the Head of Design Centre and Design Consultant at Stoll GB Knit Design Centre.

"This has been a very exciting change for me, but I am still using Merino wool with my new clients and customers at the Design Centre," Phoebe said.



A computer-aided design illustration of Phoebe's 2018 Woolmark Performance Challenge entry.



Phoebe Edwards in front of the machine at Nottingham Trent University on which she knitted the majority of her SECOND SK:N women's ski base-layers collection, which inspired her entry in the 2018 Woolmark Performance Challenge.

"I continue to explore Merino in knitted garments with fashion and athleisure customers, but I have a much larger technical customer base at the Design Centre. It is very interesting how I will be suggesting and designing with Merino in the future with these specific clients.

"The Stoll knitting machines are also flat bed, as well as 'knit and wear' seamless, so I am pushing Merino through different stitches and avenues I have yet to fully explore, so that is very exciting!"

"I am currently working on some amazing technical projects with some very interesting performance wear customers using Merino wool. One in particular is of upmost personal interest, but I cannot say too much, only it would be interesting to see Merino in zero gravity..."

"I am currently working on some amazing technical projects with some very interesting performance wear customers using Merino wool."

Phoebe Edwards

Phoebe says the Design Centre has close ties to spinners, which will enable it to provide its customers with fully sustainability and traceability packages for them to promote commercially.

PHOEBE'S CHALLENGE EXPERIENCE

Phoebe was one of 510 students (from 58 universities) from across the world who registered for the 2018 Woolmark Performance Challenge, which had sportswear brand adidas as the inaugural partner.

As a continuation on her graduate collection titled SECOND SK:N, Phoebe designed a seamless Merino base-layer suit for women skiers and snowboarders, incorporating compression, stretch and joint support.

The suit is designed for 3-D manufacture using whole-garment seamless technology, giving it a true second-skin fit for each wearer. It eliminates issues such as the garment being too tight and restricting blood flow, or being it being too loose which results in bunching and skin abrasion.

"Before the Woolmark Performance Challenge, I was already very interested in Merino wool and its performance benefits for sportswear and knitwear in particular. But the competition enabled me to dig deep into my existing wool knowledge," Phoebe said.

During the 2018 Woolmark Performance Challenge, the 510 participating students were provided by AWI with an extensive range of educational resources about wool – to not only arm them with information to assist in their competition entry, but to also encourage and inspire them to think about wool in their future careers.

To kick-start their journey in the competition and stimulate their imagination, the students were encouraged to take AWI's online Wool Appreciation Course. A series of monthly wool webinars was also delivered to students by industry experts. Interestingly, Phoebe delivered a webinar to participants in this year's competition.

After being selected as a finalist in the 2018 competition, Phoebe attended a two-day workshop in London hosted by AWI, which brought together experts from the sports, textiles and fashion industries – and ensured each of the finalists was ready to present their ideas to the judging panel at the final event in Denver, USA.

"The Woolmark Performance Challenge provided me with opportunities that have been invaluable to my development so that I can now confidently promote Merino wool to my current clients and customers."

Phoebe Edwards

"There were many platforms to learn more about wool, through webinars during the

entry phases and then through stimulating conversations during the final – with the finalists, judges and other industry professionals," Phoebe said.

"The competition provided me with an audience to discuss my passion and interest with Merino wool. It also grew my confidence in how to explain and promote this amazing yarn – that I had admired for so many years – in professional, industry situations.

"The Woolmark Performance Challenge provided me with opportunities that have been invaluable to my development so that I can now confidently promote Merino wool to my current clients and customers, in different industry settings."

A FUTURE WITH MERINO

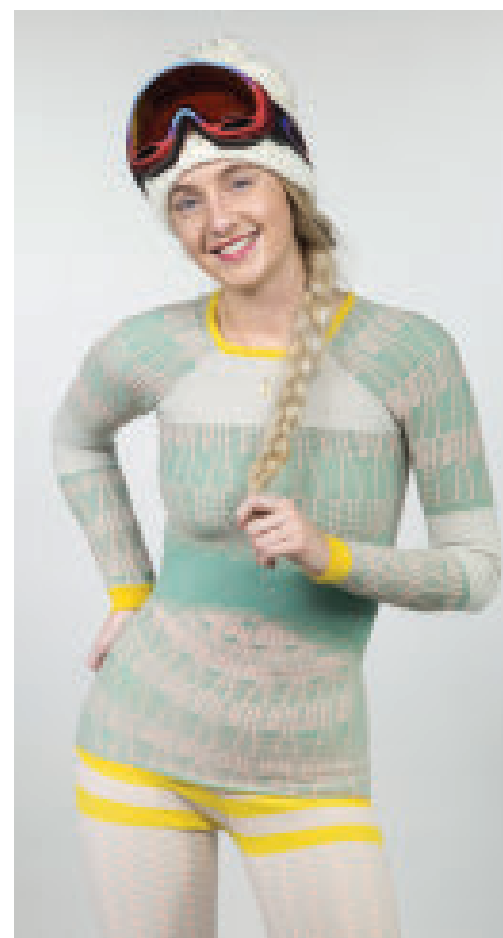
Phoebe says she will be using Merino wool for the entirety of her career.

"I am, and will always be, a huge ambassador for this incredible natural performer. For knitwear, in my opinion, there is no other yarn like it.

"From its soft touch and texture to its naturally inherent performance properties – where hypoallergenic, moisture wicking, breathability and thermoregulating are only but a few of Merino wool's benefits next to the human body.

"This is a yarn that the world should have woken up to a lot sooner, as we have a lot to discover in terms of its capability..." **B**

Merino wool base-layers from **Phoebe's Masters collection SECOND SK:N**. The collection used Merino wool yarns from Südwole and Xiniao.
PHOTO: Rong Xue



NATURAL CAPITAL ACCOUNTING

A NEW ECO PERSPECTIVE ON PROFIT

Natural Capital Accounting can be used by woolgrowers to objectively assess their property's environmental condition – and therefore help them market the eco-credentials of their wool to prospective buyers. A groundbreaking AWI-funded study recently undertook Natural Capital Accounting on 11 Australian wool-growing properties and measured their positive environmental impacts.

WHAT IS NATURAL CAPITAL ACCOUNTING?

- Natural Capital Accounting is a new way of thinking about farm business management. It can help producers objectively measure the environmental assets (natural capital, such as soil and vegetation) that are present on their farms.
- Used alongside producers' existing measures of farm financial performance, National Capital Accounting provides a broader view of farm profit. It can help producers identify the relationship between a farming practice, its environmental impact, and the resulting farm business performance.
- An assessment of a farm's natural capital (now and over time) could open up significant marketing opportunities for those woolgrowers who wish to pursue them.

New ways of thinking are changing how agriculture can better understand and measure farm profit.

With some 80% of the investment in a farm tied up in the land base, it makes good sense for producers to incorporate a measurement of the condition of this important business asset into their thinking on profit.

Natural Capital Accounting provides an assessment of a farm's natural assets. It can help a producer view the environmental impacts of their farming alongside their existing financial measures of profit – and help them track changes in natural capital over time, in the same way they do for other forms of farm capital such as stock and farm infrastructure.

"Furthermore, it can be an extremely useful way for woolgrowers to clearly document and communicate to interested buyers and the wider industry, in language they can understand, the positive environmental impacts of their on-farm management," said AWI's Program Manager for Fibre Advocacy and Eco Credentials, Angus Ireland.

NEW ECO STUDY BACKS WOOL

A recent AWI-funded study, undertaken by Vanguard Business Services, applied a Natural Capital Accounting approach to calculate the impact of farm environmental assets on the business performance of 11 wool-growing properties known to be undertaking some form of positive land management. This study was the first of its kind.

The 11 farms are located in grassy woodland

regions of eastern Australia. Five are in NSW, three in Victoria and three in Tasmania. They were selected to cover a diverse range of climates, production systems and landscapes.

"The study found that most of the farms, as an outcome of their normal management practices, are conserving and, in many cases, regenerating the iconic grassy woodlands," Angus said.

The levels of long-term groundcover in the study were high and rarely dropped below 80%. They were also consistently higher than local farms.

"Natural Capital Accounting could enable woolgrowers to capitalise on the growing demand by brands to source wool from woolgrowers producing in an environmentally conscious manner."
AWI's Program Manager, Angus Ireland

The rates of CO₂ emissions and sequestration varied greatly depending on the farming system used and the type, extent and condition of vegetation. However, of note, the 11 farms are on average actually capturing and storing more CO₂ than they are emitting.

The greenhouse gas emissions for wool varied substantially across the 11 farms but averaged 30kg CO₂ equivalent per kg of clean wool, which is much lower than previous estimates for the wool industry.

A detailed report was prepared for each farm which assessed the farm's natural capital base. This covered ecosystem function across 12 criteria; assessed ecosystem type, use and capacity; estimated carbon storage, and undertook a detailed Environmental Profit

& Loss statement (Kering methodology – see next section) covering 31 key criteria. Groundcover assessments using the FarmMap4D program allowed for historical measurements to be made for up to 17 years.

Detailed results of the 11 farms in the study will be available at www.wool.com/nca.

STUDY ADDS TO INDUSTRY KNOWLEDGE

In 2015, French luxury group Kering (which owns brands including Gucci and Saint Laurent) released its pioneering Environmental Profit & Loss (EP&L) methodology for measuring and quantifying the environmental impact of its activities. Kering shares the EP&L as an open source tool which has resulted in it becoming highly influential with its peers in the luxury industry and other sectors.

In the past, the Kering EP&L has always been calculated using a generalised industry methodology. However, the recent AWI-funded study prepared inputs to the Kering EP&L methodology using actual farm data to estimate the environmental impact of each farm's operations on the environment across Kering's 31 criteria.

Interestingly all farms in the study had substantially lower impacts on the environment than had been previously published by Kering using their generalised methodology. This was particularly the case for greenhouse gas emissions and impact on the ecosystem.

"The new study, while small in sample, suggests that the generalised Kering EP&L findings could overestimate the impact of wool-growing on the environment, particularly for woolgrowers who have restoration of the environment as part of their management goals," Angus said.

"The study will help address inaccurate assumptions that the fashion and textile industries might have about wool and help AWI to position the wool industry as a proactive, leading and forward-looking industry, carefully stewarding the environment."

MORE INFORMATION
www.wool.com/nca

LAND IMPROVEMENT AND PRODUCTIVITY GO HAND IN HAND AT GLENWOOD

Natural Capital Accounting, which considers the contributions that a property's natural assets make to the farming business, has helped Norm and Pip Smith of 'Glenwood' in Central Western NSW to get a deeper understanding of their farm profit.

At Glenwood, a 2,972 hectare wool-growing property located north of Wellington in Central West NSW, owners Norm and Pip Smith have been rethinking farm profit.

The Smiths, who have five children – Chloe, Amber, Maggie, William and Daisy – run up to 9,000 adult sheep, up to 6,500 lambs, plus a small cattle herd. In addition to their commercial Merino flock, they operate a growing Merino stud and Love Merino, a brand that sells 100% Merino scarves, blankets and other products. One of the key selling points for Love Merino is that it is a sustainable textiles business.

“At Glenwood, we are very passionate about improving the environment for our children and future generations. Glenwood is not just a farming business but a way of life – we aim to achieve a harmonious balance between the landscape, animals, business and our family,” Norm said.

“Our Merinos are managed to mimic nature, grazing in large mobs for short periods of time before moving paddocks, allowing the land to rest and regenerate, encouraging a diversity of perennial plants just as nature has wanted to do for thousands of years. Our approach to grazing has led to the re-emergence of unique species of native grasses thought to be extinct in this area and has also allowed the return of many native fauna which are under threat on agricultural land.

“By managing for perennial plants and ground cover we are able to regenerate the land and be highly productive and profitable even during drought periods.”

NATURAL CAPITAL ACCOUNTING

With so much work, money and time having been put into their business, it was important to the Smiths to better understand the return on their investment – and demonstrate that impact to consumers.

This is where Natural Capital Accounting can assist. Natural Capital Accounting considers the different ways in which farmers support their land and the contributions the land makes to the financial performance of the business. It has helped the Smiths get a deeper understanding of their farm profit.

As part of an AWI-funded project, the Smiths

made their time, property and financial information available to a specialist project team from Vanguard Business Services (see opposite page). A trained ecologist conducted field work, management information was provided by the Smiths and accounting data was provided by their accountant.

A specialist in Natural Capital Accounting then provided the Smiths with a full 'natural capital report' that includes data on their environmental performance, and used experimental measures to estimate the actual value of the natural capital of the Smiths' farming operation.

Overall, the report showed that the Smiths property is not only in good ecological health, but also good financial health – see right.

Combining financial information and information about the state of the land has enabled the Smiths to:

- set new benchmarks for business performance
- understand the financial returns of the investments they have made in their land
- prove that their wool-growing operation has lower impacts on land compared to estimated industry averages.

EVIDENCE TO MEET CONSUMER DEMAND

Natural Capital Accounting will not only help the Smiths make more informed farm business decisions, it also provides evidence of Glenwood's eco-credentials which will help the Smiths as they take their wool and their Love Merino products to market. With benchmarking over time, the Smiths can use improved data to further push this marketing message.

“Consumers are becoming more and more discerning, particularly when it comes to sustainability, animal welfare and environmental practices,” Pip said.

“Because Love Merino uses Merino wool that our own sheep grow here at Glenwood, we are able to provide full traceability from 'fabric to flock'. The positive environmental benefits that we are able to measure and demonstrate at Glenwood therefore help us market our products as authentically eco-friendly as well as being Australian made, premium quality and luxurious.”



Pip and Norm Smith with their family at home on 'Glenwood' north of Wellington in NSW.

GLENWOOD'S NATURAL CAPITAL

The natural capital report for Glenwood included the following highlights:

- 78% of Glenwood's landscape is transitioning into new (improved and more diverse) ecological states.
- Using standard industry classifications, 96% of Glenwood can be classified as being in 'good condition' for livestock grazing, some 4% is classified as being in 'fair condition'. This provides a strong basis for high levels of animal production.
- Over the past 13 years, groundcover remained above 85% and peaked at 100%.
- Glenwood produces negligible air pollution, water pollution or waste.
- Glenwood generates approximately 36kg of greenhouse gases per kg of clean wool, which is about one half of the amount estimated by Kering for greenhouse gas emissions from regenerated landscapes, and 28% of emissions from conventional landscapes.
- A conservative estimate of the natural value affected by Glenwood's commercial business operation suggests that it has impacted the ecosystem services by an average of 44% and that this is not a permanent loss, compared to 80% estimated by Kering for land use impact from conventional wool production.
- Glenwood's net carbon sequestration is 4,697 tonnes of CO₂ equivalent per year, meaning more CO₂ is being captured and stored than is being emitted.

DON'T FALL FLAT WITH FOOTROT

FOOTROT VACCINE BEST PRACTICE

An AWI-funded investigation, by the University of Sydney and biotechnology company Tréidlia Biovet, into footrot vaccinations has provided valuable insights into best management practice. The project's results will help woolgrowers whose flocks are affected by footrot, prevent productivity and profitability losses, as well as improve animal welfare.

WHAT IS FOOTROT?

- Footrot is a serious disease of sheep and goats that can have significant impacts on enterprise productivity and profitability, as well as animal welfare.
- Footrot is highly contagious and is caused by the *Dichelobacter nodosus* bacterium.
- Under suitable environmental conditions (moist and warm), the bacteria can penetrate and infect the skin between the toes leading to pain and lameness.
- Discharge from the feet of infected animals spreads to the feet of previously unaffected animals via moist pasture, stubble, yards and laneways.
- The key to management is early detection and treatment.
- Regulations with regard to the diagnosis and management of footrot in sheep vary between states, but in some states footrot is a notifiable disease.
- Ongoing flock monitoring and on-farm biosecurity are critical to keeping footrot at bay post eradication.

Footrot is a highly contagious bacterial infection that can have a major impact on flock productivity and profitability. Lameness and pain in affected animals reduce their mobility and ability to graze efficiently. This results in poorer growth rates, longer finishing times, higher mortality rates, reduced wool production and quality (fibre diameter and tensile strength are affected) and lower ewe fertility.

"Footrot can be treated, controlled and eliminated with vaccines, but choosing a vaccination program can be challenging because there are 10 strains of the footrot bacterium *Dichelobacter nodosus* and immunity is specific to each of the 10 strains. There is little or no cross-protection between strains and several strains (up to seven) may be present in a flock," said AWI General Manager of Research, Dr Jane Littlejohn.

"In large flocks infected with several strains of the footrot bacterium, targeted vaccination for eradication can be expensive due to the requirement for extensive diagnostic testing (producers need to know which strains are present in their flock), the cost of multiple vaccines and the long vaccination program. AWI has therefore funded a study, carried out by the University of Sydney, to define best practice for vaccination against sheep footrot in different flocks with different strains of footrot."

The AWI-funded study included a small-scale trial at the University of Sydney and a field trial in four commercial Merino flocks in Tasmania. It compared the effectiveness of a two or three month inter-vaccination period for bivalent vaccines (that is, vaccines that contained antigens to two strains of the footrot pathogen used sequentially for eradication) and also assessed the effectiveness of experimental multivalent vaccines (those that contain antigens against more than two strains proposed for footrot management).

These vaccines were tested alongside a control group of sheep that received no vaccine but were regularly footbathed. Vaccines were given to different flocks at different time intervals to enable the researchers to assess the length of time vaccines would provide the sheep with immunity to footrot.

"While the idea of a vaccine that provides protection against multiple strains of footrot has obvious appeal for Australian sheep producers, this research confirmed our expectation that the experimental multivalent vaccine tested had less long-term efficacy than bivalent vaccines," said Dr Littlejohn.

"However, the point of the research was to see if there was sufficient efficacy to use the experimental multivalent vaccine as a management tool. It showed that in some situations, the multivalent vaccine could help reduce the impact of an outbreak of footrot on a property in the short term.

"A hypothesis of the research was that a new nine-strain multivalent vaccine could be as effective as footbathing, which is the existing benchmark for ongoing management of the disease for those not eradicating, and so an important observation in the study was that improvement rates in foot score (a measure of lameness) suggested that the multivalent vaccine improved animal welfare as effectively as the commercial bivalent vaccines and footbathing."

Dr Littlejohn said that some aspects of the current research were hampered by the widespread drought during the trial, which

Fieldwork being undertaken on sheep at Camden, NSW, by University of Sydney students.



reduced the overall prevalence of footrot disease and thus limited some conclusions the researchers were able to draw from the study. She said future research that enabled the vaccines' efficacy to be tested in conditions more favourable to footrot may be considered.

Producers who hosted the trials commented that they had observed fewer lame sheep in the mobs enrolled in the trial. Although wool growth was not measured, sheep were observed to increase body condition score from an average of less than 2 at the start of the trial to 3 and above through the trial period. This was attributed to the reduction in the prevalence and severity of lesions, and the reduced incidences of lameness.

"These observations highlight the welfare and economic cost of virulent footrot in sheep flocks, which is estimated to cost the Australian sheep and wool industries approximately \$32 million per annum due to production losses and the cost of controlling the disease," Dr Littlejohn added.

Regulations regarding the diagnosis and management of footrot in sheep vary between states and, in some states, footrot is a notifiable disease. Contact your local veterinarian or agricultural department if you suspect you have footrot in your flock.

RESEARCH BACKED BY WOOLGROWERS

One of the Tasmanian woolgrowers who hosted a trial said he was happy to put in the time and effort required because eradicating footrot is so fundamentally important as a profit driver and as an animal welfare consideration.

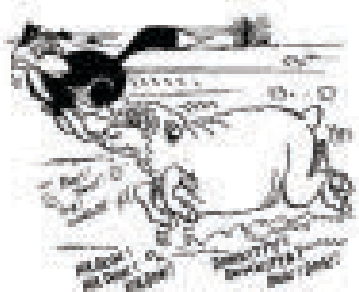
"The research at University of Sydney is world leading and they're on the cusp of really getting on top of it," he said. "It's great that AWI is reinvesting in finding some answers. We're so close to ticking the boxes. Our understanding of footrot has grown exponentially. For the first time in my life, I can see us beating this thing at a cost that we can afford."

He said that even though he has been actively selecting for footrot resistance for many decades and footbaths every sheep every time they come through the yards, he continually gets incursions of footrot through misadventure.

"There are many parts of Australia, including all Tasmania, where we can get footrot at almost any time of year. It is the number one problem limiting productive sheep systems here. We need a multivalent vaccine that enables us to effectively manage it." **B**

MORE INFORMATION

More information on footrot, including the project final report and the factsheet *Eradicating virulent footrot using specific vaccines*, are available at www.wool.com/footrot.



Ongoing flock monitoring and on-farm biosecurity are critical to keeping footrot at bay post eradication. Isn't that right, Gussie and Dog? Image courtesy of Diogenes Designs Ltd.

RESEARCH RESULTS

- All vaccinated flocks in the study had a low incidence of the disease compared to the unvaccinated control group.
- The experimental multivalent vaccine produced foot score improvement rates similar to the bivalent vaccine and to footbathing.
- In some situations, the experimental multivalent vaccine could help reduce the impact of an outbreak of footrot in the short term.
- Immunity levels were similar for sheep that received a second bivalent vaccine after a two- or three-month interval, which suggests that a two-month interval between the next bivalent vaccine and the priming dose of the first bivalent vaccine is sufficient to avoid antigenic competition for eradication.

WHICH VACCINE SHALL I USE? THINGS TO CONSIDER

If a producer decides to use vaccination as a control measure, there are several factors that should be considered before deciding whether to use a multivalent vaccine, or strain-specific vaccination:

- **The duration of protection required.** This depends on the likely transmission period in the area. Bivalent vaccine protects sheep for longer periods.
- **Whether or not elimination of footrot from the flock is the target.** Elimination is possible with bivalent vaccines due to their greater efficacy.
- **The number of strains present in the flock,** and if more than two, the possibility and the cost of administering several bivalent vaccines.
- **The willingness of the producer to invest in further diagnostic testing** in the event that several strains are present in the flock.
- **The cost of giving frequent booster doses of multivalent vaccine compared to successive bivalent vaccines.**

Tréidlia Biovet is seeking a renewal of their minor use permit with the APVMA to ensure that sheep producers have access to a vaccine customised to the footrot strains present on their farm. The benefit of this customisation is a higher titre and longer duration of immunity from each vaccination, making eradication feasible on some farms. For further information on access to the vaccine, call the AWI Helpline on 1800 070 099.

COMMERCIAL MULTIVALENT VACCINE FOOTVAX NOW AVAILABLE AGAIN IN SOME STATES

This project, which commenced in June 2018, was developed in response to a request from woolgrowers to support Australian company Tréidlia Biovet to develop a locally made multivalent footrot vaccine, after Coopers Ovilis Footvax Sheep and Lamb Footrot Vaccine (Footvax) was withdrawn from the Australian market in 2008. In July 2020, Footvax returned to the market in Victoria and Tasmania. (Approval is required in NSW, SA and WA.)

Coopers Footvax is a killed multi-strain *D. nodosus* vaccine to aid in the control of footrot in sheep and lambs caused by *D. nodosus*. The vaccine aids in the both the prevention and treatment of the disease.

Footvax contains *D. nodosus* strains A-I, but not strain M. In regions where strain M is present, advice should be sought on whether strain testing is warranted prior to using the vaccine.

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*TERMS & CONDITIONS: Starts 9:00 AM AEST 1/8/20. Ends 3:00 PM AEST 31/12/20. Open to AUST (excl. NT) residents 18+ who fulfil the entry/eligibility requirements. Visit promotion website and write a testimonial to enter. Total prize pool is \$68,456 (inc GST). Judging of entries and prize draw 4:00 PM AEST 22/01/21 at promoter's address. Winners notified via email and published at au.virbac.com/promotions 26/01/21. Promoter is Virbac Australia. ABN 77 003 268 871. 361 Horsley Rd Milperra NSW 2214. Authorised under NSW Permit No. LTPS/20/42225, ACT Permit No. TP 20/00252 and SA Permit No. T20/232. For full terms and conditions, including prize details, refer to au.virbac.com



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All sheep introduced to a property should be drenched. PHOTO: Deborah Maxwell

SOCIAL DISTANCING FOR SHEEP

THE IMPORTANCE OF QUARANTINE WHEN RESTOCKING

After many woolgrowers were forced to destock because of the drought, many sheep will now be brought back onto properties that have historically only had self-replacing flocks. Bringing in worms or lice with those sheep can present significant future costs.

For worms, the costs would be due to drench resistance. Your property will already have some drench-resistant worms, but the type and level of resistance could differ in incoming sheep, which will add to your ongoing worm control cost and success.

For lice, the greatest risk is that they spread to lice-free sheep already on your property, increasing the required treatment costs and devaluing the clip.

WORMS

1. Drench all sheep new to the property.
2. Unload sheep directly into the yards where they should be drenched straight away.
3. Drench with a combination of at least 4 unrelated drench actives. Include either or both of the newest actives: monepantel (Zolvix®) or derquantel (with abamectin – Startect®). More than 1 drench will be required – most **cannot** be mixed together.
4. Include a liver fluke treatment if sheep have come from high rainfall (>600 mm) or irrigation areas in eastern states.
5. Quarantine the sheep for up to 3 days after treatment.
6. Use yards or a small secure paddock that can be kept free of sheep, goats or alpacas for at least the next 3 (summer) or 6 (winter) months.
7. Hold them for 1–3 days with food and water to allow any still-viable worm eggs to pass from the gut into this contained place. If their feed is green, 1 day; if feed

is dry or low quality, 3 days.

8. After quarantine, release the sheep onto one of your paddocks most heavily contaminated with worm larvae due to grazing by existing sheep; this dilutes any possible worm eggs that get through the quarantine process.
9. WEC test (also known as WormTest – see www.wormboss.com.au/tests-tools) the imported sheep 14 days after drenching to check that there are no worm eggs present. Seek professional assistance if there is a positive count.

For details, go to WormBoss.com.au and search for “quarantine drenching”.

LICE

While the lowest risk of introducing lice is to shear and treat immediately on arrival, this would often incur a significant cost from discounts for premature-shorn wool. It is feasible if the purchased sheep already have about 10 months wool. It is also called for where the value of the shorn wool on the incoming sheep is insignificant, such as when:

1. it is essential to maintain a lice-free flock reputation (such as for ram breeders); or
2. there are very few animals to shear compared to the number of at-risk sheep already on the property (such as when buying in rams).

While inspection for lice at purchase can confirm an obvious lice infestation, **it cannot rule a lice infestation out** because there may be too few lice to be detectable at that stage – but they will build. So always assume sheep purchased or returning from agistment are lousy, regardless of their treatment history.

Eradication of lice on the first treatment fails in more than one third of attempts. Lengthy isolation of the brought-in sheep and strict attention to detail is critical; while difficult and sometimes impractical (eg with annual ram purchases), they greatly increase your chance of success.

1. Isolate brought-in sheep and choose from a, b or c:
 - a) Less than 6 weeks wool: treat immediately with product and

method to suit time off-shears (high wool chemical residue levels can result if sheep were already treated).

- b) Greater than 10 months wool: shear and treat as soon as possible.
 - c) 6 weeks to 10 months wool: isolate securely and treat as soon as feasible. If lice need suppressing with a long wool treatment (adhere to withholding periods), it will not eradicate lice. Use the LiceBoss Long Wool Tool to assess the cost effectiveness.
2. Continue isolation – ideally for at least another year after treatment to confirm eradication; some properties take three years to achieve eradication. Split shearings increase the chance of failure. Shearing and treatment of both the new and existing mobs at the same time is essential if these mobs will be boxed together before eradication is confirmed.

For more information go to LiceBoss.com.au and search for “stock introduction and quarantine policies”.

You can never turn back the clock after drench-resistant worms arrive or lice spread to your flock. A well-planned and implemented stock introduction policy should always be factored in as standard stock purchase or return costs.

KEY ACTIONS

Always assume the sheep carry both worms and lice that are resistant to various chemical groups, and act accordingly.

WORMS

On entry, quarantine drench, isolate and then worm egg count (WEC) test the mob 14 days later, before release to worm-contaminated paddocks.

LICE

Isolate, shear and treat as soon as feasible, continue isolation, ideally at least another year until eradication is confirmed.

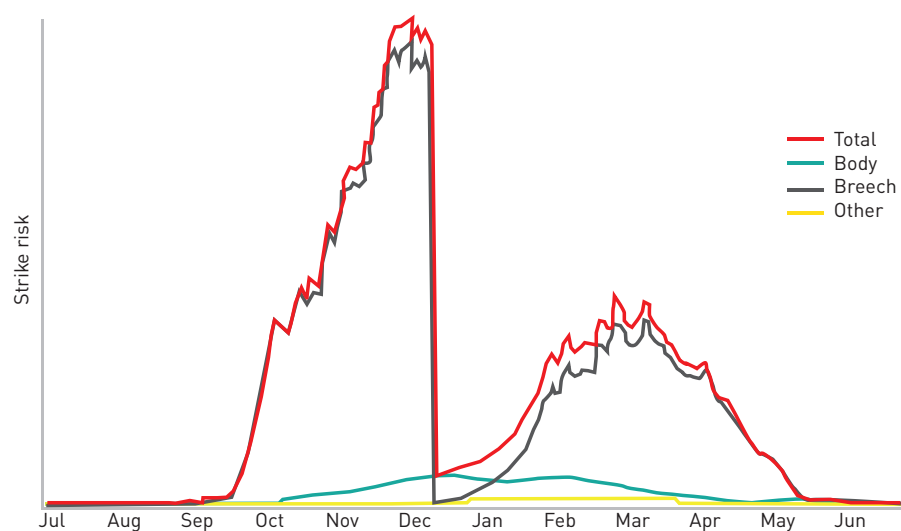
A STEP CLOSER TO 'CEASED MULESING'

NEW FLYSTRIKE RISK SIMULATOR ANSWERS "WHAT IF" QUESTIONS

For those still mulesing, but considering stopping, the number one question is: "How would I prevent the increased risk of flystrike?"

Whether you mules or not, the new 'FlyBoss Flystrike Risk Simulator' lets you review your current flystrike prevention program and simulate possible management and breeding changes that could reduce the risk of both body and breech strike.

MANAGEMENT SYSTEM 1



THE MILLION-DOLLAR QUESTIONS IF STOPPING MULESING

- "My sheep have always been mulesed, how will I know how susceptible they will be if I do not mules?"
- "Which of the breech strike susceptibility traits are causing most of my sheep's breech strike risk, so that I can select more heavily on that trait?"
- "Will an extra crutching or a second preventative treatment be needed, and when would they best be done?"

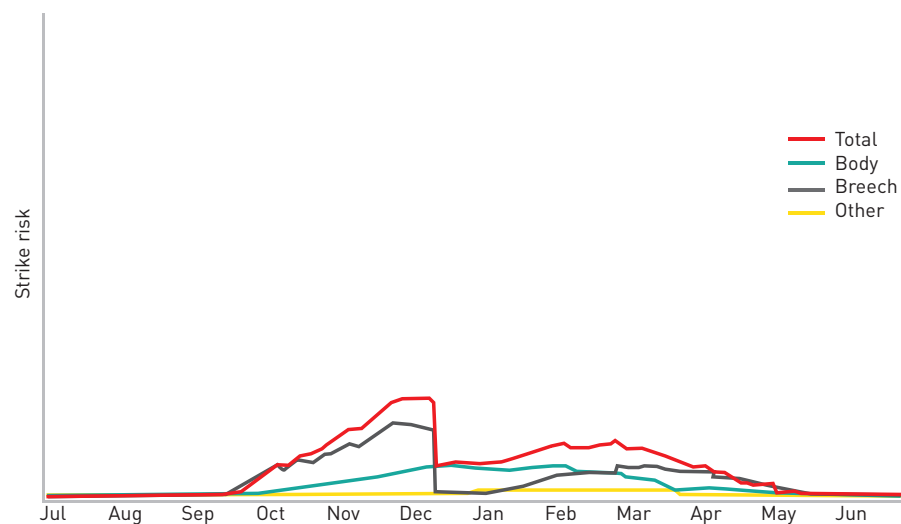
These and other questions in relation to flystrike risk management need to be answered to reduce the fear that a one in 10- or 20-year fly-wave will result in hundreds of struck sheep requiring emergency shearing and treatment. And what about the frustrating annual increase in late summer or autumn fly risk? For some growers, this risk paralyses progress towards a ceased mulesing flock.

WHAT IF?

- you could see how breech strike risk might change if you stopped mulesing now?
- you could identify which of your sheep's visual traits – breech wrinkle, dag and breech cover – are likely to have the biggest impact on breech strike risk?
- you could forecast the effect on all flystrike risk of changing your shearing or crutching dates?
- you could predict the effects of a different treatment applied at a different time?
- you could press one button to assess the best time to apply current or potential treatments?

If you could do these, would it make you more confident to reduce the use of chemical and or mulesing and still have better flystrike control and prevention, whether for body or breech strike?

MANAGEMENT SYSTEM 2



The **FlyBoss Flystrike Risk Simulator** program displays the difference in relative risk of flystrike (vertical axis) across the year (horizontal axis) between two customisable management systems that include shearing and crutching times, chemical treatments, breech modification, and different breech and fleece rot scores.

BUILD YOUR CONFIDENCE TO MANAGE FLYSTRIKE

The remodelled **FlyBoss Flystrike Risk Simulator** is a comprehensive program that answers questions for your particular situation – your sheep, your climate, your practices – from the comfort of your office. It will help you to understand where the flystrike risks lie and what to focus on to reduce these risks.

The tool initially estimates the risk of flystrike (breach, body, other and total) in average, long-woolled sheep across an average rainfall year based on thirty years of weather data at your chosen location. Two identical risk graphs are presented, with no interventions (Management System 1 and Management System 2).

You are then prompted to select a specific class of sheep, along with your related flystrike management variables (including shearing and crutching times, treatments, and breach and fleece rot scores). The graph for Management System 1 will then reflect the risk for this particular management system. You are then able to alter one or more of the flystrike management variables for the class of sheep, and the new predicted risk as a result of these changes will be presented for comparison in the graph for Management System 2.

The breeding tab allows you to slide the breach scores to different levels (simulating a change as a result of breeding), watching in real time how this affects predicted breach strike risk.

With the chemical treatments, you can also select 'optimise dates', and the program will move your chosen treatments to the dates where they are expected to result in the least overall amount of flystrike risk.

FLYBOSS FLYSTRIKE RISK SIMULATOR

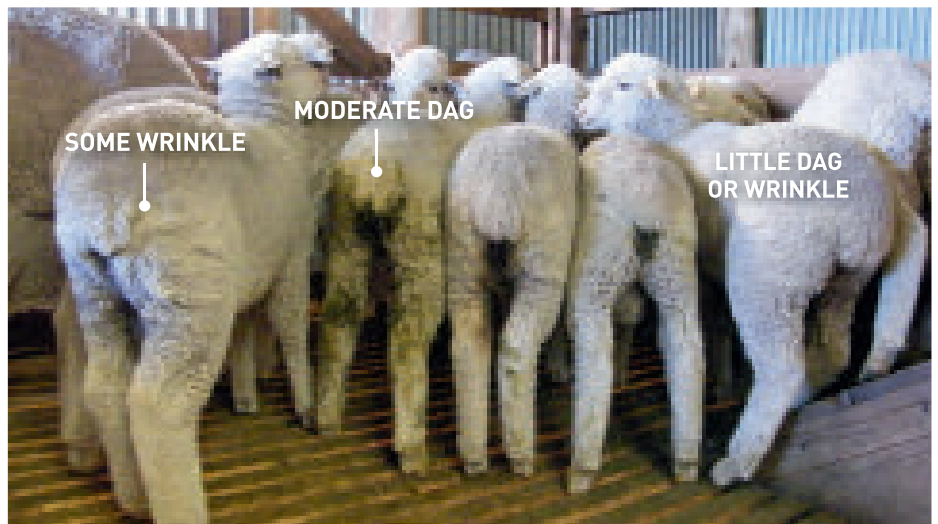
The program, created by Brian Horton, University of Tasmania, combines and builds on the existing FlyBoss tools, and contains the following improvements.

Weather data closer to you

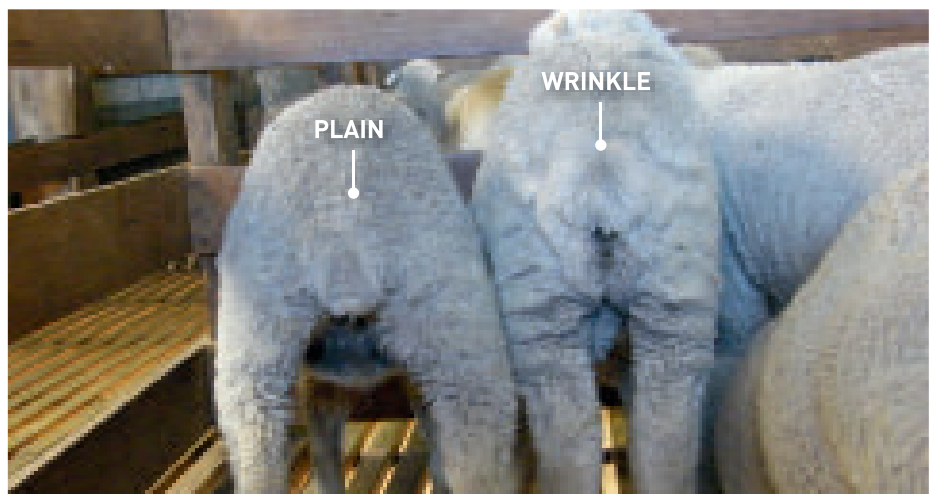
Increased prediction accuracy comes from closer weather data. More than thirty years of weather data from the Bureau of Meteorology are now linked to a 5x5 kilometre grid pattern across most of Australia, rather than weather stations, sometimes 50 km away.

Sheep classes

Each sheep class has its own inherent risk of flystrike, for instance, lambs are more susceptible to body strike than ewes, and adult ewes have a higher breach strike risk than their wether-brothers. Scenarios can be run for your chosen class of stock: ewes, rams, wethers, hoggets, lambs or simply mixed sheep, and the graph shows risk for breach, body, other (combines poll, pizzle and any other strike) and total strike.



Wrinkle and dag are key contributors to risk of breach strike. PHOTO: Deborah Maxwell



A plain versus a wrinkled breach. PHOTO: Deborah Maxwell

Susceptibility of your sheep to breach and body strike

Breach and fleece rot scores vary considerably across flocks and are key determinants of strike incidence. The scores tab allows you to include average visual scores for your sheep for breach wrinkle, breach cover, dag and fleece rot, and these can be assessed on mulesed or unmulesed sheep.

Breeding strategy simulations

While changes in fleece rot scores can be made for Management System 1 versus 2, there is a specific place to model breach strike changes as a result of changing the breach traits: wrinkle, cover and dag, through breeding. You can alter one, two or all three of these traits to predict where your selection efforts are best focussed.

The program also retains the useful features from the existing tools:

- Select the breach modification of your sheep: mulesed, unmulesed, clips, intradermal.
- Choose one or two each of shearing times, crutching times, and chemical treatments.
- Optimise the time of treatments to get the most effect from them.

ACCESSING THE SIMULATOR

Due to the greater detail of the graphs and selection options and the increased specificity to your own circumstances, the remodelled FlyBoss Flystrike Risk Simulator has been made available as a downloadable program.

The FlyBoss Flystrike Risk Simulator can join your suite of other farm management software, such as financial, paddock and e-speci record management etc.

It does not operate online or on a mobile phone and is best viewed on a desktop or laptop computer. There are versions that run on Windows and Mac platforms.

Being a downloadable program means that you may need to review your own or your company's IT security settings, which can block downloadable programs.

Your animal health or property consultant may also be able to run scenarios for you.

The program is located in the Tools section of FlyBoss: www.flyboss.com.au

Still using the same fly strike treatment?

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PARABOSS:

BEST PRACTICE ADVICE FOR MANAGING SHEEP PARASITES

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

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

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

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

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



Listen to Wormcasts, the ParaBoss podcast, and **Snapshots**, short audio presentations, at www.paraboss.com.au/multimedia. They cover parasite management topics: worms, flies, lice, ticks and fluke.

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

MORE INFORMATION
www.paraboss.com.au

paraboss

SEASONAL REMINDERS

- Assess the breech scores of a sample of your lambs at marking.
- Review your annual flystrike prevention strategy.
- If lambing, review the need for pre-lambing drench or WEC.
- WEC before marking.
- Plan your weaner and summer drenches (southern Australia).
- Ensure lice treatments involve clean musters, effective chemicals, and correct application.
- Follow the stock introduction and quarantine policies to avoid introducing lice to your existing flock or drench-resistant worms onto your paddocks.

Visit the 'Seasonal Reminders' section of the www.paraboss.com.au home page and click on the links provided to find out guidance on these issues.

liceboss

Tools to help you assess & manage lice in your flock



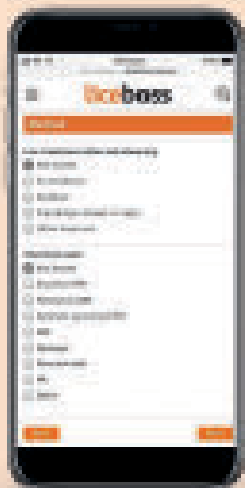
LICEBOSS TREATMENT FACTORS TOOL

Have you treated an introduction of lice, but are unsure if it worked?

Do you have ongoing lice infestations despite treatment?

The LiceBoss Treatment Factors Tool helps you to review your method of treatment and asks key questions about some of the issues that could lead to treatment failure.

Access the Treatment Tool at www.liceboss.com.au/tools.



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- Proven effective on lice as well as fly
- Compatible with all dip chemicals
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NUMNUTS GATHERS MOMENTUM

An increasing number of woolgrowers across Australia are using the award-winning Numnuts® device to castrate and tail-dock their lambs with rubber rings, while also injecting the NumOcaine® local anaesthetic at the same application.

It is the nature of research and development (R&D) that it can often take many years for an idea to result in a commercially available product – and many ideas don't even make it far past the idea stage.

However, a recent success story is Numnuts. Numnuts was born in 2009, when Scottish design engineering firm 4c Design and Moredun Research Institute in Scotland partnered together to investigate the feasibility of a device that would provide pain relief to livestock during tail docking and castration. Recognising the need for an on-farm solution for sheep, AWI and MLA provided initial funding for R&D work. MLA invested additional funds for further R&D and to support commercialisation of the device.

Numnuts had its pilot launch last year, in Australia, and the product is now not only being steadily taken up by sheep producers, it is also winning awards. While exhibiting Numnuts at Wagin Woolorama in March this year, which was the first public display of

Numnuts in Western Australia, the team from Numnuts were delighted to win the Show's prestigious New Product Release Award.

"I'm very proud for Numnuts to win this award and I think it shows that the industry is serious about animal welfare," said founder of Numnuts, Robin Smith.

"The great thing about Numnuts is it's a blood-free solution and provides a pre-operative anaesthesia. When the animals are coming out the cradle, they are showing significantly less stress and they are able to mother-up faster and walk back to the paddocks easier.

"What we've always tried to do with Numnuts is get ahead of the game. This product is only available in Australia at the moment, and it's a great news story for this country's sheep and wool industry. Numnuts has come about from some very progressive leadership from AWI and MLA."

Another demonstration of Numnuts' growing renown is its win in June of a Technical



The Numnuts device at the sheep farm of **Audrey Bird** from Wickipin in WA who was involved in the trialling of Numnuts

Innovation award from the UK's largest agricultural show, the Royal Highland Show, despite Numnuts not yet being on the market in the UK.

Although many woolgrowers have already completed this year's lamb marking, those intending to use Numnuts later in the year are being encouraged by Robin to purchase the NumOcaine anaesthetic as soon as they can via their vet. If your vet is not already a NumOcaine stockist, they can quickly and easily register with Numnuts via the Numnuts website or on 1300 646 413. Any extra ordered by woolgrowers this year can also be used next year due to its two-year batch life (unopened bottle).

The Numnuts device, needles and spares, can be purchased via the Numnuts website or from a growing number of independent rural retailers.

MORE INFORMATION
www.numnuts.store

FLYSTRIKE PREVENTION RESEARCH REPORTS NOW AVAILABLE

Are you interested in knowing more about the latest AWI-funded flystrike research? Then check out new summary reports provided by the researchers involved with current and recently completed projects.

On behalf of Australian woolgrowers, AWI runs a robust flystrike research, development, education, extension and communication program aimed at ensuring the lifetime welfare of individual sheep whilst reducing the industry's reliance on mulesing.

The objective is to provide woolgrowers with a range of practical options to prevent flystrike, whatever their sheep type, environment or business priorities.

AWI's flystrike program is achieving significant and incremental progress across a wide range of research projects and trials conducted on farms and in laboratories.

As foreshadowed in the previous edition of *Beyond the Bale*, summary reports of AWI-

funded flystrike research projects have been uploaded to the AWI website for viewing by woolgrowers. Specifically, the reports are:

- AWI flystrike prevention RDE program overview
- A review of predisposing risk factors for breech flystrike
- Sheep blowfly resistance update
- Genetics of blowfly parasitism and CRISPR – Phase 2
- Informed development of a blowfly vaccine
- Vaccine for control of flystrike
- Nanotechnology for flystrike and lice control
- New chemicals for flystrike control
- How technology can help

- Rate of genetic gain in reducing breech flystrike
- Genotyping of Breech Flystrike Resource Flock
- Breeding and selection – industry trends
- Gap evaluation of pain alleviation research
- FlyBoss – improving flystrike management in sheep
- Benchmarking Australian sheep parasite control
- National Wool Declaration – adoption, compliance and premiums/discounts
- Industry education, extension and promotion.

MORE INFORMATION
Access the reports at www.wool.com/flystrikelatest/#research-recent-rde

BREEDING NATURALLY BREECH STRIKE RESISTANT MERINOS - PART 2

Part 1 of this two-part series, published in the June 2020 edition of *Beyond the Bale*, reported the impact on existing high indexing MERINOSELECT sires due to increasing selection pressure on lower wrinkle. Here in Part 2, we look at the impact on these high indexing sires due to increasing selection pressure on lower dags.

KEY POINTS

The lower the breech score the lower the risk of breech strike, and in most locations across Australia the following are the key visual score targets to reduce the risk of breech strike to levels where sheep may be considered naturally resistant without an overreliance on chemicals:

- Dags 2 score and less
- Breech Wrinkle 2 score and less
- Urine Stain 2 score and less; and
- Breech Cover 3 score and less.

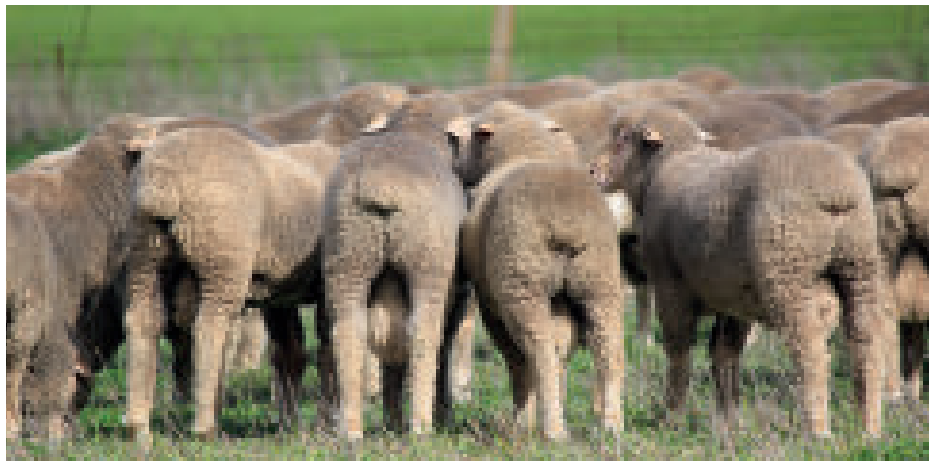
Dags are an important cause of breech strike if you are in 'high dag country'. Selecting for lower dags is a priority objective when breeding Merinos naturally resistant to breech strike.

However, if you are in 'low dag country' and don't sell re-stockers into 'high dag country', then selecting for dag is not a priority and will reduce your gains in the more important traits for your enterprise and location.

Across a range of environments and sheep types, trials have shown that mulesing reduces breech wrinkle by around one wrinkle score, ranging from 1.5 to 0.5 of a score (larger reductions are made in sheep with higher natural wrinkle). Mulesing also reduces dag score by 0.4 of a score.

But are there existing sires that woolgrowers can use to breed productive, naturally low dag rams? Given the easy access to data in MERINOSELECT, we searched for high indexing Merino sires with increased selection pressure on dags to answer this question.

Table 1 was created searching MERINOSELECT sires, using the Web Search function, for sires with more than 15 current progeny and ranked in Merino Production Plus (MP+) Index order and progressively placing increased upper limits on dag. In the unrestricted search, there were 2,641 eligible sires and the average ASBVs of the top 10 sires are listed. The LDAG Sc ASBV for these top 10 sires was +0.2 which is 0.3 of a



Examples of breech strike resistant Merinos.

dag score higher than the MERINOSELECT breed average of -0.1 (shown in Table 3).

The upper limit search criteria for Late Dag ASBV (LDAG Sc) was progressively changed from -0.1 to -0.6. The impact this had on the top 10 sire average results based on the Merino Production Plus (MP+) Index are listed in Table 1. In percentile terms (using the ASBV percentile Table 3) Adult Body Weight (AWT) remained in the top 10 to 20%, Adult Clean Fleece Weight (ACFW) fell from the top 1% (34.5) to top 40% (15.4), Yearling Fibre Diameter (YFD) fell from the top 30% (-1.6) to bottom 30% (-0.5), Early Breech Wrinkle Score (EBWR Sc) improved from the bottom 20% (+0.3) to top 40% (-0.4), LDAG Sc improved from the bottom 10% (+0.2) to more than the top 1% (-0.7) and the MP+ Index fell from the near top value (224) to top 10% (169).

This analysis demonstrates that breeding productive low dag Merinos can be achieved using existing sires and the MP+ Index as there are MERINOSELECT sires that are pushing the boundaries for high production with low dag. However, in general, woolgrowers need to be prepared for a fall in fleece weight and a large increase in fibre diameter particularly in the fine and superfine wool Merinos. Ram breeders are actively seeking productive, strike resistant sires and hopefully before long there will be more options available for fine and superfine ram buyers.

BREECH WRINKLE,

DAG AND FIBRE DIAMETER

Woolgrowers in 'high dag country' need significant reductions in both breech wrinkle and dag to breed naturally resistant Merinos. Table 2 was created searching all sires with more than 15 current progeny, ranked in MP+ Index order by progressively lowering upper limits on both breech wrinkle and dag score ASBVs.

When the upper limit for breech wrinkle and dag score in the search criteria fell, fleece weight ASBV fell and fibre diameter ASBV increased. Again, this trend illustrates the difficulty for woolgrowers in 'high dag country' who need fine wool with low diameter variation, to breed for reduced natural resistance to breech and body strike. A few MERINOSELECT sires could be found that were low in fibre diameter ASBV (less than -2.0) with moderately low breech wrinkle and dag; their average ASBVs are listed in the bottom half of Table 2.

Progress can be made in sires with fibre diameter ASBV less than -2.0 by limiting wrinkle score ASBV to -0.2 and dag score ASBV to -0.1 as shown in Table 2. However, with current MERINOSELECT sires, it will take many years to breed a flock of high indexing, low fibre diameter Merinos that are moderate to low in wrinkle (-0.6) and dag (-0.4) ASBV.

Of the 2,641 eligible sires available on MERINOSELECT, only one sire in the database

is a trait leader (top 10%) for Wrinkle, Dag, Adult Fleece Weight ASBVs and the MP+ Index, and this sire's Fibre Diameter ASBV is quite high at +0.5.

Breeding naturally breech strike-resistant high indexing fine wool Merinos will take considerable time, requiring woolgrowers to outcross to low wrinkle, low dag, higher fibre diameter sires and then backcross to reduce fibre diameter, whilst keeping wrinkle and dag low.

Fine wool breeders that already manage their flystrike risk without mulesing have long used other management strategies to help reduce the risk of breech strike. Approaches include regular long acting chemical treatments, additional crutching and shearing, and closer supervision of their animals. Much of the fine wool environment is 'low wrinkle country': cold, wet, windy and wormy where Breech Wrinkle ASBVs of -0.3 to -0.5 are likely to be sufficient.

Importantly, from the AWI Breeding for Breech Strike Resistance project we know that irrespective of the starting natural score, every 0.1 of a score reduction in either wrinkle, cover, stain and/or dags will reduce your risk of breech strike. Avoiding high breech score sires can have an almost immediate effect in reducing the risk of breech strike. B

MORE INFORMATION

- Breeding naturally breech strike resistant Merinos – Part 1, *Beyond the Bale*, June 2020, pages 52-53: www.wool.com/breeding-part1
MERINOSELECT Animal Search: <http://sgsearch.sheepgenetics.org.au/?dataset=5>
- Breeding for Breech Strike Resistance resources on the AWI website: www.wool.com/flystrike-breeding
- Stockmanship and Merino Visual Classing workshop resources on the AWI website: www.wool.com/stockmanship

Abbreviations: AWT - Adult Body Weight, ACFW - Adult Clean Fleece Weight, YFD - Yearling Fibre Diameter, NLW - Number of Lambs Weaned, EBWR Sc - Early Breech Wrinkle Score, LDAG Sc - Late Dag Score, MP+ - Merino Production Plus Index, FP+ - Fibre Production Plus Index, DP+ Dual Purpose Plus Index.

Table 1. All Merino types, average ASBVs of top 10 sires with more than 15 progeny based on MP+ Index for each search criteria

Search criteria	Total no. of sires meeting criteria	Average ASBV of top 10 sires in each search						
		AWT Kg	ACFW %	YFD	NLW	EBWR Sc	LDAG Sc	MP+ Index
Open unrestricted search	2,641	5.4	34.5	-1.6	14.7	0.3	0.2	224
Dags <-0.1	896	6.2	28.3	-1.7	16.3	0.0	-0.2	216
Dags <-0.2	472	7.2	26.3	-1.5	15.1	-0.1	-0.3	214
Dags <-0.3	229	6.9	31.8	-1.0	11.3	-0.2	-0.4	200
Dags <-0.4	100	5.8	25.6	-0.9	6.3	-0.1	-0.5	188
Dags <-0.5	42	7.0	15.7	-0.4	10.1	-0.4	-0.6	174
Dags <-0.6	24	7.7	15.4	-0.5	10.6	-0.4	-0.7	169
Leading Low Dag Sire A		9.5	46.2	0.7	7.0	-0.2	-0.6	195
Leading Low Dag Sire B		5.1	18.8	-2.3	0.0	-0.3	-0.5	187
Leading Low Dag Sire C		6.0	25.5	0.1	5.0	-0.6	-0.5	180
Leading Low Dag Sire D		8.4	7.6	-0.7	15.0	0.0	-0.9	172

Table 2. All Merino types, average ASBVs of top 10 sires with more than 15 progeny based on MP+ Index for each search criteria

Search criteria	Total no. of sires meeting criteria	Average ASBV of top 10 sires in each search						
		AWT Kg	ACFW %	YFD	NLW	EBWR Sc	LDAG Sc	MP+ Index
Breech Wrinkle <-0.2 and Dags <-0.1	606	9.5	22.7	-0.9	16.3	-0.4	-0.3	209
Breech Wrinkle <-0.4 and Dags <-0.2	268	10.7	18.6	-0.9	14.4	-0.7	-0.3	202
Breech Wrinkle <-0.5 and Dags <-0.3	103	9.7	20.6	-0.9	8.7	-0.7	-0.4	188
Breech Wrinkle <-0.6 and Dags <-0.4	39	8.6	12.6	-0.5	7.7	-0.8	-0.5	165
Breech Wrinkle <-0.2, Dags<-0.1 and YFD <-2	30	4.3	18.1	-2.3	2.0	-0.3	-0.2	175
Breech Wrinkle <-0.4, Dags<-0.2 and YFD <-2	9	6.6	5.9	-2.4	1.6	-0.6	-0.4	155
Trait Leader Wrinkle, Dag, Fleece Wt & MP+	1	11.6	37.5	0.5	8.0	-1.0	-0.3	181

Table 3. MERINOSELECT ASBV percentile table for 2018 drop (21st April 2020)

Percentile	AWT Kg	ACFW %	YFD	NLW	EBWR Sc	LDAG Sc	FP+	MP+	DP+
Top Value	21.9	51.1	-6.1	29	-1.7	-0.8	201	224	244
Top 1%	11.4	33.1	-3.3	15	-1.2	-0.4	172	188	194
Top 5%	9.1	27.9	-2.5	10	-0.9	-0.3	161	174	178
Top10%	7.9	24.8	-2.2	7	-0.8	-0.3	155	166	169
Top 20%	6.6	21.1	-1.8	5	-0.6	-0.2	148	158	160
Top 30%	5.6	18.2	-1.5	3	-0.5	-0.2	143	125	153
Top 40%	4.7	15.7	-1.2	2	-0.3	-0.1	139	147	148
Top 50% [average]	3.9	13.3	-1.0	1	-0.2	-0.1	136	143	144
Top 60%	3.1	10.8	-0.8	0	-0.1	0.0	132	138	139
Top 70%	2.2	8.2	-0.6	-2	0.0	0.0	128	133	134
Top 80%	1.2	5.1	-0.3	-3	0.2	0.1	123	127	129
Top 90%	-0.2	0.8	0.2	-5	0.4	0.2	115	119	121

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BREEDING FOR NATURAL FLYSTRIKE RESISTANT MERINOS - PUBLICATIONS

AWI makes available publications about breeding for flystrike resistant Merinos on its website at www.wool.com/flystrikelatest/#breeding

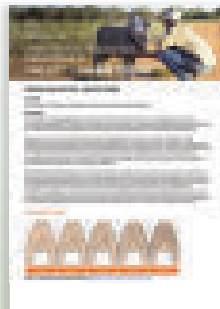
Here is a selection of the available publications:



PLANNING FOR A NON-MULESED MERINO ENTERPRISE

(March 2018)

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



BREEDING AND SELECTION - INDUSTRY TRENDS

(May 2020)

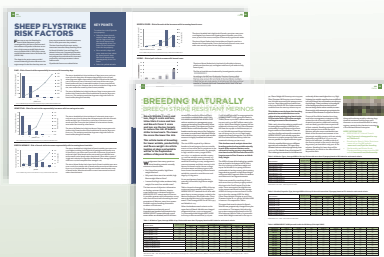
This RD&E Technical Update, by AWI's Geoff Lindon, on sheep breeding and selection for flystrike resistance reports on changing genetic trends as indicated by MERINOSELECT ASBVs since 2000.



VISUAL SHEEP SCORES - PRODUCER VERSION

(2019)

This 74-page pocket guide for commercial and stud breeders provides a standardised framework for assessing and scoring visual sheep traits, including breech and wrinkle traits.



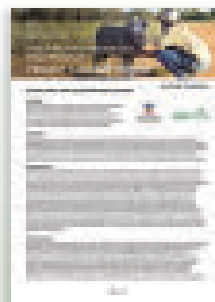
SHEEP FLYSTRIKE RISK FACTORS

(March 2020)

BREEDING NATURALLY BREECH RESISTANT MERINOS - PART 1

(June 2020)

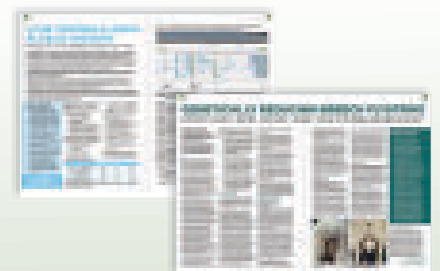
Each is a 2-page summary article from *Beyond the Bale*.



RATE OF GENETIC GAIN IN REDUCING BREECH FLYSTRIKE

(May 2020)

This RD&E Technical Update, by the University of Adelaide's Forbes Brien, discusses the relative gains between flystrike incidence and fleece weight, fibre diameter and reproductive rate and their implications for Merino breeding programs.



GENETICALLY REDUCING BREECH FLYSTRIKE: HOW FAST AND WHAT ARE THE CONSEQUENCES?

(June 2019)

LOW WRINKLE-HIGH FLEECE WEIGHT PRODUCTIVE SIRES EASIER TO FIND

(June 2019)

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

MEET THE MLP TEAM



It takes a collaborative team to manage, assess and measure 5,700 ewes – collecting almost two million data points across their lifetimes. The Merino Lifetime Productivity (MLP) team is based around the five sites, collectively looking after the 5,700 F1 ewes, their projected 25,000+ F2 progeny and the resulting, extensive research data set.

FAST FACTS

The AWI-funded MLP project is a \$8 million (plus \$5 million from partners), 10-year partnership between AWI, the Australian Merino Sire Evaluation Association (AMSEA), nominating stud Merino breeders and site partners.

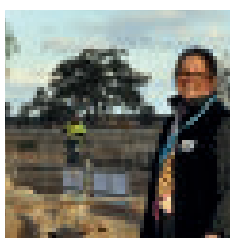
- **Balmoral, Vic**
Partner: Tuloona Pastoral Committee; Balmoral Breeders Association
- **Pingelly, WA**
Partner: Murdoch University / UWA
Committee: Federation of Performance Sheep Breeders (WA Branch)
- **MerinoLink, Temora NSW**
Partner: Moses & Son
Committee: MerinoLink Inc.
- **Macquarie, Trangie NSW**
Partner: NSW DPI
Committee: Macquarie Sire Evaluation Association
- **New England, NSW**
Partner: CSIRO
Committee: New England Merino Sire Evaluation Association

The MLP project is tracking the lifetime performance of 5,700 ewes as they proceed through four to five joinings and annual shearings. For more information visit wool.com/mlp

A full suite of assessments will be undertaken including visual trait scoring, classer gradings, objective assessment of a range of key traits and index evaluations.

A unique and extensive dataset will result and be used to enhance existing Merino breeding and selection strategies, for both ram sellers and buyers, to deliver greater lifetime productivity and woolgrower returns. **B**

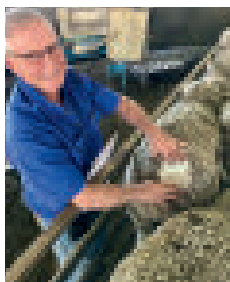
MORE INFORMATION
wool.com/mlp



MLP PROJECT MANAGER

Anne Ramsay

After studies in Rural Science, Anne has gained experience across agricultural research and development, extension, service provision and project management in a number of industries. Anne's role is to provide oversight across the five sites, collating and reporting on the project's activities and generally assisting sites in keeping the MLP ewes tracking well to facilitate the collection of lifetime data.



BALMORAL

Site Manager: Tom Silcock, Balmoral Breeders

Tom brings 20+ years of site management experience to Balmoral after being the first Merino sire evaluation site host in 1998. Tom attended the Glenormiston Agricultural College, developed The Mountain Dam bloodline and has been the chair of both AMSEA and Balmoral Breeders. Tom brings a great mix of experience and enthusiasm to the team.

MLP Highlights: "Working with likeminded people to pursue better ways of breeding Merinos and observing early glimpses of research findings."

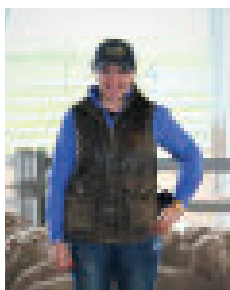


PINGELLY

Site Manager: Bronwyn Clarke, Murdoch University

Bronwyn holds a PhD in quantitative genetics, after completing a Wool and Pastoral Science degree. She has worked with WA's Dept of Ag. and as a private consultant in genetics, research and extension. Bronwyn holds a number of philanthropic board positions. Her current role is as a Research Fellow and lecturer with Murdoch University. Bronwyn's corporate and professional experience brings another skillset to the team.

MLP Highlights: "Observing the reproduction data first-hand and noting the industry interest in site field days and new results."

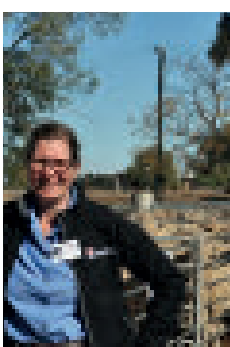


MERINOLINK

Site Manager: Lexi Cesnik, Moses & Son

Lexi brings another suite of impressive skills to the MLP team. Lexi holds a Bachelor of Ag Science and postgraduate qualifications in Ag Consulting. Lexi is now a Wool & Livestock Specialist with Moses & Son and sits on the MerinoLink Board. As the newest member of the team Lexi brings a fresh approach and energy.

MLP Highlights: "Staying sane through the drought, coordinating the myriad of organisations and the support of the MLP network."

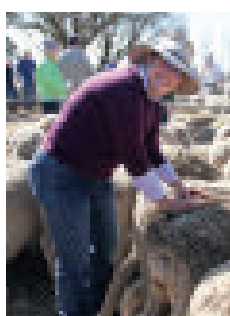


MACQUARIE

Site Manager: Kathryn Egerton-Warburton, NSW DPI

Kathryn studied Wool and Pastoral Science plus a PhD on Fine Wool in non-traditional environments. Kathryn has worked in sheep, wool and genetics as a lecturer/supervisor, industry development officer and team leader. Her current role is Development Officer with NSW DPI in their Extensive Livestock Unit. A focus on education and extension is brought to the team by Kathryn.

MLP Highlights: "Hosting successful field days and observing the impact on attendees, plus working with great industry personalities and the teamwork."



NEW ENGLAND

Site Manager: Jen Smith, CSIRO

Jen is a CSIRO researcher in sheep and wool with previous projects including the Toward 13 Micron Project and the AWI/CSIRO Breech Strike Genetics Project. Jen studied Rural Science, then completed a PhD on Fine Wool Merino Sheep. Her family runs a mixed sheep farm in the New England. Jen's research skillset and her farmer's approach are especially valuable to the team.

MLP Highlights: "Positive field day feedback, especially from local commercial sheep producers."

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YOUNGSTERS LEARN THE BUSINESS SIDE OF FARMING



PHOTO: mustafagull

Agriculture Victoria hosted free online workshops in June that provided young farmers with the financial skills to help them manage their farm business now and into the future.

Running a successful farm business is not just about being a good farmer, it is also about being good at business. To improve the business skills of young farmers in Victoria, Agriculture Victoria hosted an Online Young Farmer Business Bootcamp, comprising four three-hour online meetings with an average of 17 participants per session.

The bootcamp aimed to increase the young farmers' understanding of and ability to manage: profit and loss and cash flow budgeting, balance sheets and gross margins, risk management, and financial planning and analysis.

Previously held as face to face workshops, the Young Farmer Business Bootcamp in June was held online for the first time, due to the challenges faced by COVID-19. However, the online format proved popular amongst the young audience.

The average age of participants was in the late 20s, with most participants either part of a family business or returning to a family business. The male/female ratio was 39/61%. 60% of participants were inspired to join the bootcamp after seeing them promoted on Facebook.

The bootcamp was funded by the Victorian Government's 2019–20 Drought Support Package. This particular bootcamp was primarily aimed at young farmers from the

Gippsland region, but other young farmers from across the state were also able to join in.

The interactive sessions were presented, using video conferencing software, by farm business advisor Paul Blackshaw from Meridian Agriculture. Participants were also provided with resources and templates, as well as recordings of the sessions.

ENGAGING SESSIONS ARE A WINNER

Acknowledging AWI for its support of the initial Young Farmer Farm Business Bootcamp program instigated a few years ago, Agriculture Victoria's Young Farmer Project Coordinator, Sarah Wallis, said each online session was designed to be engaging and to encourage participation.

"The bootcamps are designed for farmers who are young or new to managing a farm business and want to forge a long and successful career in farming enterprises," she said.

"Sessions looked at case studies as real-life examples, providing participants with the skills to help them manage their farm business now, as well as planning for their business into the future. Participants also had ample opportunity to discuss their own individual circumstances with the presenter throughout the workshops.

"There is always a buzz of excitement from participants following these bootcamps, as they return to their farms with solid business solutions, fresh ideas to try out and a support network at their fingertips."

The success of the program is demonstrated by it receiving an impressive 9.5/10 satisfaction rating from participants and 100% of participants recommend the program to others. The workshops were successful in inspiring the young farmers to make changes to their farm business with 100% of participants indicating they would make a change.

"I thought the course was great!" said one young farmer who took the course. "As someone who has never done any of the financial management of a farm, it provided a thorough overview of all aspects of farm business management.

"The Excel templates and extra materials were highly valuable resources. I also thought having the online delivery was good as it allowed you to hear stories about others in different areas of Victoria with different enterprises."

MORE INFORMATION
www.extensionaus.com.au/youngfarmerbusinessnetwork or
 contact Sarah Wallis on sarah.wallis@agriculture.vic.gov.au

LIFETIME EWE MANA

27-year-old Thomas Pengilly and his father Bruce, of Penrose Poll Merino near Esperance in WA, completed a Lifetime Ewe Management course in 2018 and have since seen productivity benefits in their family run business, despite having to cope with recent dry seasons. The most beneficial parts of the course for them were learning about feed allocation following pregnancy scanning, the benefits of maintaining condition score 3, and dry feed budgeting.

Thomas Pengilly, with his parents Bruce and Trudy, farm nearly 4000 hectares at Cascades, 100km north west of Esperance. They run a mixed-enterprise farming operation which has been in the family since 1979.

Their property has 1800ha of wheat and barley, 600ha of vetch, with the remainder being pasture on which they run 1800-2000 breeding ewes, 700-900 replacement ewe hoggets, 300 rams from which they select a sale team, and 1600-2000 lambs dependant on the season. Their Merinos have 17-20 micron wool from young to old ewes, cutting an average of 5kg of wool every eight months.

Thomas and Bruce completed a Lifetime Ewe Management (LTEM) in 2018. Thomas says they believed that they were progressive in regard to animal health practices and wished to do the course to validate their abilities.

"If we managed to improve our skills and learn something new in the process, that would be an added benefit," he said.

ABOUT LIFETIME EWE MANAGEMENT

The LTEM course, supported by AWI and delivered by Rural Industries Skill Training (RIST), aims to increase producers' understanding of the influence of ewe nutrition and management on overall reproduction rates and lamb and ewe survival. Producers develop the skills to manage their ewes to achieve condition score targets and explore the economics of supplementary feeding and pasture management to review stocking rates.

LTEM groups, typically comprising 5-7



Thomas Pengilly, with his parents Bruce and Trudy, at their property 100km north west of Esperance in WA

producers, meet six times in the annual sheep calendar during a period of 12 months. The course is very hands-on, being based in the sheep yards, shearing sheds and paddocks of participating woolgrowers, which enables participants to share and learn from one another.

"As for most farmers, seeing is believing for us, and being able to experience the management practices being implemented by fellow farmers made the adjustment to change easier for us. Small groups allowed for a more intimate experience with both the facilitator and the other farmers," Thomas said.

LTEM was developed using research outcomes of the AWI-funded Lifetime Wool project (lifetimewool.com.au), which ran from 2001 to 2008, and involved growers and researchers in WA, Vic, NSW, and SA.

The LTEM course is a great example of where investment in initial research, its further development and an effective extension model has paid off handsomely for the woolgrowers for which AWI works, and it will continue to generate benefits for many years to come.

Nationally, almost 4000 producers have taken part in LTEM courses, resulting in 30% of the national ewe flock having been influenced (12 million ewes). On average, LTEM participants have increased their whole-farm stocking rate by 9.3% from 8.5 to 9.3 DSE/ha, increased lamb-marking percentage by 7% from 97.3 to 104.3% and reduced ewe mortality from 4.1 to 3.0%.

BATTLING POOR SEASONS

Since completing the LTEM course in 2018, seasonal conditions have been very tough at Penrose. The 2018-19 and 2019-20 seasons were both dry, requiring the Pengillys to supplementary feed their ewes over summer.

"Due to the dry conditions, our recent focus has been on containment feeding to maintain ewe condition score through pregnancy over summer, whilst resting pasture for the next autumn," Thomas said.

The Pengillys have been monitoring their lambing percentages and weaning rates more carefully since the LTEM course.

"Drought factors aside, our lamb marking

GEMENT IN TOUGH SEASONS

percentage and wool cut has increased since completing the course,” Thomas said.

In 2018, the year that they completed the LTEM program, they achieved 96% lambs marked to ewes joined (1,821 ewes) and 94% lambs weaned to ewes joined. Unfortunately, the dry 2018 season meant they didn't have the ability to store feed for what turned out to be a dry 2018-19 summer and hence they had a poor 2019 drop: 83% lambs marked to ewes joined (1,930 ewes) and 81% lambs weaned to ewes joined.

However, for the 2019-20 season, the Pengillys had managed to store enough feed to be able to supplementary feed their breeding ewes over the dry summer and autumn.

“Better feed management and the droughtlot helped us to manage our risk in a dry 2020, which resulted in an increased lamb marking percentage of 100% to ewes joined and 99% weaning rate – and we are expecting an increase of approximately 200-500g of wool per head.

“We are currently running 300 more breeding ewes than we otherwise would have if we had chosen to destock. The value of supplementary feeding in the current livestock market has easily paid for itself. However, under a less favourable livestock environment, and if you had to buy in feed, the cost would very quickly eat through any additional lambing or increase in wool cut.”

“Ewe health and lamb survival are the greatest profit drivers of our livestock business. It is simple, a healthy ewe weans more lambs and cuts more wool.”
Thomas Pengilly

BETTER MANAGEMENT

The Pengillys have pregnancy scanned for multiples since completing the LTEM course.

“Pregnancy scanning enables us to split multiple- from single-bearing ewes and manage their feed requirement over summer and lambing accordingly. Multiple-bearing ewes obviously require greater management and feed to maintain their condition score over their pregnancy and lactation,” Thomas said.

“Splitting the ewes allows for better efficiency of feed budgeting, so we are not overfeeding singles and underfeeding twins, like we might be in a non-separated mob. It also allows us to give multiple-bearing ewes more available shelter and pasture to increase lamb survival.”

Thomas says they monitor condition score whenever they handle the ewes through the yards and manage feed

allocations accordingly.

“Throughout the pregnancy, we try to maintain condition score 3 where possible. We have found that if we look after mum and set her up to the best of our ability, it places her in the best position to look after her lamb to the best of her ability.

“Monitoring condition score also allows us to keep an eye on those with genetics that handle varying feed environments best.”

To optimise lamb survival, the Pengillys also provide tree shelter where possible and stubble cover or standing cover if the season is favourable towards using them. They also try to minimise sheep movement and handling in the last month of pregnancy.

ADOPTING NEW PRACTICES

Thomas completed AWI's Breeding Leadership course in 2014. He is now on the committee of the ASHEEP grower group based in Esperance, so is well placed to comment on adoption of new management practices.

“Change can feel scary, so it's important to have good extension methods to increase adoption of new management styles that will mitigate risk and keep farmers profitable,” he said.

“For many of the challenges currently facing our industry, there are already solutions. But education on how these solutions can be used in individual management practices is where focus needs to be placed to help industry prosper.

“Recent dry spells, low sheep numbers and the current global economic conditions are challenging for the industry. But it is also an exciting time, where technology and modern management styles can be improved to grow the industry towards new heights.

“There's an old saying about the importance of working smarter not harder. For

example, with the use of technology we can significantly change the production levels of our stock with greater classing power. Traceability of ewe production of wool weight, micron and meat weaned allows breeders to select for the most cost-effective animals from which to breed.

“This traceability is best achieved through DNA pedigree which is outside the price range of most commercial and even stud enterprises. Getting this cost down could greatly increase industry production.”

Thomas's father, Bruce, is on the committee of the Esperance Biosecurity Group. Penrose has been impacted directly by wild dogs in the past two years, losing the Pengillys valuable breeding ewes and genetic potential. “But it's the immeasurable stress as well as the loss in productivity that the attacks on livestock cause,” Thomas added.

BENEFITS OF MERINOS

According to Thomas, modern Merinos and in particular Poll Merinos have many management benefits that have simplified the Pengillys ability to run livestock.

“Increased conception traits and growth potential have given the Merino the ability to raise and wean more kilograms of meat per breeding ewe, opening different markets for the lamb outside of purely running wethers,” he said.

“No horns and a plain skin are creating an easily managed animal in regard to flystrike and an industry focus on fleece traits has helped produce a unique fibre capable of being worn next to the skin. The modern Merino is a natural business diversification, gaining the best of both meat and wool when run correctly.”

MORE INFORMATION

For more information, or to set up or join an LTEM group in your local area, call RIST on freecall 1800 883 343 or visit www.rist.edu.au/lifetime-ewe-management
AWI: www.wool.com/LTEM



Recent dry seasons at Penrose have highlighted the importance of good feed management.

WHICH SUPPLEMENTARY FEEDING STRATEGY OPTIMISES LAMB SURVIVAL?

A new three-year project will compare the effects of using trail feeding and self-feeder systems during lambing on ewe behaviour and lamb survival. The project's results will be used to create supplementary feeding guidelines for sheep producers to optimise lamb survival.

Supplementary feeding is often required to meet the nutritional demands of ewes lambing in autumn and when feed on offer (FOO) is limited during winter or early spring.

However, there is no industry consensus on optimal supplementary feeding strategies for lambing ewes, a fact highlighted during consultation with sheep producers who are actively seeking advice on the matter.

A new three-year project jointly funded by AWI, MLA, Murdoch University and Charles Sturt University with additional collaborators from Nutrien Ag Solutions and Dynamic Ag, aims to remedy the situation. The project will evaluate strategies for supplementary feeding at lambing via trail feeding, self-feeders and alternative methods, and quantify the impacts on lamb survival to marking on commercial farms across southern Australia.

The project will also assess changes in mob behaviour associated with the feeding method using technology including AWI Smart Tags.

As part of the project, guidelines for supplementary feeding ewes during lambing will be produced for rollout to sheep producers via existing networks such as AWI's State Grower Networks along with extension programs such as the AWI-funded Lifetime Ewe Management course.

"A significant proportion of producers in southern Australia lamb ewes onto dry feed in autumn. Increasing climate variability also means that a greater number of producers may have dry or limited green feed available when lambing in winter or even early spring," said Dr Amy Lockwood of Murdoch University.

"Anecdotal evidence has suggested that



The ultimate outcome from this new project is an increase in lamb marking rates.

supplementary feeding ewes at lambing may cause them to abandon their lambs which could reduce lamb survival. However, there is conflicting opinion as to whether trail feeding or the use of self-feeders is more favourable for lamb survival.

"Our preliminary survey of sheep producers in southern Australia showed that 92% of producers believe further RD&E is warranted to demonstrate the best supplementary feeding regimes to optimise lamb survival."

Amy says the new project's research sites will be located in both the medium to high and the low rainfall zones to capture variation in environmental and management conditions, including the size of lambing paddocks in which ewes are being supplementary fed.

"At least 24 on-farm research sites will be established over two years across Western Australia, South Australia and Victoria. The project will compare the effect of supplementary feeding single- or twin-bearing mixed age ewes via trail feeding or self-feeders on lamb survival to marking.

"Smart technology will be used at up to eight of the research sites to investigate the effects of supplementary feeding methods on ewe

behaviour during lambing. This may include assessing changes in ewe activity and location at the time of feeding, the frequency of visits to the self-feeder or prediction of feed intake.

"Later in the project, we aim to also investigate other factors influencing the impacts of supplementary feeding on lamb survival at up to eight on-farm research sites, such as the effects of the proximity of trail feeding or self-feeders to water or the number of self-feeders in the paddock on ewe behaviour during lambing."

The project team will complete a detailed benefit-cost analysis for the feeding strategies, including the benefit obtained through improvements in lamb survival, costed labour requirements, cost of infrastructure (lick feeders) per ewe/100 ewes, and the cost of variable rates of feed utilisation, ie cost of wastage through trail feeding.

"The findings from the project will enable us to create comprehensive guidelines for supplementary feeding during lambing that will be rolled out to producers to assist with improving lamb survival," Amy added.



WINNING WITH WEANERS GOES ONLINE

AWI's popular Winning With Weaners workshop was held online as a webinar in late May. The free webinar, which summarised the key actions for woolgrowers to lift the lifetime performance of their young Merino sheep, was recorded and is available now to all woolgrowers across the country.

We all know how difficult weaners find their first year of life, right? Weaner ill thrift results in poor growth and fertility, reduced wool cut and wool quality (especially staple strength), increased susceptibility to disease (especially worms) – and can lead to high mortality rates in young sheep up to one year of age.

Weaner ill thrift and its associated mortality are the fourth most costly sheep disease to the Australian sheep industry (behind neonatal mortality, internal parasites and dystocia, but ahead of flystrike and all other diseases). While there are multiple concurrent causes of weaner ill thrift and mortality, they are all primarily related to animal management and husbandry. Genetics only has a small effect.

So to help woolgrowers improve weaner management of their Merino flock, in 2018 AWI launched a single-day workshop called 'Winning With Weaners'. The aim of the workshop is to get a minimum of 95% of weaners surviving to one year of age, but also to thrive and be productive at hogget joining and throughout their life. The workshop identifies key practical actions and tools for commercial enterprises to implement on-farm to achieve this performance aim.

Winning With Weaners has become hugely successful and is made available across the country in conjunction with accredited and licensed deliverers, via AWI's State Grower Networks, typically with about 15-25 participants per workshop.

However, the face to face workshops have been temporarily suspended due to restrictions on people's travel and gatherings in light of the coronavirus pandemic. In response, AWI's grower network in NSW, Sheep Connect NSW, organised a special Winning With Weaners webinar that was held on 28 May. When restrictions on face to face gatherings are lifted, the hands-on workshops will resume across the country.

More than 220 people from across Australia registered to view the webinar (69% of viewers were producers and 25% were advisors) which was presented by experienced sheep consultant and project manager of Sheep Connect NSW, Megan Rogers, who is based at Forbes. The hour-long webinar was a condensed format of the usual single-day workshop. Megan presented and talked to 30 slides in that hour.

"With seasonal conditions improving for many, the time is right to capitalise on opportunities for good management, and weaners are a group of animals that will benefit from some additional proactive management – and pay you back for it for years to come with productivity," Megan said.

"Proactive weaner management can set up your young animals for a productive, profitable and performing contribution to your flock and business."

Megan Rogers

"While the topics are covered in greater detail in the workshop, the webinar contained all of the key content that woolgrowers need to know to set their weaners up for a lifetime of production. It included the costs of weaner ill thrift, strategies to mitigate its effects and key must do's for successful weaner management."

The webinar was recorded and is available to be viewed free at any time on the Sheep Connect NSW website. When viewing, you can pause and go back to a previous section in the webinar if you want to recap a particular point.

"I encourage any producer who missed the webinar to view the recording. Don't miss this opportunity to upskill on weaner

INDUSTRY RECOMMENDATIONS TO LIFT WEANER PERFORMANCE

- The Target Weaning Weight should be 45% of your Standard Reference Weight (the average weight of your mature ewes when not pregnant, bare shorn, condition score 3, no gut fill)
- Have a 5-week joining period to avoid a tail in the weaner mob
- Train lambs to eat supplementary feed prior to weaning
- Use best practice lamb marking procedures (vaccination, hygiene, pain relief, etc)
- Wean no later than 14 weeks from the start of lambing
- Manage lighter weight lambs separately and feed them to achieve the target growth rates ASAP
- Wean onto high quality pasture where possible and/or supplementary feed
- Provide high quality, clean drinking water
- Ensure good internal parasite control (monitoring and effective drenching)
- Regularly monitor weaner liveweight to reach target growth rates.

management – your weaners and bank balance will thank you for it," Megan added.

The following related handouts are available at www.sheepconnectnsw.com.au/tools:

- Weaner management checklist
- Feed budget tables for Merino weaners, including how to calculate: Target Weaning Weight for your flock, weaner liveweight targets at various ages, and feeding requirements.

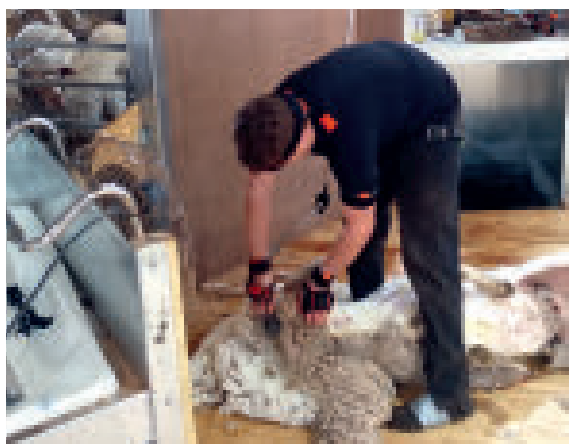
MORE INFORMATION

View a recording of the webinar at www.sheepconnectnsw.com.au/tools/98
www.wool.com/workshops

HIGH TECH APPROACH

TO HELP PREVENT SHEARING INJURIES

Pioneering high-tech research into shearers' muscle fatigue has identified several important features that could provide an early warning of lower back injuries. The research, undertaken by the University of Melbourne with funding from AWI, could also be used to evaluate the effectiveness of future injury-prevention strategies.



The shearers in the trial wore sensors that enabled the researchers to monitor the motion and the muscle activities of the shearers in a real-life setting.

Attracting and retaining shearers is one of the biggest challenges facing woolgrowers and the industry. A major factor is that shearing can be a 'back-breaking' profession, with injuries to shearers being six times the all-industry average in Australia. Back injuries are the most significant due to their long rehabilitation time and associated lost productivity contributing to 50% of shearing injury costs.

AWI Program Manager Agri-Technology, Carolina Diaz, says a project funded by AWI has been examining exactly how back-related injuries arise – which is proving useful for the development of new strategies to reduce the risk of shearing injuries.

"These future strategies include wearable sensors that alert a shearer to when they are getting prone to injury, through to more interventionist assistance such as wearable robotic solutions that reduce the risk of injury while still allowing the high degree of maneuverability required for shearing," Carolina said.

"However, the initial objective of the project has been to accurately identify the mechanisms of lower back musculoskeletal injuries in shearers.

"Researchers from the University of Melbourne's robotics team monitored Electromyography (EMG) signals from sensors placed on a range of shearers, in combination with a motion capture system, to measure and study their back muscles and posture during the day.

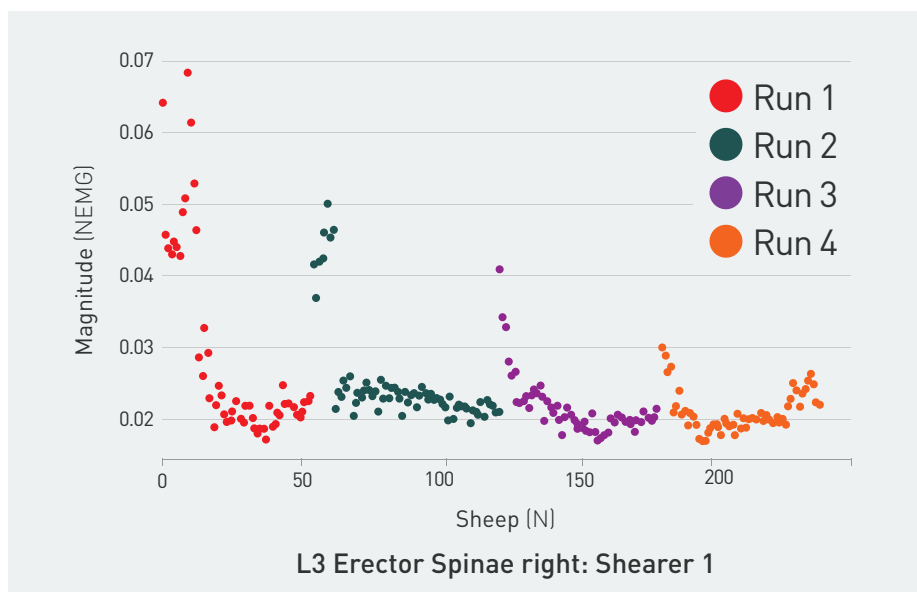
"Recruited for the study were ten shearers aged between 21 and 61 years with varying

levels of skill, from two weeks experience to more than 40 years. The study was undertaken in real shearing sheds (rather than a laboratory), in three different states.

"The shearers were monitored in authentic shearing conditions and across full workdays to reflect realistic workloads. This enabled the researchers to capture the effect of prolonged muscle fatigue, which is recognised as a precursor to injuries during shearing."

The most common time of injury for shearers is between the hours of 4pm and 6pm, late in the shearing day, indicating a high correlation to the level of fatigue.

The project was the idea of PhD student Mark Robinson who is studying human-robot interaction at the University of Melbourne. Through family connections, Mark knew about the high risk of injuries to shearers, and realised that robotics might be part of a solution.



This graph shows one of the many variables measured during the shearing exercise, in this case the muscle activation signal for one of the lower back muscles. Stronger signals imply stronger muscle capabilities – the left-hand axis. Each dot represents the average value of the muscle activation during the shearing of one sheep. The plot shows the trend across the 250 sheep shorn during a day.

An interesting and compelling trend can be seen corresponding to the shearing and rest cycles. Spikes in the muscle activations can be seen after each break time (coffee breaks, lunch break) followed by a decreasing trend. Furthermore, the recovery after each break also diminishes during the day, as the muscles become more fatigued.

The project was undertaken by Mark and other members of the University's robotics team which included Associate Professor Denny Oetomo, Professor Ying Tan and Professor Chris Manzie.

WEARABLE SENSORS TO ALERT SHEARERS TO POTENTIAL INJURY

After the collection of in-shed data, the information was processed by the University of Melbourne researchers to search for potential features of muscle activity and posture that correlated with the risk of injury, across all the shearers.

"Several important features of muscle activity were identified which, if monitored continuously, allow for the prediction or early warning of lower back injuries among shearers," Mark said.

"With this knowledge, we developed a prototype 'sensing unit' in a back-stabilising belt that can be worn by shearers to alert them (via a display on a smartphone) when they are becoming vulnerable to potential injuries and which can propose optimal resting cycles.

"Having identified the variables most effective as predictors to injury risk, the prototype unit incorporates sensors in only the

most optimum locations, which helps the unit be practical, cost-effective and suitable for shearers to wear."

THE CAUSE OF CATCH-AND-DRAW INJURIES

Mark said the researchers' acquisition of new data about injury risk uncovered interesting findings that help our understanding of how and when injuries occur.

"For example, there is a perception among shearers that injuries are often attributed to the catch-and-draw process. However, we found that while injuries often do happen during the catch-and-draw process, the cause actually lies in the shearing process.

"The forces typically encountered during catch-and-draw are usually well within the capability of a typical human (shearer's) body to withstand safely. It is the stooping posture during shearing that creates muscle fatigue during shearing and a noticeable stretch to the passive muscle length. This stretch means that there is a 'slack' in the lower back muscle that affects its ability to stabilise and hold our spine and trunk.

"The fatigue and the 'slack' in the muscle means that these forces can sometimes exceed what the body can withstand when performing the catch-and-draw. If we can

fix the problems during shearing, then injuries during the catch-and-draw should consequently be reduced."

ACTIVE INTERVENTION STRATEGIES TO HELP PREVENT INJURY

Mark says the important indicators of muscle activity that they have identified can also be used to measure the effectiveness of future physical intervention strategies introduced into the sheep shearing process.

"This could include strategies such as ergonomic shed redesign, changes in warm-up and stretching exercises, and changes in the rest-work cycle. However, it could also result in a more active solution such as an electromechanical version of the shearing harness, or even an exoskeleton that the shearer could wear, which would provide physical assistance to the shearer through the use of robotics."

Further research is needed into the development of these prototypes. Given that shearers are paid by the number of sheep shorn per day, the researchers are aware that any proposed new safety solutions should minimise any disruption to the shearer's mobility and shearing speed. **B**

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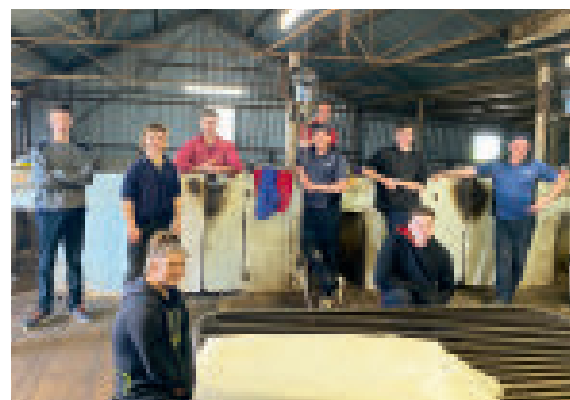
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AWI-FUNDED IN-SHED TRAINING

1397

shearer and
wool handler
training days
delivered in
2019/20.

AWI-funded in-shed shearer and wool handler training has resumed following the COVID-related temporary suspension. Plenty of courses are again being run across the country to upskill those already working in the industry and give useful guidance to those new to the job.



Recent shearing and wool handling schools include those held in South Australia at **Willalooka** (above) and **Elliston** (right, top), and the novice school held in NSW at **Brocklesby-Walbundrie** (right, middle and bottom). As well as an introduction to shearing and wool handling, the training at Brocklesby-Walbundrie included an overview of the wool processing pipeline by AWI program manager **Craig French** (right, bottom).

An important part of AWI's Wool Harvesting & Quality Preparation program is the funding of hands-on practical training for shearers and wool handlers in the shed, aimed particularly at increasing their productivity, skills development and professionalism.

In the 2019/20 financial year nearly 1,400 days training were delivered (with more than 4,100 attendances by shearers and wool handlers) through AWI-funded programs across Australia. This was despite the temporary suspension of face to face in-shed training for a couple of months due to the government's coronavirus-related social distancing guidelines.

In-shed training has now resumed, with plenty of courses being run across the country.

For example, two five-day AWI Novice Shearing and Woolhandling courses were recently delivered by SCAA Shearer Woolhandler Training Inc in South Australia

at Kym Gillet's property at Elliston on the Eyre Peninsula, and Matt Day's property near Willalooka in the south-east of the state.

With 100% employment outcomes for non-student attendees, the training was a win-win for both the shearing industry and those looking to commence work immediately in the wool harvesting sector. Spots filled quickly for both weeks, with students travelling from Burrah, Bordertown, Mundulla, and statewide across South Australia.

Interestingly the school at Elliston included two sets of mother and son trainees, proving it is never too late to learn something new, and the love of wool may be a genetically inherited trait!

SCAA Shearer Woolhandler Training Inc is looking forward to continuing AWI training statewide across South Australia and Victoria.

Another recent example of shearer and wool handler training was the two-week novice school at Brocklesby-Walbundrie in

the eastern Riverina of NSW. There were eight students from the local district, which is about to ramp up with a lot of sheep to be shorn in coming months. The ewes were cutting up to 7kgs, which provided the wool handlers with plenty of experience.

Thanks go to the Kelleher and McMaster families for their 15 years of continued support, providing the facilities and sheep for this important training.

"We certainly appreciate and recognise the importance of having woolgrowers who welcome training and allow us to run a two-week training program on their farm and with their sheep and facilities," said AWI trainers Richard Leahy and James Ferguson. Richard has been liaising with local contractors for five of the novice shearers and wool handlers to go straight into work.

The properties will also run a second school in late January. Anyone interested should call 1800SHEARS to register. **B**

NEW NATIONAL WILD DOG ACTION PLAN LAUNCHED

Following the success of the previous industry-driven National Wild Dog Action Plan (NWDAP), a new NWDAP for 2020-2030 to further improve wild dog management across Australia has been launched.

The National Wild Dog Action Plan (NWDAP) 2020-30, which is available on the new NWDAP website www.wilddogplan.org.au, is Australia's new blueprint for best practice wild dog management.

The NWDAP is endorsed by producers, peak farming bodies, the Australian Government, state governments and research and development corporations – and ensures control measures are evidence-based best practice and the most ethical and humane available.

The coordinated and collaborative approach advocated by the NWDAP underpins projects that are critical to the nation's wool industry such as the Western Australian Esperance extension to the State Barrier Fence Project, the South Australian Dog Fence Rebuild Project and the Queensland Feral Pest Initiative.

South Australian woolgrower Geoff Power, who also chairs the National Wild Dog Management Coordination Committee and the SA Dog Fence Board, said: "The new Plan provides leadership and reassures producers there is ongoing commitment from industry and government to wild dog management. We can be confident we have the best

strategies and safest tools available for livestock and biodiversity protection."

The new NWDAP is an update of the NWDAP 2014-19 which was implemented in 2014 in response to the increasing impact of wild dogs throughout Australia.

As reported in the March edition of *Beyond the Bale*, an independent review of the NWDAP's initial five-year term (2014-2019) concluded that the NWDAP had been highly successful. Investment made by the NWDAP during 2014-2019 returned a benefit-cost ratio between \$6.10 and \$16.50 for each dollar invested. Benefits included more efficient expenditure on wild dog management; more efficient R&D and extension investment; and ongoing community support to undertake control.

In a letter to AWI, Deputy Secretary at the Department of Agriculture, Water and the Environment and the Chair of the intergovernmental National Biosecurity Committee, Lyn O'Connell, congratulated all involved in the new plan's development, including the NWDAP Coordination Committee and AWI.

"This initiative has shown how effective

it can be when governments and industry work closely together to achieve valuable outcomes for the Australian agriculture sector and communities across the country," Ms O'Connell stated.

"I also thank AWI for its ongoing commitment to the management of established vertebrate pest animals to minimise the impacts they have on Australia's agricultural industry, environment and economy.

"The department remains committed to wild dog management and looks forward to continuing this work with AWI and other stakeholders."

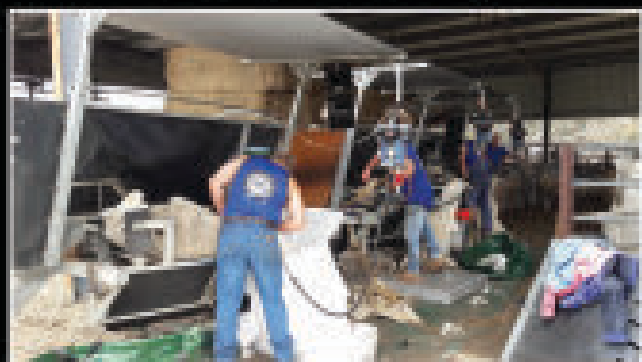
MORE INFORMATION

- Access the new NWDAP at www.wilddogplan.org.au
- Hear about the NWDAP and effective wild dog control from National Wild Dog Management Coordinator, Greg Mifsud, AWI Program Manager for Vertebrate Pests, Ian Evans, and woolgrower Geoff Power from South Australia in Episode 124 of AWI's The Yarn podcast at www.wool.com/podcast



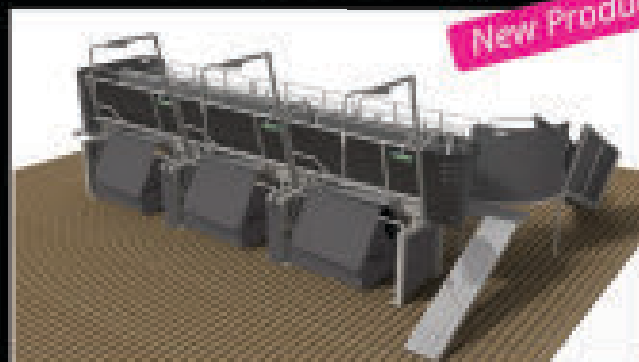
The new NWDAP 2020-30 supports pest management technicians such as **Paul Billsborough**, who is pictured here sharing his best practice trapping skills with northern Flinders landholders.

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FENCING REBUILD AFTER BUSHFIRES



AWI-funded wild dog coordinators in Victoria have helped woolgrowers affected by last summer's bushfires to access government funding to repair – and often upgrade – their fencing.

Wild dog looking for prey after the bushfires in February. Photo taken and supplied by Brendan Maunder - www.BrendanMaunder.com

Victoria had an unprecedented bushfire season last summer, with many areas badly affected with the loss of livestock, shedding and fencing. Several landholders in Gippsland lost houses and all their assets.

It is estimated that about 1,300 kilometres of boundary fencing between private and public land was impacted by the fires across East Gippsland and North East Victoria. This could have a significant impact on wild dog control throughout these regions.

Wild dogs might be drawn onto farming properties from fire-affected public or private land due to the proximity of livestock and wildlife seeking unburnt pasture, shelter or water.

The Victorian Government provides funding to landholders in bushfire-affected communities for the repair of damaged or destroyed fences between private land and National Parks, State Parks and State forests.

The funding gives farmers the option to not just replace their boundary fences with a standard fence but to upgrade them, making them more fire-resistant and better able to exclude pests such as wild dogs. Fencing upgrade options include fire-resistant materials, such as steel or concrete components, and pest control designs, such as insulated wires for electric fencing with a strong focus on the use of high power energisers to provide a deterrent to wild dogs.

The fencing standards were set through consultation between Wild Dog Program staff (including AWI-funded wild dog coordinators) and fencing industry representatives. The Government funding will pay half the cost of materials, up to \$4,000 per kilometre for standard fencing and \$5,000 per kilometre for exclusion fencing.

AWI VIC WILD DOG COORDINATORS HELP OUT

A requirement for funding is that an assessment of the property and the fence damage must be completed before works are undertaken or any payments can be made. Given that fire-affected woolgrowers are often overwhelmed with other tasks involved with their farm rebuild, the AWI-funded wild dog coordinators stepped in to help and were heavily involved in assessing the fencing damage on the public/private land boundary.

Brian Dowley and Mick Freeman were the AWI-funded wild dog coordinators involved in bushfire recovery in the Gippsland region.

"We were involved early on due to our knowledge of fencing and involvement with the fencing industry. It was a natural fit for us as we already knew a lot of the landholders and going and meeting with landholders one on one is our bread and butter," Mick said.

"We visited impacted properties, completed our assessment of the fire damage and got the applications for support payments into the system on the day, which the landholders appreciated. The vast majority of landholders in wool-producing impacted areas are now accessing funds to replace boundary fencing with exclusion fences. This will result in a significant increase in electric fencing across our wild dog impacted areas.

"A fully functioning electric exclusion fence is the first and best defence against wild dogs. Such fencing can be very effective when used as part of a coordinated effort by landholders along with other control methods such as baiting, trapping, shooting and guardian animals."

The wild dog coordinators also provided landholders with information on government bushfire rebuild grants being made available through Rural Finance and the funds available to farmers through BlazeAid. They also ensured the landholders were aware of other support services and provided details



A **fire recovery fencing workshop** held by Gallagher at Bendoc on 10 March (with participants effectively social distancing), which included practical fencing demonstrations.

for emotional and mental health support.

Victorian wild dog coordinators have increasingly liaised with fencing supply companies including Gallagher, Waratah Fencing, Dingo Fencing, Datamars and Clipex. Fencing field days for landholders have been well supported by the commercial fencing companies.

“Through extensive and severe bushfires, and now COVID-19, the coordinators have continued to provide valuable support and leadership in their communities in the control of wild dogs,” said AWI Program Manager for Vertebrate Pests, Ian Evans.

As an immediate response to the devastating summer bushfires, AWI announced in February that it was allocating an additional \$45,000 in Victoria to assist with the rollout of autumn wild dog management programs to protect remaining livestock. B

AWI FUNDING CONTINUES FOR ANOTHER THREE YEARS



AWI-funded Victorian coordinators **Brian Dowley**, **Lucy-Anne Cobby** and **Mick Freeman**, with AWI Program Manager for Vertebrate Pests **Ian Evans** (second from right).

AWI has worked with the Victorian Government through the Department of Environment, Land, Water and Planning (DELWP) to lock in another three years of work to control wild dogs in the state.

The important work by the three wild dog coordinators in the North East and Gippsland regions will continue through the Victorian Vertebrate Pest Management Coordinators project, which is an upgrade to the previous Victorian Community Wild Dog Coordinators project.

This project has a total value of \$1,454,490 over three financial years starting from July 2020. AWI is providing \$840,990. While the focus will remain on wild dogs, the new three-year project will also now include other vertebrate pests like feral pigs impacting Victorian woolgrowers.

FENCE UPGRADE AT GELANTIPY AFTER HARROWING NEW YEAR'S EVE BUSHFIRES



After the bushfires destroyed her fencing, **Anne-Marie Henderson** from Gelantipy in Gippsland has upgraded to this to steel fencing which not only should be better able to withstand any future fire but also has four hot wires to keep wild dogs out.

Anne-Marie and Bill Henderson of ‘Pindari’ at Gelantipy in Gippsland were heavily impacted by last summer’s bushfires and are now rebuilding and upgrading their fencing to help keep out wild dogs.

Their 360-hectare property, on which they run cattle and sheep, backs onto the Snowy River National Park and it was from this direction that the bushfires bore down on the property at the very end of last year.

“We had been on guard for bushfires since November, but they arrived fanned by strong winds on New Year’s Eve and we spent the next three days fighting the fires and protecting our property. We were running on adrenaline the whole time and were too scared to go to sleep,” Anne-Marie said.

“There were just the two of us on the property battling the fires. I used water from the home water tank to defend the house and nearby hayshed. Meanwhile Bill was away saving another hayshed,

but he had to keep traveling through thick smoke to get water from a bore and could take only 200 litres at a time. It was an amazing effort.

“While we managed to save two haysheds, the fires really smashed us. It destroyed another of our haysheds, about three quarters of our grass, and virtually all our fencing. The old pine fence posts were literally reduced to ashes. With some advance planning, we managed to save our sheep.”

AWI-funded wild dog coordinator Mick Freeman visited their property to assess the damage to the fencing, which has enabled the Hendersons to access government funding to replace and upgrade their fencing that borders the National Park.

“Mick was a great help. It didn’t take him long to assess the damage because the damage was so complete. The old fencing wasn’t really designed to keep out wild dogs, but we’ve now upgraded to steel fencing, with steel posts and steel strainers, which should be better able to withstand any future fire – and it has got four hot wires so should be able to keep wild dogs out.

“We’ve so far done about 4-5 kms of new fencing and it is fantastic. Combined with trapping, shooting and baiting in coordination with our neighbours, the new fencing will really help our efforts to help control the wild dog problem. We have previously had to reduce our sheep numbers from 600 to 450 due to wild dogs and keep the sheep closer to the house.

“But if we can get the wild dogs under control, and if we get some rain (it’s still very dry here and we are still feeding our stock with donated hay), we are hopeful that we could increase our sheep numbers.”

AWI-FUNDED WILD DOG COORDINATORS

AWI funds wild dog coordinators to help landholders and communities work together to combat wild dog attacks. They also help coordinate on-ground wild dog control activities.

If you have a problem with wild dogs on your property, contact your region’s wild dog coordinator below to see how you can get on top of the problem.

- **Victoria (north-east)** Lucy-anne Cobby 0488 712 616
- **Victoria (Gippsland)** Brian Dowley 0408 436 600 and Mick Freeman 0477 358 061 (shared position)
- **NSW (north-east)** Dave Worsley 0429 638 078
- **Queensland (south-west)** Skyela Kruger 0429 232 089
- **Queensland (central-west)** Vacant
- **South Australia** Heather Miller 0488 426 395

Planning should start well before the bushfire season and be part of on-going property management. Ensure your Bushfire Survival Plan is up to date and to hand so you can ensure the safety of your family and your livestock during bushfires. Without plans, you could make panicked wrong decisions that threaten their safety.

Recent bushfire seasons have been long and intense. Their repercussions are still being felt by the many farmers. We hope that this year's bushfire season will not be as bad, but being prepared with a plan and ensuring other people are familiar with the plan will make it easier to deal with if bushfire does threaten your family and livestock.

Plan ahead. It is important to act well before a fire starts. Making a choice when a bushfire threatens your property is too late. Practicing your plans will make them easier to implement if fire threatens. Ensure your Property Identification Code (PIC) is current and that all stock are identifiable to your property's PIC.

20 ESSENTIAL STEPS BEFORE BUSHFIRE SEASON¹

Country Fire Authority (CFA) of Victoria has produced a checklist of 20 essential steps for farmers to undertake before the fire season. They are useful in whatever state you are located.



PREPARING FOR BUSHFIRE SEASON

Sheep and cattle farmer **Craig Schneider** gazes back at the enormity of the pyrocumulonimbus from the Sir Ivan bushfire, while he relocates his stock on his property near Coolah, NSW, in February 2017. PHOTO: Alex Ellinghausen (Fairfax)

PLANNING

1. Have a routine in place for fire risk days (moving stock and limiting or postponing machinery use, switching off electric fences). Make sure everyone on your property is aware of it.
2. Know your trigger to leave early on fire risk days and the trigger to leave for family members, employees or contractors. Plan for contingencies such as children at school.

SAFE PADDOCKS

3. Create a heavily grazed area where stock can be moved to during a fire (see section on opposite page).

PROPERTY INFRASTRUCTURE

4. Reduce fuel loads around assets (house blocks, sheds) and create strategic fuel breaks.
5. Make sure there are no gaps between the cladding and the ground slab of your sheds to prevent embers getting inside.
6. Double check that spark arrestors on machinery are working and efficient. Make sure chainsaws are free from faults.

FIREFIGHTING EQUIPMENT

7. Have water fire extinguishers or knapsack spray pumps (minimum 9 litres) available that can be carried by any person using farm equipment or machinery.
8. If you have private firefighting equipment, conduct a 'refresher' session



HEAVY-DUTY FARM SHEDS



- Specialists in shearing sheds, yard covers, feedlot covers, hay sheds and machinery sheds
- Spans starting from 12 metres
- Fully hot-dip galvanised columns and trusses

Whilst caring for livestock before and after a bushfire is essential, your and your family's personal safety should be considered as a first priority on all occasions.

with family and employees to make sure everyone can use it.

- If you plan to stay and defend a building during a bushfire, take steps to establish a water supply of at least 10,000 litres (independent of mains water supply).

ASSISTING EMERGENCY SERVICES

- Make sure your property number is clearly visible so emergency services can identify it when approaching the entrance.
- Check access tracks around your property. Consider if access for fire trucks can be improved by clearing vegetation, signposting dead ends or creating turning circles
- Make sure water supplies around your property are clearly marked in case emergency services need to access them.

HAY STORAGE

- Have a safety strategy in place for storing and monitoring hay – purchase a moisture meter if necessary.
- Make sure hay is fully cured before baling.

15. LAWS & PERMITS

- Make a list of restrictions (including Fire Danger Period and Total Fire Ban) relevant to your property. Display it or keep it handy so everyone on your property can refer to it often and easily.
- Apply for the appropriate permit from your local council if you intend to burn off weeds, stubble or vegetation during the Fire Danger Period, or if you intend to use fire for any other purposes.
- Check with your local council to see if local laws are in place for lighting fires, burning off or using incinerators.
- Apply to the relevant authority if you need to remove vegetation or manage fuel on roadsides.

PLANNING RECOVERY

- Have the contact details of your local council as a first point of contact for recovery after a fire.
- Know which government grants, compensation and other types of assistance that you may be eligible for to help you recover from the impact of fire.

PROTECTING YOUR LIVESTOCK²

Livestock such as sheep can be affected in bushfires by radiant heat from the fire, smoke inhalation, burns from walking over hot ground and other injuries that might be caused by panic, eg getting caught in fencing.

Your options for protecting your livestock will depend on the size of your property, the number of livestock and where your animals are kept. Preparing one or more 'safe paddocks' prior to the bushfire season is a good option. A 'safe' paddock is one that:

- has adequate water supply without relying

on electric pumps

- is easy to access, is well fenced and has adequate space
- is either irrigated or hard grazed to reduce the fuel load, and
- is not surrounded by other combustible material like thick vegetation, tree lines or haystacks.

If you prefer to relocate any high-risk animals to a low fire risk property in another area:

- plan where you will go
- understand what will trigger you to leave (eg high fire risk rating, emergency warning)
- prepare an emergency kit that can go with the animal(s)
- make an agreement with the property owner about conditions of agistment
- know alternative routes to get there in case the main pathway becomes blocked.

USEFUL RESOURCES

Resources that can be particularly useful for farmers to prepare for bushfire season include:

- A guide to help farmers create a Farm Fire Plan**, produced by NSW Rural Fire Service (RFS). Access the guide at www.rfs.nsw.gov.au/plan-and-prepare/farm-fire-safety
- Agricultural fire management guidelines 'On the Land'** which includes information on how to plan and prepare for bushfires, produced by Victoria Country Fire Authority (CFA). Access the guide at www.cfa.vic.gov.au/plan-prepare/farms
- AWI provides a range of resources**, plus links to useful external websites. Access the resources at www.wool.com/bushfires **B**

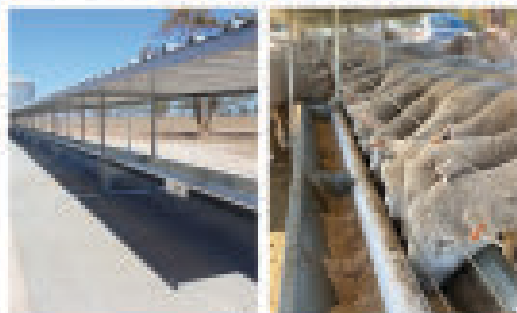
Sources: 1 Country Fire Authority (Vic), 2 Primary Industries and Regions South Australia (PIRSA).

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DEVELOPING AG TECH OPPORTUNITIES

From an app to track the location and movement of your stock, to a product for increasing the safety of sheep in yards, several new technological solutions for the wool industry are being examined further, thanks to the Farmers2Founders program that recently completed its pilot year.

A world-first innovation program, Farmers2Founders (F2F) is designed to help Australian primary producers develop entrepreneurship and technology capabilities – and successfully bring new agtech ventures or value-added products to market.

During the pilot year of the program that recently finished, F2F engaged directly with more than 300 Australian primary producers from across industries and from all states and territories. The project has been collaboratively supported during its pilot year by AWI, MLA, GRDC, AgriFutures and Wine Australia.

“The aim from AWI’s perspective was

to develop a support system to attract innovative woolgrowers who are either looking to develop or adopt cutting edge innovation to solve wool industry problems,” said AWI Program Manager for Agri-Technology, Carolina Diaz.

“The collaborative approach with other rural Research & Development Corporations helped minimise duplication and costs, and encourage linkages between producers and the global ag tech ecosystem.”

Benefits cited by producers involved in the pilot F2F program include helping them to think differently, work on (instead of in) their business, build new skills, access

new tools and networks, and advance their business ideas.

Key activities in the pilot year included:

- **Ideas Program** – to enable producers to test and validate their own new venture’s concept to determine its commercial viability. Participants would sometimes find that the concept for their venture was not as appealing to their target market as they first thought, and they would amend their plans accordingly, even if the original pain point was similar.
- **Bootcamp Program** – to accelerate the development and commercialisation of producers’ ventures.
- **Early Adopter Program** – aimed at producers who, rather than having their own concepts for a new venture, were interested in early adoption of technology and were willing to work with start-up enterprises. The ideas to which the woolgrower participants said they would be most receptive tended to fall into two

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categories. Firstly, remote monitoring, such as electric fence monitoring, gate sensors, smart ear tags, soil moisture probes, water tank sensors and virtual fencing. Secondly, online management 'dashboards' that would integrate key outputs and data from the multitude of sources that producers utilise in their sometimes-numerous enterprises.

AWI supported the initial design and development of all programs, as well as directly supporting six Ideas Program participants, one Bootcamp Program participant, and nine Early Adopter Program participants.

During the pilot, F2F also delivered a total of 16 workshops around Australia with about 400 attendees, including more than 200 producers. Overall feedback from workshop participants was very positive – they indicated that the most useful aspect of the workshops was the opportunity to network with F2F experts and other participants from their region. **B**

MORE INFORMATION
www.farmers2founders.com

Farmers
2Founders

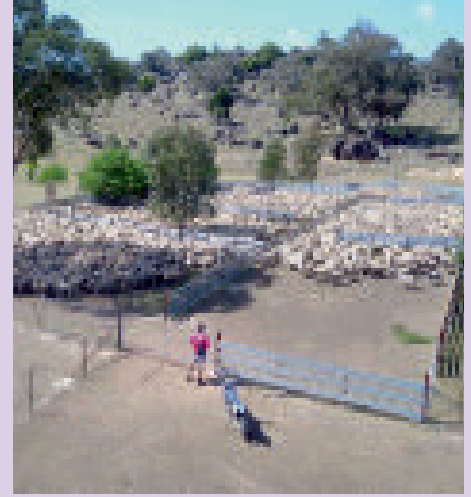
STOCK RECORD KEEPING APP

Marian McGann from Wyangala on the South West Slopes of NSW was an AWI-sponsored participant in the Ideas Program of Farmers2Founders. Marian, who runs Merinos on her 2,000 hectare property, went into the program with a product in the early stages of being on the market: 'My Pocket Mate - Stock Keeper' which is an easy to use stock record keeping app.

Marian says it was the theft of some of her sheep that had spurred her to develop the app.

"We had sheep being stolen a few years ago, and when the police came over it was difficult to establish exactly how many sheep had actually been stolen, because our stock records in notebooks were too ad hoc and not particularly organised," Marian said.

"I knew there must be a better way to keep accurate stock records, but all the apps on the market seemed very complicated, so I decided to come up with an app for producers that just wanted a simple recording system. I



The **My Pocket Mate - Stock Keeper** app helps producers keep track of their stock.

started writing out the key features I would like as a producer – and then took it from there."

Through the F2F program, Marian was able to take a broader look at her business, develop new business and marketing skills, and learn more about her customers. She now has a renewed focus on the areas of the business that require her attention, in particular marketing.

"The program was absolutely amazing, it really gets you focused," Marian added. **B**

MORE INFORMATION
www.mypocketmate.com.au

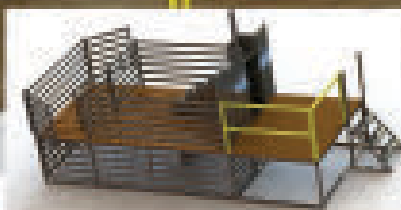
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NWD WOOL MARKET

WOOL MARKET IS SENDING PRICE

This is a summary of the report by AWEX CEO Mark Grave and AWEX Technical Projects Manager Dr However, the statistics in the four tables in this article have been updated to 30 June 2020.

FAST FACTS

As a percentage of Merino wool ($\leq 24.5 \mu\text{m}$) sold by auction:

- Non Mulesed wool doubled between 2011 and 2019, from 5% to 11% of the Merino clip.
- Anaesthetic/Analgesia wool increased three-fold between 2011 and 2019, from 14% to 43% of the Merino clip.
- Total declared Merino bales has risen from 48% in 2011 to 75% in 2019.

WA's adoption rate of the NWD remains behind other states.

Premiums for NM wool continue, ranging from 55 c/kg clean for 16 μm wool to 12 c/kg for higher micron non-Merino wool.

AWEX developed the National Wool Declaration (NWD) for Mulesing Status in 2008 in consultation with the Australian wool industry, to assist buyers and their clients gain access to information on issues that can influence purchasing decisions but cannot be measured. The NWD is voluntary, allowing growers to communicate directly with prospective buyers, processors and retailers, and this supply chain back to growers.

AWEX has collated Mulesing Status data declared in the NWD for Seasons 2008 to 2019. Below is a summary of this information since 2011. Mulesing Status is recorded as Non Mulesed (NM), Ceased Mulesing (CM), mulesed with Anaesthetic &/or Analgesic (AA) (previously Pain Relief, PR), Mulesed (M) and Not Declared (ND).

NWD ADOPTION RATES FOR SEASONS 2011/12 TO 2019/20

Table 1. NWD Adoption Rates (% bales sold) by Mulesing Status, all breeds and wool types, first-hand offered, P and D Certificates

Season	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
MS									
NM	6	7	6	8	9	10	12	13	14
CM	2	2	2	3	3	3	3	3	4
AA (PR)	12	14	14	19	23	28	32	36	39
M	24	21	20	20	20	21	20	19	18
ND	55	55	57	51	45	39	34	30	26
Total (% Declared)	45	45	43	50	55	61	66	70	74
Total bales	1,467,058	1,589,514	1,456,151	1,598,009	1,452,077	1,617,165	1,487,894	1,349,198	1,123,924

Table 1 shows that the NWD adoption rate (NM, CM, AA and M) for all sheep breeds has increased from 45% to 74% from Season 2011 to 2019, with concomitant increases in NM, CM and AA and declines in M and ND.

Table 2. NWD adoption rates (% bales sold) by Mulesing Status, Merino $\leq 24.5 \mu\text{m}$, first-hand offered, P and D Certificates

Season	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
MS									
NM	5	5	5	5	6	6	8	8	11
CM	3	3	2	3	3	3	2	2	4
AA (PR)	14	17	17	22	27	32	37	42	43
M	26	22	21	21	21	21	20	19	17
ND	53	53	55	49	44	38	33	28	25
Total (% Declared)	48	47	45	51	57	62	67	71	75
Total bales	1,232,586	1,285,751	1,200,160	1,331,234	1,215,810	1,279,596	1,296,516	1,095,621	961,526

Table 2 shows that for Merino $\leq 24.5 \mu\text{m}$, the NM adoption rate doubled between Seasons 2011 and 2019. At 11%, it is less than all sheep breeds (14%); however, the adoption of AA is higher for Merino $\leq 24.5 \mu\text{m}$ (43%) compared with all sheep breeds (39%).

Table 3. NWD adoption rates (% bales sold) by State, Merino $\leq 24.5 \mu\text{m}$, first-hand offered, P and D Certificates

Season	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
State									
NSW	51	53	53	60	67	72	75	79	85
QLD	30	39	36	40	48	53	65	75	83
SA	50	47	47	58	62	68	73	80	84
TAS	57	59	50	53	70	84	85	86	89
VIC	56	56	55	66	70	80	83	86	88
WA	35	28	24	21	24	31	35	41	44

Table 3 shows on a state-by-state basis that the NWD adoption rate (NM, CM, AA and M) for Merino wool continues to increase for NSW, QLD, SA, TAS and VIC. It is not understood why WA continues to lag at only 44%, approximately half the adoption rate of other states.

SIGNALS 2019-20

SIGNALS TO WOOLGROWERS

Kerry Hansford for the 2020 AWI Flystrike RD&E Technical Update.

MULESING STATUS PREMIUMS AND DISCOUNTS FOR SEASONS 2013-19

The calculation of Premiums and Discounts (c/kg clean) for Mulesing Status requires that as many criteria as possible are held constant. The following describes the dataset used:

- Australian stored; Merino fleece/weaners and crossbred fleece
- >30 N/ktex, >60% Schlum Dry Yield, <2.2 VMB, Styles 4/5, Good/light colour (incl. H1), P Certificate
- Lengths according to diameter range: 70–95 mm (<18 µm), 75–99 mm

(19–21 µm), 83–104 mm (22–24 µm), 90–110 mm (26–29 µm), 100–130 mm (30–34 µm)

- Records per group (micron/NWD status) >2, empty cells when not enough data to generate a Premium or Discount.
- Comparison with prices for wool declared as Mulesed. B

MORE INFORMATION

The full report – which includes adoption rates, compliance rates, premiums and discounts, and recent changes to the NWD – is available at www.wool.com/nwd.

Table 4. Premiums and Discounts for Mulesing Status for Seasons 2013/14 to 2019/20

		MERINO						NON-MERINO				
		16	17	18	19	20	21	22	27	28	29	30
NON MULESED												
Season	2013/14	16	12	9	9	4	-3	2	0	-1	4	16
	2014/15	28	15	11	12	13	0	5	3	4	-3	28
	2015/16	10	15	7	8	8	1	-15	0	-1	1	4
	2016/17	14	15	30	13	21	18	-12	-1	11	-5	-1
	2017/18	36	44	57	44	36	18	-13	20	6	1	2
	2018/19	47	53	46	38	20			12	8	7	1
	2019/20	55	43	43	37	34	28	34		5	12	
CEASED MULESING												
Season	2013/14	4	14	9	-2	3	1	16	2	-4	4	4
	2014/15	11	4	-3	10	-5	-3	17	-1	5	-3	11
	2015/16	51	15	3	8	5	4	-1	2	5	-8	-3
	2016/17	1	21	15	5	5	3	8	30	9	-20	20
	2017/18		68	8	19	4	0	-10	-8	4	-5	5
	2018/19		53	21	-1	3				15		9
	2019/20	37	29	37	-1	4	12			3	4	
MULESED WITH ANAESTHETIC &/OR ANALGESIC												
Season	2013/14	0	2	0	3	0	3	-15	16	-9		0
	2014/15	11	6	-2	1	-1	-4	1	3	0	-1	11
	2015/16	2	2	-4	0	1	0	2	8		9	14
	2016/17	6	-1	6	1	3	4	0	14	19	-11	12
	2017/18	24	4	5	8	1	3	1	27	6	-2	-1
	2018/19		3	0	2	3	2	-2	0	13	23	
	2019/20	18	15	12	0	1	-1	6	18	0	-3	
NOT DECLARED												
Season	2013/14	-2	2	-1	0	0	0	-4	-4	3	-3	-2
	2014/15	5	4	-4	0	-1	-4	-2	-4	0	-2	5
	2015/16	8	5	-2	-4	-4	0	0	-6	-4	-2	-2
	2016/17	-1	6	1	-12	-7	1	-3	1	0	-2	1
	2017/18		6	11	-9	-4	-2	-9	-8	-2	-9	0
	2018/19		2	-4	-8	-2	-5	-3	-21	-8	-10	-18
	2019/20	-12	-3	-1	-6	-4	-3	-10	-12	-11	-6	

From Table 4, Season 2019 sees the continuation of premiums for NM wool, ranging from 55 c/kg clean for 16 µm wool to 12 c/kg clean for higher micron non-Merino wool. With variation around these mean values, some wools will achieve higher premiums and some lower or non-existent. Premiums for CM status are evident but less strong compared with NM. The values recorded for AA and ND show trends but may not be significant.

AVERAGE MONTHLY EMI COMPARISON

The chart opposite provides a snapshot of how the AWEX monthly Eastern Market Indicator (EMI) and a range of microns have performed for the past three months (May 2020 – July 2020) in Australian dollar terms compared with the previous five years May 2015 to April 2020 (circles) and the decade previous to that, May 2005 – April 2015 (squares).

This past three-month period has been dominated by the negative impact of the coronavirus pandemic on the global economy.

For the past three months, the monthly EMI averaged at \$11.48 which is a \$2.99 drop from the average for the previous three months, and is tracking at the 6th percentile against the previous five-year monthly EMI. This means that in the previous five years the monthly EMI has recorded a lower price than the current \$11.48 (May 2020 – July 2020) for only 6% of the time.

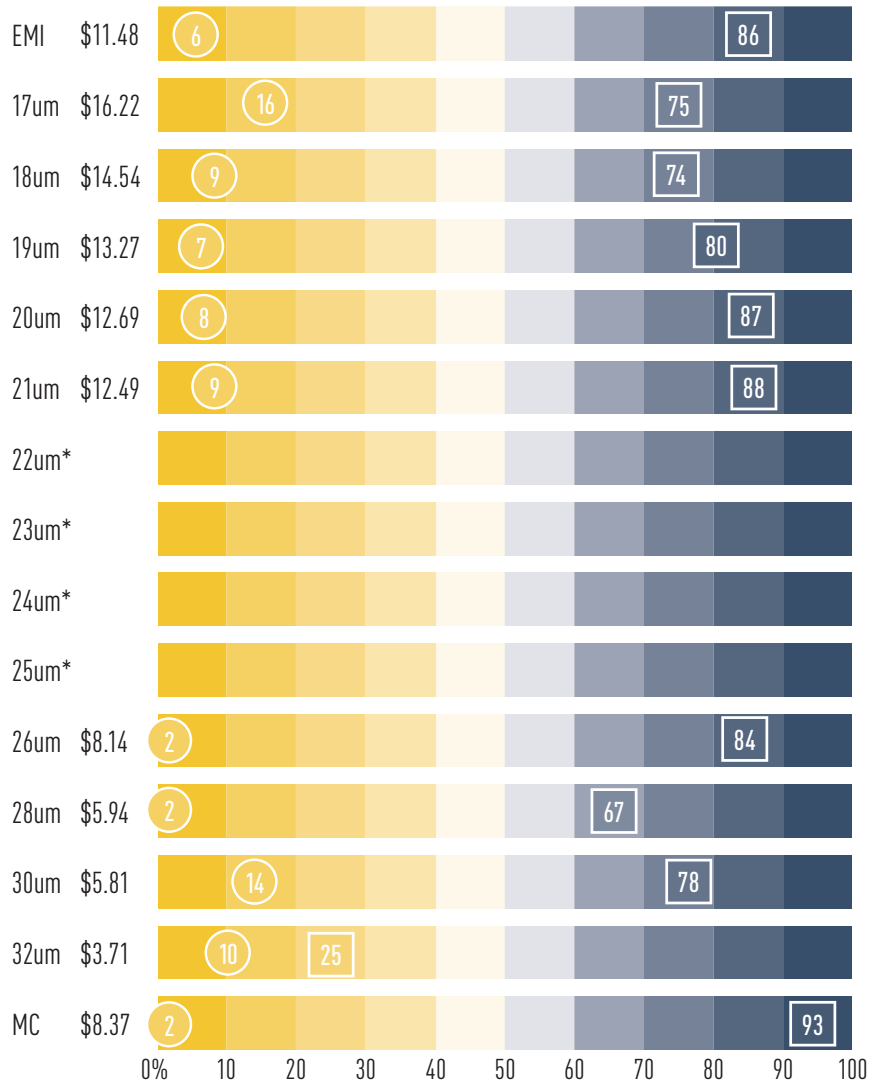
While the EMI is tracking at the 6th percentile over the previous five years, it is tracking at the 86th percentile when compared to the decade May 2005 – April 2015. This means the current EMI of \$11.48 (May 2020 – July 2020) is still higher now than it was for 86% that decade.

18 micron averaged at a monthly value of \$14.54 (9th percentile for the previous five years and 74th percentile for the decade before that), 21 micron averaged at \$12.49 (9th percentile for the previous five years but 88th percentile for the decade before that), and 28 micron averaged at \$5.94 (2nd percentile for the previous five years and 67th percentile for the decade before that).

For the past three months, Merino Cardings averaged at \$8.37, operating at the 2nd percentile for the previous five years and at the 93rd percentile for the decade before that.

B

AVERAGE MONTHLY EMI FOR MAY 2020 – JULY 2020 COMPARED WITH
 ● PREVIOUS 5 YEARS MAY 2015 – APRIL 2020
 ■ THE DECADE MAY 2005 – APRIL 2015



*insufficient data

NEW MARKET INTELLIGENCE AT WOOL.COM

An important part of the recent revamp of AWI's Wool.com website was the introduction of more market intelligence information for woolgrowers.

As well as the Weekly Price Reports and Monthly Market Intelligence Reports, there is now a graphical display of

- Eastern Market Indicator – you can select to display AUD, USD, CNY or EUR.
- Offering – displays bales offered and bales sold.

- Currency movements – you can select to display AUD/USD, AUD/CNY or AUD/EUR.
- Forecast of bales sold – displays previous season, current season, current week and forecast.

For the first three categories above, you can select to display data from 3 months to 3 years ago.

AWI also continues to send wool prices

and market intelligence direct to about 5,000 woolgrowers' mobile phones. If you would like to subscribe to the free SMS service, visit www.wool.com/sms where you will be asked to input your name and the mobile phone number to receive the SMS. You can unsubscribe from the service at any time.

B

MORE INFORMATION
www.wool.com/marketintel

SELL YOUR WOOL THROUGH WOOLQ

COVID-19 is placing a continued threat on the way many businesses operate, including the selling of wool. A disruption to the regular open cry wool auctions remains a risk, but the industry is now well placed with alternative selling methods. WoolQ Market, launched in April, is now conducting regular online auctions – and all woolgrowers are being encouraged to consider using the new digital platform to sell their wool.

Many Australian wool broking and buying businesses have a Business Continuity Plan (BCP) in place in case of a major external disruption – whether it be a pandemic, major power outage, transport interruption etc. WoolQ Market has the potential to be a useful part of a broker's or exporter's BCP toolkit.

The WoolQ platform can facilitate meaningful digital interaction between broker and client when face to face meetings are not possible and whilst we acknowledge that open cry auctions may remain the dominant selling method for the foreseeable future, we believe that all market participants should include WoolQ as an option for the trading of wool when the traditional methods for selling wool are unavailable.

WoolQ Market is a centralised, efficient and easy to use online auction operating outside the open cry market hours, with extensive benefits

for buyers, brokers and woolgrowers. It has been conducting online auctions since April.

WoolQ Market is part of the WoolQ suite of digital tools that is allowing all types of woolgrowers and industry participants to easily harness digital efficiencies across the wool-growing and selling cycle.

Importantly for woolgrowers, WoolQ allows them to have all past and present data relating to their clip online and in their own hands, with simple comparative tools to see what is happening from one season to the next. **B**

MORE INFORMATION

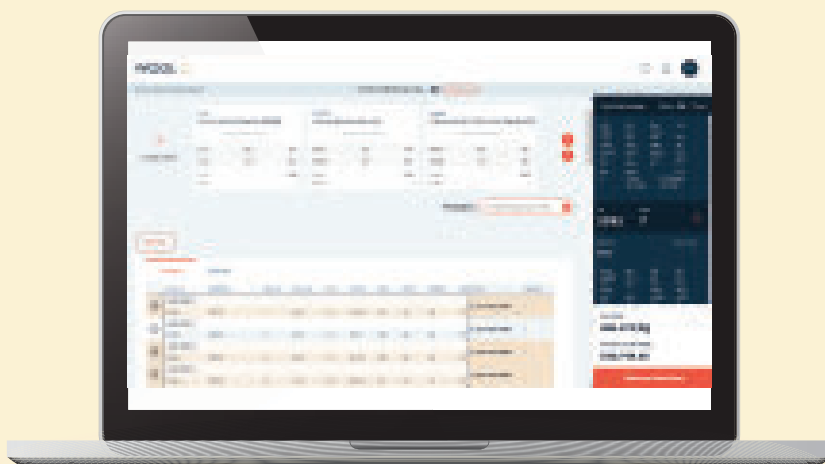
Woolgrowers are encouraged to speak to their brokers about selling wool on WoolQ and head to www.woolq.com to check out the latest features. Reach out to info@woolq.com with any questions.

BENEFITS THAT WOOLQ MARKET OFFERS TO THE AUSTRALIAN WOOL INDUSTRY

- A highly secure longer-term solution that complements open cry trading while at the same time addresses some of the immediate challenges facing this traditional method of selling.
- A fully versatile and configurable platform that can be scaled up or down to deal with the volumes of wool available for sale.
- A team of industry professionals is available to assist both sellers and buyers in getting comfortable with this new way of transacting wool.
- Integrated with the whole WoolQ online platform that helps deliver wool and its accompanying data electronically from the shearing shed through to the port for export.
- Free of any exchange or access fees for an introductory period of 6 months.
- Presents the Australian wool industry with a selling option in line with the majority of other industry trading platforms.
- There are currently more than 1,000 businesses registered and more than 2,500 users on WoolQ.

WOOLQ BULLETIN BOARD NOW AVAILABLE

GREATER FLEXIBILITY AND SELLING OPPORTUNITIES FOR YOUR WOOL



Complementing the WoolQ Market Auction, WoolQ Market Bulletin Board is now available. It is a static online offer board available on a 24/7 basis providing woolgrowers via their agents the ability to offer their wool for sale whenever they wish outside the traditional auction cycle.

The WoolQ Bulletin Board provides growers with greater flexibility regarding selling opportunities for their wool. Linking in with the WoolQ Market Auction, the Bulletin Board is delivered on the same user-friendly technology that powers the WoolQ Market Auction to provide simple and transparent matching of buying and selling interest. Contact info@woolq.com to find out more.

HOW DO I ACCESS WOOLQ?

Users first need to register at www.woolq.com. Easy-to-follow video tutorials and user guides are available on www.woolq.com along with a customer assistance service. **B**



WIN!!!

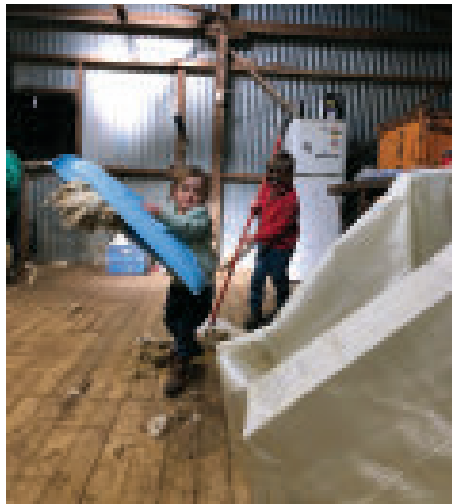
If you submit a photo that gets published in Readers' Photos, you'll receive from us a paperback copy of the Kondinin Groups' 'The Story of Wool'.

READERS' PHOTOS!

Have you got any interesting photos that you'd like to share with other readers of *Beyond the Bale*?

If so, please email the image and a brief description to the editor of *Beyond the Bale* Richard Smith at richard.smith@wool.com.

 **Beyond the Bale has its very own Instagram account.** You can follow [@beyondthebale](https://www.instagram.com/beyondthebale) on Instagram and also tag us in your photos for your chance to be featured.



WOOL INDUSTRY IN SAFE HANDS
Kylie Carlton sent in this photo of her grandchildren Hamish aged 5 and Charlotte aged 2, hard at work helping their mum and dad in the shed at Crookwell, NSW.



WRAPPED/RAPT IN WOOL
Wendy McClelland of *It's Pretty Knotted* (www.itsprettyknotted.com.au) in Perth produces super-soft 18-micron chunky knitted products made from 100% Australian Merino wool. Wendy tagged this photo #beyondthebale on Instagram and we reckon it looks perfect for anyone still stuck at home at the moment to keep out the winter chills.



A FEW DOLLARS FOR A COLLAR
Between contract mustering and helping run the family wool-growing property, Johno and Kate Johnson find time to make dog collars, name tags and leads, available to buy from www.j-k-rural-contracting.myshopify.com. Johno and Kate are based 100kms north-west of Ivanhoe in the far west of NSW, and pictured is their dog Tubby in her 25mm pup collar, \$12 each or \$18 with a name tag. #buyfromthebush



THANKS AMELIA!
Bev Penny of Greenhills Farming Co near York in WA sent in this photo of her granddaughter Amelia with her Merino lambs Bree and Norbert (twins) and Polly and Buster. There have been quad births, triplets and twins at Greenhill this year and their Merino mothers could not look after all of them so Bev's grandchildren have been helping out hand feeding and putting in a lot of love - which it looks like has been well and truly appreciated by the lambs.

MEALS-ON-WHEELS HAS BEEN DELIVERED

Ewes and lambs looking pleased as their feed has just been delivered on **Patrick and Helen Williamson's** Merino property 'Gobabla' 12 km north of **Williams** in **WA**. The farm was named after the property 'Gobabla' at Nevertire in NSW that was formerly owned by the renowned Dalton family from Orange, where Patrick's father worked before the Second World War as a stockman.



MINISTER IN WOOL

Spotted in July on **Channel Nine News** with the Prime Minister was Minister for Agriculture **David Littleproud** sporting a Woolmark Optim WR Jacket. Made from 100% Merino wool fabric of 16 micron, the jacket is resistant to water and wind. Woolgrowers can purchase the jacket (available in a range of colours) from www.wool.com/store for a discounted price of \$185.



HOW TO RESCUE SHEEP HACK

Marie Knight of 'Berrumbuckle' at **Coonabarabran, NSW**, says an easy way to get to a sheep when it's stuck in a muddy dam is to just use a ladder. Here, **Tony Knight** is pictured rescuing their pet sheep **Tixie** who was happy to wait for dad to help her get out.



BEWARE OF TRANSPORTING WEEDS

Parthenium weed is dangerous to grazing animals and can reduce crop and land values. Most commonly found in northern **Queensland**, it unfortunately is making its way, west and south. This image, taken by **Ian Lackington**, shows just how easily cars and trucks can transport weeds if left unchecked, and highlights the importance of washing and cleaning your cars when travelling long distances, to avoid outbreaks of the weed where they are not wanted.



SPYING THROUGH THE SHEARING SHED FLOOR

Julie Tkalec (muddy_pies) from the **Adelaide Hills** of **South Australia** tagged this photo, of her son **Sid**, #beyondthebale on Instagram, saying: "A sneaky smile certainly helps when you're spending Friday under a shed scooping up sheep 🐑 for the garden!"



AUSTRALIA AT ITS BEST

Leslie Brewer of 'Radstock' at **Strathalbyn** in **SA** sent in this photo taken on her property showing her daughter **Dusty Jones** with two-week old Romney lambs. Leslie said this is "Australia at its best: beaut lambs, healthy crop and a lovely lady".





WOOL

A new way to sell wool. WoolQ Market is now available.

WoolQ is a secure online platform where woolgrowers, classers, brokers and buyers can access digital tools to support all stages of the woolgrowing and selling cycle

- 2,538 registered users**
- 1,001 businesses**
- 33,512 wool bales recorded**

It's time to join the Q. [Register](#) at www.woolq.com

We can help you set up your WoolQ account. Call us on 1800 070 099 or email info@woolq.com.