Sheep Updates

2015

Sheep Updates 2015 - Katanning

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The Sheep Industry Business Innovation project

Bruce Mullan, Sheep Industry Development Director, DAFWA

Presentation outline

The Department of Agriculture and Food, Western Australia (DAFWA) has embarked on a four year, $10 million project to support the Western Australian (WA) sheep industry to capitalise on growing markets for sheep products.

The Sheep Industry Business Innovation project will work with industry to build capacity to supply new markets for sheepmeat and live exports, particularly in Asia and the Middle East.

The overall goal for the WA sheep industry is to be internationally competitive and grow in value in to the future.

The project’s priorities in order to produce a more sustainable, investable and customer-focused sheep industry in WA are:

- To support the establishment of dedicated export supply chains that offer the returns needed to restore confidence in the industry.
- To increase the on-farm productivity of market-preferred products, through better genetic selection and higher stocking and reproductive rates.
- To improve farm business performance and production skills.
- To increase access to investment, both from within and outside of the industry, as a result of increased confidence among investors and more attractive business models.
- To establish the human and physical resources needed to research, develop and demonstrate the elements required to achieve success in the industry and the means of sustaining those resources into the future.

This $10 million Sheep Industry Business Innovation project is made possible by the state government’s Royalties for Regions program, where mining proceeds are invested into regional WA priorities including agriculture.

Meat and Livestock Australia (MLA) has co-invested in the project, which is also supported with funding from the Sheep Cooperative Research Centre (CRC). The WA Sheep Industry Leadership Council is part of a stakeholder reference group that will provide direction to the project.

Information about the presenter

Bruce Mullan was raised on a wheat-sheep-pork family farm in Western Australia. He graduated with a BSc (Agriculture) from the University of WA (UWA) in 1978 and spent the next four years as a regional adviser with DAFWA, which was then known as the Department of Agriculture. He then undertook a PhD in pig nutrition, also at UWA, before spending more than two years doing research in the United Kingdom and a further three years with the Victorian Institute of Animal Science.

He re-joined DAFWA in 1992 and became manager of the pig research group. During this time he travelled extensively through Asia and Europe providing nutrition support to the animal feed industry. In 2010 he was appointed Director of Livestock Innovation, and in 2014 appointed...
Director of Sheep Industry Development with responsibility as Project Manager for the Sheep Industry Business Innovation project funded by Royalties for Regions.

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Western Australian sheep stocktake

Kate Pritchett and Kimbal Curtis, Research Officers, DAFWA

Presentation outline

The key market indicators for the sheep industry are all at the higher end of the range recorded during the last 10 years. While good for producers, high prices make doing business difficult for processors and exporters. With around 80% of Western Australian sheep meat exported, the softer Australian dollar provides some support.

In mid-2014, there were 14.4 million sheep and lambs in WA including 8.0 million breeding ewes. With a projected turn-off of 5.4 million head in 2014/15, and a normal level of on-farm losses, a marking rate in the mid-90’s would be required to maintain the sheep population. A more likely scenario is a marking rate in the high 80’s and a closing number for mid-2015 of just on or below 14 million.

While high sheep prices and therefore increased profitability provide some incentive to grow the flock, or get back into sheep, they also make it more expensive; either through the direct cost of buying ewe hoggets or by way of the cash flow foregone by retaining extra ewe lambs. However, expected growth in demand suggests this investment is worth considering.

Sheepmeat exports of over $320 million in both 2013/14 and 2014/15 make these the two largest grossing years of the last decade. The volume shipped in these two years is significantly higher than was shipped between 2009/10 and 2012/13, and equivalent to that shipped in 2008/09 and earlier when the flock was over 18 million and declining by around two million head per year.

Despite the jump in sheepmeat exports during 2013/14 and 2014/15, export prices also rose suggesting that demand was growing faster than the growth in supply. Contributing to this imbalance has been the impact of China where growth in sheepmeat consumption is diverging from growth in production, with the difference being picked up by imports. Western Australian sheepmeat exports to China have grown from 5000 tonnes in 2010/11 to 13 900 tonnes in 2013/14 and 12 900 tonnes in the first 11 months of 2014/15. China is now Western Australia’s largest single market with a share of just over 20%.

Information about the presenter

Kimbal joined DAFWA as a research officer when the WA flock was 30 million, and before it peaked at 38 million. He blends his science degree, computing skills and access to industry statistics to analyse and report on the sheep and cattle industries in WA. Kimbal lives in Fremantle, port of loading for the live sheep trade.

Kate completed a Bachelor of Science in Agriculture through Charles Sturt University as a distance education student while living and working in the Kimberley. She joined DAFWA in 2014 (flock 15 million) with several years’ experience on a number of iconic Kimberley cattle stations. She undertakes livestock industry analysis and reporting, providing data and interpretation to support decision making in DAFWA, including for the Sheep Industry Business Innovation project. Working from the Katanning office, Kate is experiencing her first Upper Great Southern winter.
Wool demand and supply – short term volatility, long term opportunities

Chris Wilcox, Principal of Poimena Analysis

Presentation outline

After rising between September 2014 and April 2015, wool prices surged and then fell back in May and June. Prices for some wool types have performed particularly well, notably cross-bred and broad wool as well as carding types. Medium merino wool (20 to 23 micron) continues to perform well, trading at around the 95th percentile or even better. In contrast, superfine wool prices have been rather lacklustre, continuing the pattern seen since 2011. Even so, in general wool prices are well above the levels a year ago.

What demand factors are driving these higher prices? Why is there the difference between the different wool types? How long will the better prices last? Sheep producers may also wonder what will be the impact on the wool market of the recent economic and financial events in Greece and China.

An equally important question, at least for long term planning, is whether global demand can be sustained at levels which encourage producers to stick with wool in their enterprise. If so, what products will drive demand in the future and what does that mean for the type of wool growers produce? And, what can wool growers do to meet the short and medium-term volatility and take advantage of the long term opportunities?

The presentation will look at these questions and explain the economic drivers of the wool market in the short, medium and longer-term. It will also address what sheep producers can do to address the short-term volatility and take advantage of the longer-term opportunities.

Information about the presenter

Chris Wilcox is the world’s leading analyst and commentator on the global wool industry. He has 23 years’ experience in conducting and guiding economic research, market intelligence analysis and strategic assessment of key issues in the global wool industry, in a career of over 35 years in Australian agribusiness.

Chris has a number of roles in the global wool industry, including: Executive Director of the National Council of Wool Selling Brokers of Australia; Chairman of the International Wool Textile Organisation’s Market Intelligence Committee; and Board Director of the Australian Wool Testing Authority. He prepares the International Wool Textile Organisation’s annual Market Information statistics publication and is a regular contributor to the Australian-based Mecardo market information and analysis website and service (www.mecardo.com.au).

Chris is a member of the Australian Wool Production Forecasting Committee, and provides the analytical and secretarial support to the Committee. He is also a member of MLA’s Australian Lamb Forecasting Advisory Committee. Chris was Chief Economist at The Woolmark Company and the Australian Wool Corporation for 12 years until 2008 and is now the principal of his own business, Poimena Analysis.
Lifetime ewe management for maternal ewes

Mike Hyder, Research Officer, DAFWA

Presentation outline

Guidelines for the management of Merino ewes during pregnancy are increasingly being adopted by producers to increase lamb survival and the lifetime wool value of these progeny.

However, with the 20% shift to Maternal breeds in the past 5-6 years, market research identified a need to develop guidelines for meat breeds because of the lack of confidence in the Merino guidelines applying to Maternal breeds. Anecdotally, there was a perception that Maternal breeds required less feed (“better doers”) than Merinos, or could be run harder (by 0.3 to 0.5 CS) during pregnancy. If true, this would have huge implications on stocking rate and profit.

The MLA-funded Lifetime Maternals project was established in 2012 on four sites across southern Australia (Mt Barker, WA; Struan, SA; Mooney Ponds and Hamilton, Vic). The objectives of the research:

- establish relationships between pasture supply and quality, with or without supplements, on live weight and condition score profiles of Maternal ewes
- refine relationships between live weight and condition score profile of Maternal ewes prior to joining and during pregnancy on lamb birth weight, survival and weaning weight
- develop live weight and condition score profiles that will maximise whole farm profit for different regions, times of lambing and commodity prices for Maternal ewes bearing singles, twins and triplets

Preliminary results from year 1 suggest:

- predictable impacts of manipulating the ewe live weight profile on birth weights of single and multiple lambs
- minimal effects of low CS at lambing (2.5 to 2.7) on survival of singles, but possible negative effect when CS > 3.5
- improving CS at lambing increased survival of twins at all sites and ‘near-maximum’ at CS 3.2 treatment (3.1 to 3.4)
- scope to reallocate feed to improve survival of singles by 5-8% and twins by 10-30%, and effects on whole flock weaning rate depends on scanning performance

Now in its second year, the research is examining whether higher feed on offer (FOO) levels during very late pregnancy mitigate the adverse effects on:

- birth weights and survival in twins lambs. If so, what period (days) and what FOO levels are required?
- lamb growth rates, weaning weight and carryover reproduction. If so, what FOO levels are required?

Information about the presenter

Mike Hyder has worked at the animal:pasture interface since the early 1990’s, and currently manages the Maternals Research site on David and Lyn Slade’s property at Mt Barker, WA.
National Livestock Identification System (NLIS) for sheep and goats – what is the NLIS database?

Leigh Sonnermann, Biosecurity Officer, DAFWA

Presentation outline

In Western Australia, approximately 15,000 sheep are moved every day. To keep track of these as well as similar movements in the other states, a national database is used to record the details of every movement.

The NLIS allows stock to be traced from their property of birth through all subsequent properties or to the place of slaughter. The system provides:

- better traceability for disease outbreaks
- better traceability for food safety (residue detection)
- better biosecurity outcomes.

What information is recorded?

For sheep and goats, the NLIS database records mob based movements where animals move from one property identification code (PIC) to another. Information to be recorded must include:

- date of movement
- waybill number
- brand
- number of animals in mob (a single animal is also a mob)
- if the stock are vendor bred.

Who is responsible?

It is the responsibility of the receiver or purchaser of the stock to update the database, except if purchased from a saleyard (then it is the responsibility of the saleyard).

Producers need to record the following movements on the NLIS database:

- sheep purchased privately
- sheep moved between your different PIC’s
- sheep moved to and from agistment properties.

The record of movement must be completed with 48 hours.

Creating an NLIS database account

An NLIS account can be created free of charge at [www.nlis.mla.com.au](http://www.nlis.mla.com.au)

For assistance contact the DAFWA sheep NLIS helpdesk on +61 (0)8 9363 4150 or [sheep.nlis@agric.wa.gov.au](mailto:sheep.nlis@agric.wa.gov.au)

Information about the presenter

Leigh is Biosecurity Officer with the Department of Agriculture and Food, Western Australia. Her work is focussed on assisting producers to achieve electronic traceability for sheep via the National Livestock Identification System (NLIS) Sheep HelpDesk. The other half of Leigh’s role is devoted to animal disease control, particularly post-border quarantine for livestock (liver fluke). Previously Leigh has worked with Quarantine WA with the detector dogs at the domestic and international airports and at the border checkpoints in Norseman and Kununurra.
Myths, Facts and the role of animal welfare in farming

Lynne Bradshaw, President, RSPCA WA

Presentation outline

The Royal Society for the Prevention of Cruelty to Animals Western Australia (RSPCA WA) was established in 1892 in response to public concern about poor treatment of working animals such as horses. RSPCA WA is the state’s oldest, largest and leading animal welfare charity. RSPCA WA’s objectives today reflect its early objectives and apply to domestic, wild and farm animals.

So, what is the difference between animal welfare, animal activism or animal rights?

RSPCA WA supports farming of animals for food or fibre and seeks to work with producers to achieve the best possible humane and practical animal welfare outcomes. Animal activist or rights groups do not support the farming of animals for food and fibre. RSPCA has an approved farming scheme which helps producers tap into the Australian consumers’ desire to know where their food comes from and to pay higher prices for food produced to high welfare standards. The approved farming scheme involves many producers of chicken and turkey meat, eggs and pork. We continue to work with the Sheepmeat Council of Australia providing them with community feedback and welfare advice.

RSPCA WA is a barometer of the community’s expectations about animals used for food and fibre. We will explain why the general public trust RSPCA, how we work with DAFWA and other government agencies and farming groups and also discuss the RSPCA position and policy on performing husbandry procedures on sheep. We will be able to dispel some of the myths and provide some facts about why we are not the same as animal rights groups.

We will have several members of the RSPCA team available on the day to take questions.

Information about the presenter

Lynne Bradshaw was elected President of the RSPCA WA in 2004 after joining the RSPCA WA Council in 1997. She was also the National President of RSPCA Australia from 2006 to 2013.

Lynne has had a 30 year career in business development in the healthcare industry, with experience in senior management and director positions in both public and private entities, locally and internationally. Her focus has been in building businesses, either from inception and start-up, or by taking SMEs through acquisition and merger to eventual sale or public listing. Lynne has a particular interest in supporting locally developed medical technologies through commercialisation as part of the growth strategy for these businesses.

Lynne has strong skills across business development, strategic marketing, financial and business management, as well as product management, commercialisation and market development.

Before moving to Australia in 1985, Lynne was a committed member of RSPCA UK. She has also been an active member in the Fauna Rehabilitation Foundation (now Native Animal Rescue) and is a sitting member of the Telethon Institute Animal Ethics Committee, the Ausbiotech WA Committee and is the RSPCA WA representative on the WA Animal Welfare Advisory Committee.
Latest research and development on breech strike prevention

Geoff Lindon, Manager Productivity and Animal Welfare, AWI

Presentation outline

The focus of AWI’s Breech Strike Prevention Program is to provide woolgrowers with a range of options now and in the future, to choose the best method of breech strike prevention for their climate, country and sheep type. The Program consists of;

- Breeding for breech strike resistance
  Lower breech wrinkle, dags, urine stain, breech cover
  Genomics, odour and bacteria

- Breech modification
  Clips
  SkinTraction
  Liquid Nitrogen and laser

- Pain relief products
  Tri-Solfen
  Buccal Meloxicam,
  Broadening use approvals

- Chemical prevention
  Monitoring resistance
  Fly genome
  Future control options

- Rebalance of existing husbandry options
  Time and length of joining
  Time of crutching and shearing
  Chemical use, sheep type

- Assessing lifetime animal welfare
  Comparison of control options

- Wool declarations and market analysis

- Woolgrower communication and training
  ParaBoss, National Mulesing Accreditation Program, MERINOSELECT

- Supply chain transparency
  Program audits, retailer advice
  Supply chain standards & liaison with animal welfare groups

Information about the presenter

Following studies at (?) Roseworthy Agricultural College and the University of New England, Geoff worked on Bungaree, Egelabra, and Bononke/Wanganella Merino studs. He then managed the Trangie Agricultural Research Centre, was Livestock Operations Manager for the Twynam Agricultural Group from 1996-2007 and then joined AWI.
Lamb Survival Initiative and 100%+ Club

Katherine Davies, Development Officer, DAFWA Northam

Presentation outline

Just over 6% of Western Australian merino producers and 9% of dedicated prime lamb producers achieve marking rates of over 100%. This means that less than 500 producers across WA achieve the 100%+ benchmark in any given year.

The Lamb Survival Initiative provides support for producers to lift their sheep enterprise's lamb turn off through access to an experienced consultant, use of key management tools, and a subsidy on pregnancy scanning for multiple births. Local grower groups are involved to provide coordination of activities.

In order to build producers' confidence and skills to lift marking rates to 100%+ we encourage producers to:

- undertake pregnancy scanning for multiples
- record and submit data on the reproductive rate, marking rate and weaning rate, so that it can be benchmarked against other producers
- attend at least one training course or workshop focused on reproduction
- work with industry professionals on reproduction rates of their flock.

The 100%+ Club celebrates the success, expertise and contribution of Western Australia's leading sheep producers to rebuilding the state's flock to a sustainable level.

Average marking percentages for Merino flocks across the state are about 80%. Our leading producers are achieving in excess of 100% and prime lamb producers with their finger on the pulse are achieving above 120%.

To keep the WA sheep industry alive we need to boost lamb marking percentages which in turn increases both farm and industry profits – more lambs make good cents!

The Lamb Survival Initiative and 100%+ Club are funded by Royalties for Regions through the Sheep Industry Business Innovation project.

To find out more about the Lamb Survival Initiative or to nominate yourself or someone you know for the 100%+ Club contact Katherine Davies on +61 (0)8 9690 2169 or katherine.davies@agric.wa.gov.au.

Information about the presenter

Katherine was raised in York and always had a keen interest in animals, particularly livestock. She graduated from Murdoch University with a Bachelor of Animal Science with First Class Honours in 2011 and began working with DAFWA from the Moora office in 2012.

Katherine has worked on a number of projects in both sheep and grain production and is now involved with the Royalties for Regions funded Sheep Industry Business Innovation project running the Lamb Survival Initiative and 100%+ Club.
How to boost your lamb survival

Joe Young, Sheep Consultant, R.B. Young and Son

Presentation outline

There are a few main points when investigating how you can boost your lamb survival. Many of these come from findings out of the Lifetimewool project and have since been integrated into Lifetime Ewe Management courses.

Firstly, think about lamb survival and the factors that drive it.

- **Ewe nutrition**
  - Ewes lacking energy to birth the lamb increase the likelihood of traumatic lamb birth and possible ewe mortality.
  - Hungry ewes produce inadequate milk supply and increase likelihood of lamb abandonment or mismothering.

- **Lamb birth weight**
  - Is affected by ewe nutrition during pregnancy.
  - Light lambs risk increased threat of malnutrition, exposure and predation.
  - Heavy lambs risk dystocia and traumatic birth.

Given these factors (and many others) affecting lamb survival, there are a number of strategies that can be put in place to counteract.

- **Condition scoring ewes**
  - Allows management of ewe nutrition throughout the reproductive cycle, ensuring that ewes are in optimal condition to produce viable lambs.

- **Pregnancy scanning for multiples**
  - Allows you to manage ewes according to litter size, allocating nutrition to the twin bearing ewes that need it, while rationing feed to dry and single bearing ewes to reduce the risk of dystocia.

- **Feed budgeting**
  - Calculated using condition scores of the flock and Feed on Offer (FOO) in the paddock: are they getting enough? It takes the guess work out of feeding.

- **Lambing paddock preparation**
  - A sheltered paddock reduces the risk of exposure and smaller mob sizes decrease the risk of mismothering.

Information about the presenter

Joe graduated from Lincoln College in New Zealand in the early 80's and farmed a mixed farming operation in Esperance before returning to the family farm at Kojonup.

Initially Joe ran the Jingalup Ram Breeding Co-operative for the AMS before branching into a sheep trading operation in early 90's.

He has facilitated local Lifetime Ewe Management groups, helped design and present The Sheep's Back course and is currently facilitating the Southern Dirt Lamb Survival Initiative.
Using genomic technology to increase genetic gain

Stephen Lee, School of Animal and Veterinary Sciences, University of Adelaide and Sheep Cooperative Research Centre (CRC) & Ian Robertson, Merinotech WA

Presentation outline

DNA technology has developed rapidly over recent decades and we can now generate information relatively cheaply from the DNA of individuals. The Sheep CRC has developed a number of DNA tests useful for sheep enterprises. These are the Low Density (LD) genomic test, parentage test and poll test. A DNA test requires the collection of a small blood sample on a blood card. This can be done, for example, by making a small cut on the ear. Blood cards are provided when ordering tests; they are specially designed for collecting blood for the purpose of DNA testing. The cards are barcoded and the identification number of the animal that the sample belongs to must be provided on the card.

Sheep CRC LD test

The LD test provides information about an animal’s breeding value for four breeds of sheep Merino, White Suffolk, Poll Dorset and Border Leicester. Information from the test is combined with pedigree and performance data in the Sheep Genetics database to increase the accuracy of Australian Sheep Breeding Values (ASBVs). The LD test increases accuracy of breeding values, especially for young animals and for traits that are generally measured later in life or not measured at all. This is important as genetic gain in sheep breeding programs is made by identifying and selecting the best animals. Greater genetic gain is achieved when animals can be more accurately selected and mated at younger ages.

The LD test is expected to increase rate of genetic gain for Merino breeders that use the test by between 10-15%. Importantly, it is expected that testing about the top 20% of the ram drop will give more than 90% of the potential genetic gain. Terminal ram breeders are also expected to benefit from use of the LD test as it provides ability to identify and select rams that are superior for lean meat yield (LMY) and eating quality traits. To date, terminal ram breeders have successfully used current selection indexes and measurements for growth, muscle and fat depth to achieve substantial genetic gain. The LD test will allow breeders to incorporate selection for eating quality, for which there was previously limited information.

Sheep CRC LD 12K test key points

- Genomic tests increase ASBV accuracy and, therefore, rate of genetic gain.
- The increase in ASBV accuracy is highest when there are limited measurements available, for example in young animals.
- The most cost effective use is to test mainly rams.
- Testing about 20% of the ram drop to achieves most of the extra genetic gain.
- Commercial sheep producers can benefit by purchasing rams with superior genetic merit based on Sheep Genetics ASBVs.

Information about the presenter

Stephen is based at the School of Animal and Veterinary Sciences at the University of Adelaide where he has a multifaceted role focused on applying technology in the livestock industries. Stephen works with the Sheep CRC and sheep breeders on effective implementation of genomics into sheep breeding programs. This includes developing strategies to optimise investment in genomics for genetic gain.
Further information:
Detailed information on the DNA tests developed by the Sheep CRC and order forms for the tests can be found at http://www.sheepcrc.org.au/genetic.php

Notes
Economics of feed lotting – to feed-lot or not?

Lucy Anderton, Economist, DAFWA

Presentation outline

Farming systems have responded to market signals and adapted to a dual sheep enterprise producing wool and meat either as prime lambs and or live sheep for slaughter overseas. However, finishing lambs for the prime lamb market in Western Australia’s Mediterranean climate and short growing season can be difficult and costly.

Decisions about time of lambing and stocking rates to achieve growth rates influence how many lambs meet market specifications by when, and understanding the end margin using market information and key profit drivers for finishing lambs may improve the final profit result.

Deciding how to finish lambs requires an understanding of these profit drivers, which are:

- Weight animal enters the feed-lot
- Growth rate
- Cost of ration

Other factors which influence the final result are the price of store sheep and sale price of the finished animal.

Information about the presenter

Lucy has worked for DAFWA since 2002 and specialises in farming systems and bio-economic modelling for live-stock systems. Her interest in understanding the drivers of whole farm performance, the interactions between enterprises and socio-economic systems stems from her history working and living on farms in W.A, which she continues to explore in her research.
Annameka and other shrubs to fill feed gaps

Hayley Norman CSIRO & Ed Barrett-Lennard UWA & DAFWA

There are a range of perennial forage shrub options that allow producers to reduce the risk of feed shortages associated with a dry and variable climate. These plants have greatest value when they are grown on soils that are not suited to crops. The aim of this presentation is to provide up-to-date information about forage shrubs and introduce the new old man saltbush cultivar, Annameka.

Why plant perennial forage shrubs?

- A reliable source of feed for sheep and cattle in late summer, autumn and early winter.
- Great source of protein, sulphur and antioxidants (vitamin E), variable energy and minerals. Great complement for crop stubbles, senesced pastures and perhaps subtropical grasses.
- A great place to put animals when you are planting crops. Allows deferment of annual pastures
- Improved wool growth, for example old man saltbush can benefit production of quality wool for three reasons: (i) high salt diets increase wool growth by about 10%, (ii) wool grown in autumn is stronger due to the high nitrogen and sulphur, and (iii) offspring from ewes fed OMSB during pregnancy seem to have higher fleece weights, independent of mechanisms (i) and (ii).
- Grows on marginal soils (saline and sandy).
- Tough and long-lived (>10 years).
- Will use summer rainfall to produce biomass. Therefore also helps to prevent water table recharge and dryland salinity.
- Other environmental benefits – fix carbon, improved biodiversity through provision of habitat (birds, lizards & invertebrates). Some species reduce methane emissions (research ongoing).

Our favourite 4 species;

1. **Old man saltbush** (*Atriplex nummularia*) is a native Australian shrub that is grown for ruminant feed across a range of saline and arid farming systems all over the world. It is happy without salt but will not tolerate inundation and very shallow water tables. Despite widespread adoption, there has been little effort to domesticate the species and much of the industry utilises ‘wild’ genotypes. Eyres Green (Topline Nursery, SA) was the first commercialised cultivar, noted by industry for its rapid growth and large leaves. In 2003 a project was initiated to collect 60 000 old man saltbushes from across the native range. This material was grown in 3 locations and characterised for agronomic attributes, nutritional and anti-nutritional traits and relative palatability to sheep. The first cultivar from this project, Annameka™, was released in 2015 and is available as nursery raised cuttings (Chatfields Tree Nursery, WA).

2. **River saltbush** (*Atriplex amnicola*). If the site is saline and has shallow water tables (think sea barley grass), then this is the species to choose. Similar nutritional value to standard old man saltbush.

3. **Small-leaved bluebush** (*Maireana brevifolia*) is the cheapest to establish as it propagates freely from seed. It tolerates salinity but not waterlogging. It has high crude protein and sulphur but only moderate digestibility and high salt. Add a small number to new plantations.

4. **Rhagodia preissii** is an Australian native woody shrub from the family Chenopodiaceae (the same family as saltbushes and bluebushes). *R. preissii* was one of the most productive and nutritious species in the collection of over 60 species. Digestibility and crude protein are high (when measured in a laboratory) and it does not have a high salt content. Compared to saltbush, it prefers sandy soils and no salinity. Preliminary *in vitro* (test tube) data suggests it may reduce worm burdens and methane emissions but more animal work is needed to confirm. The major limitation that is constraining further adoption is variable palatability to sheep and cattle, thought to be associated with
saponins (a bitter tasting compound). It has been noted that there is variation within a population for ‘palatability’. CSIRO are investigating the possibility of lines with higher palatability and nutritional value.

5. Of course we can’t forget Tagasaste for the gutless sands, particularly if you have cattle.

A few suggestions to optimise management;

- Get the right plant in the right place. Shrubs vary in their preferences for rainfall, soil types, salinity and waterlogging. While there are expensive ways to characterise new sites, observation of the landscape, previous yield maps and volunteer plants will often give you the clues you need to get the right shrub in the right place.
- Start with your ‘better’ marginal land as it’s easier to get shrubs established and working.
- Expense and risk are greatest during establishment so take care. Utilise soil scalping, mounding/furrowing, ripping, weed and bug control. Establishing directly from seed may be cheaper but it is more difficult than using nursery raised seedlings.
- Watering plants with a fire unit during their first summer if it is very dry may not be silly – replanting expensive and time consuming.
- Don’t waste money planting them too densely. Saltbushes grow when water is available; if they are competing for water you simply get less biomass per shrub. In the low to medium rainfall zone, 700 plants/ha is plenty. In higher rainfall zones or where you have a shallow water table that is not too salty, you may want to plant up to 1000 stems/ha.
- Don’t forget the understorey. Shrubs are not suitable as 100% of a diet due to salt, minerals and secondary compounds. The understorey is critical to profitability. If the land is capable of supporting an annual pasture, particularly an annual legume, put this in (with appropriate pest and weed control) before planting shrubs.
- Use it or lose it. You can’t ‘save saltbush up’ from one year to the next as a living haystack. The growth rate of shrubs will slow as they start to flower and shrubs may also drop leaves in late autumn if water stressed. Heavy annual grazing of shrubs will keep the majority of leaves within easy reach for the sheep.
- Shrubs are best grazed with a high stocking rate for a short period (crash grazing) rather than set stocking.
- Supplement or complement. Sheep and cattle generally can’t maintain liveweight on these shrubs alone due to salt and secondary compounds. Saltbush, bluebush and Rhagodia should only form about 30-40% of the total diet. They need extra roughage and energy to meet their requirements and optimise utilisation of the shrub.
- Reproducing ewes and growing lambs will need grain supplements and/or good quality hay, understorey or crop stubbles.
- Provide good, easily accessible water that is not too hot. Dried saltbush leaves are one quarter salt and a sheep on saltbush in summer can drink as much as 10 litres of water per day.
- Vitamin E for animal health and meat quality. Saltbush and other green shrubs contain high levels of antioxidants such as vitamin E. This is often lacking in autumn. As little as two weeks of saltbush exposure has been shown to bring the plasma vitamin E level of weaners above the critical threshold. Shelf life of meat improved by reducing the rate of browning.
- Watch your lambing ewes carefully. They need supplementary energy when grazing saltbush. Mineral imbalances may cause problems and for the ewes this can include calcium deficiency. The shelter is great for lambs.

About the authors & presenter

Hayley Norman is a Principal Research Scientist with CSIRO Agriculture, based in Perth. The aim of her research is to improve the health and profitability of marginal agricultural landscapes through the incorporation of novel forages into livestock systems. Her projects vary from native saltbush improvement in Australia, to forage diversification in Afghanistan and novel species for saline areas of Iraq. Her team use NIR, wet chemistry and on-farm feeding experiments to explore the impact of novel forages on animal performance, health and meat quality.
Dr Ed Barrett-Lennard is a Principal Research Officer in the Department of Agriculture and Food of Western Australia and Associate Professor in the School of Plant Biology at The University of Western Australia. For more than 30 years Ed has been a passionate researcher and advocate of the need to develop saline agricultural farming systems. His interests lie at the intersection between practical agriculture, soil science and ecophysiology in saline landscapes. He is the author/editor of four books, 50 papers and numerous other publications. For the bulk of his career, Ed has focused on the development of solutions for the productive use of highly saline and waterlogged soils in Western Australia using forage shrubs, however over the last 5 years his focus has moved to the development of salt tolerant crops.

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Sheep industry traineeships – encouraging a new generation of farmers

Jackie Jarvis – Consultant, Agrifood Labour & Skills

Presentation outline

A sheep industry traineeship program was initiated at the request of the Sheep Industry Leadership Council (SILC) in partnership with DAFWA, together with the Chamber of Commerce and Industry (CCI) and the Food, Fibre, Timber Industry Training Council (FFTITC).

A nationally recognised Certificate in Agriculture is available to school leavers, or any other employee who wishes to ‘formalise’ the on-farm training process.

This is known as a ‘traineeship’ and works like an apprenticeship, where someone is employed on a part-time or full-time basis, with training occurring on-the-job, under the guidance of the farm owner or other senior staff member. The process is by supervised by regular visits from the local Training Institute (formally known as TAFE) that ensure that the trainee can complete 16 units of ‘competency’ chosen from a compressive list. Most training occurs on the farm, but the training institute can arrange for lessons online or in a classroom environment if needed for some of the units.

Some of the unit of competency could include:

<table>
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<tr>
<th>Administer medication to livestock</th>
<th>Maintain livestock water supplies</th>
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<tr>
<td>Identify and draft livestock</td>
<td>Implement animal health control programs</td>
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<tr>
<td>Implement feeding plans for livestock</td>
<td>Prepare animals for parturition</td>
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<tr>
<td>Rear newborn and young livestock</td>
<td>Plan and construct conventional fencing</td>
</tr>
<tr>
<td>Keep records for a business</td>
<td>Monitor livestock production</td>
</tr>
<tr>
<td>Operate machinery and equipment</td>
<td>Fabricate &amp; repair metal or plastic structures</td>
</tr>
<tr>
<td>Prepare and apply chemicals</td>
<td>Prepare facilities for shearing and crutching</td>
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The indicative award rate of pay for a school leaver, employed under the Pastoral Award, and enrolled in an approved traineeship is $9.92 per hour. You can choose to pay more than the award rate, and remember you will need to confirm the correct award rate prior to employing someone. Your business may be eligible for up to $5000 in government incentives for employing a trainee.

This program will provide some guidance to assist with recruitment and you are asked to register your details if you would like further information.

Information about the presenter

Jackie Jarvis was raised in the northern Perth suburb of Wanneroo and spent her adolescence working on vegetable farms, before commencing a career in the banking sector. A work transfer saw her relocate to the South West over 25 years ago, where she and her husband Matt are commercial grape growers.

Jackie has an off-farm career specialising in agricultural labour supply issues, both domestic and international, and has managed a number of programs including the Harvest Trail; the seasonal worker program and a regional migrant employment support pilot. In 2014 Jackie was
named WA Rural Woman of the Year and was national runner-up, in recognition of a program placing resettled refugees into agricultural jobs. Jackie is now employed by CCI providing expert advice on labour and skills to the agrifood industry, in partnership with DAFWA.

Notes
Opportunities and challenges facing youth in the sheep and wool industry

Ben Patrick, Yarrawonga Merino Stud

Presentation outline

It is becoming more and more evident that the sheep and wool industry is not attracting the younger generation that it should. The opportunities and challenges that the youth face within the industry are directly related.

Throughout the presentation, he will cover what he see are the challenges and opportunities that he faces now and may face in the future, whilst relating his experience to Australian Sheep Breeding Values and commercial breeding programs.

Challenges and opportunities covered:

- succession
- corporate investment
- profitability
- labour costs
- new technologies.

With the continued pressures of profitability and the exciting opportunities that research and development within the industry provides us with, we must not forget where the industry has come from.

Ben will also talk about the Peter Westblade Scholarship, a program that was established to provide a hands-on approach to new technologies and provide networking opportunities to the youth of today whilst also providing young people with the ability to form a career path within the industry. He will describe what the scholarship contains, its values and how to apply, whilst relating back to his story.

Information about the presenter

Ben was brought up on a family farm on the southern tablelands of New South Wales. He studied agriculture business management via distance education (at CSU) whilst working full time on a number of corporate and family owned properties, then went on to manage a large commercial Merino operation and for the last two and a half years has been the livestock manager and stud master for Yarrawonga Merino Stud.

Following the MerinoLink conference and the Peter Westblade Memorial Wether Trial, Ben was awarded the 2014 Peter Westblade Scholarship.

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The Department of Agriculture and Food, Western Australia would like to acknowledge and thank their partners in the Katanning Sheep Updates 2015; Making More From Sheep, Southern Dirt and Gillamii