



awi

Australian Wool
Innovation Limited

FLY ON THE RUN?

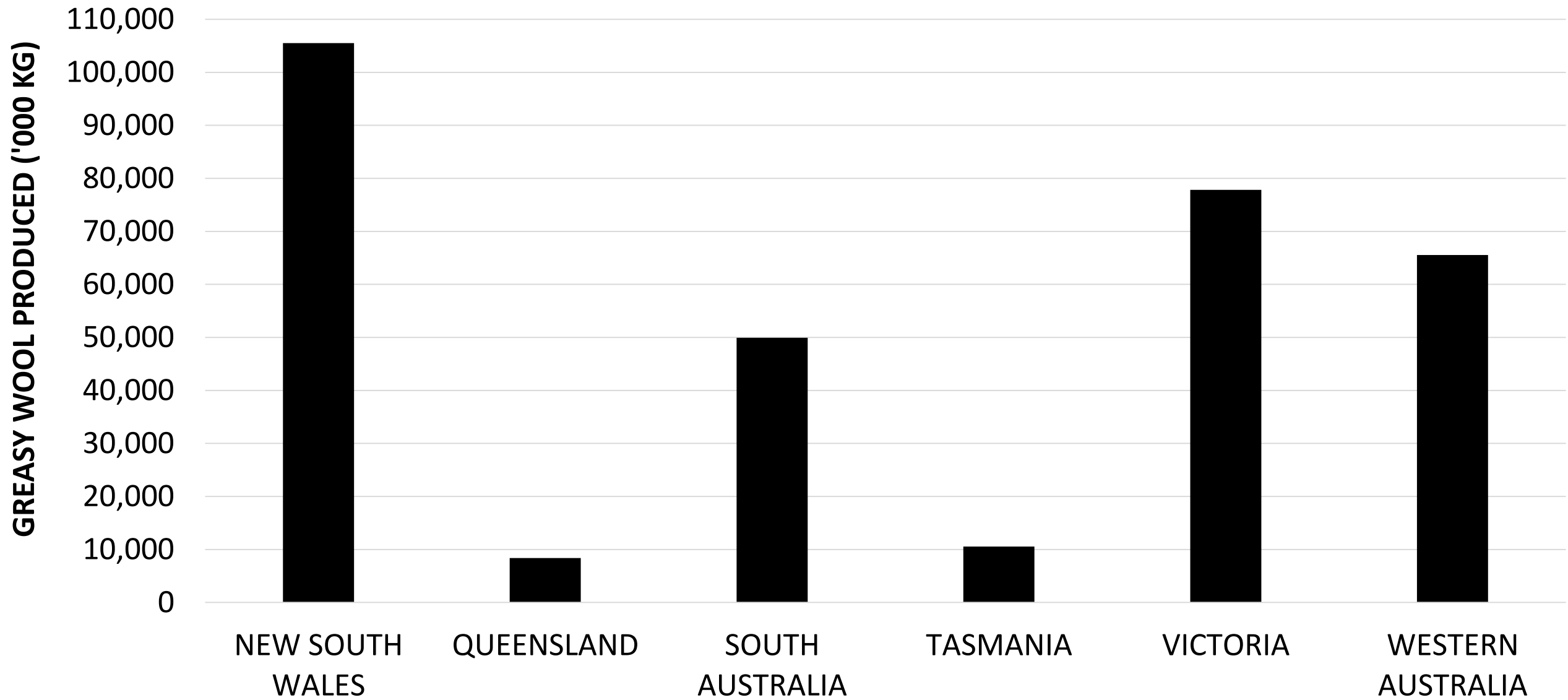
Bridget Peachey
Program Manager, Sheep Health & Welfare

FLY ON THE RUN THE LATEST IN FLYSTRIKE RESEARCH

- Background
- Flystrike research update
- Opportunities to get involved

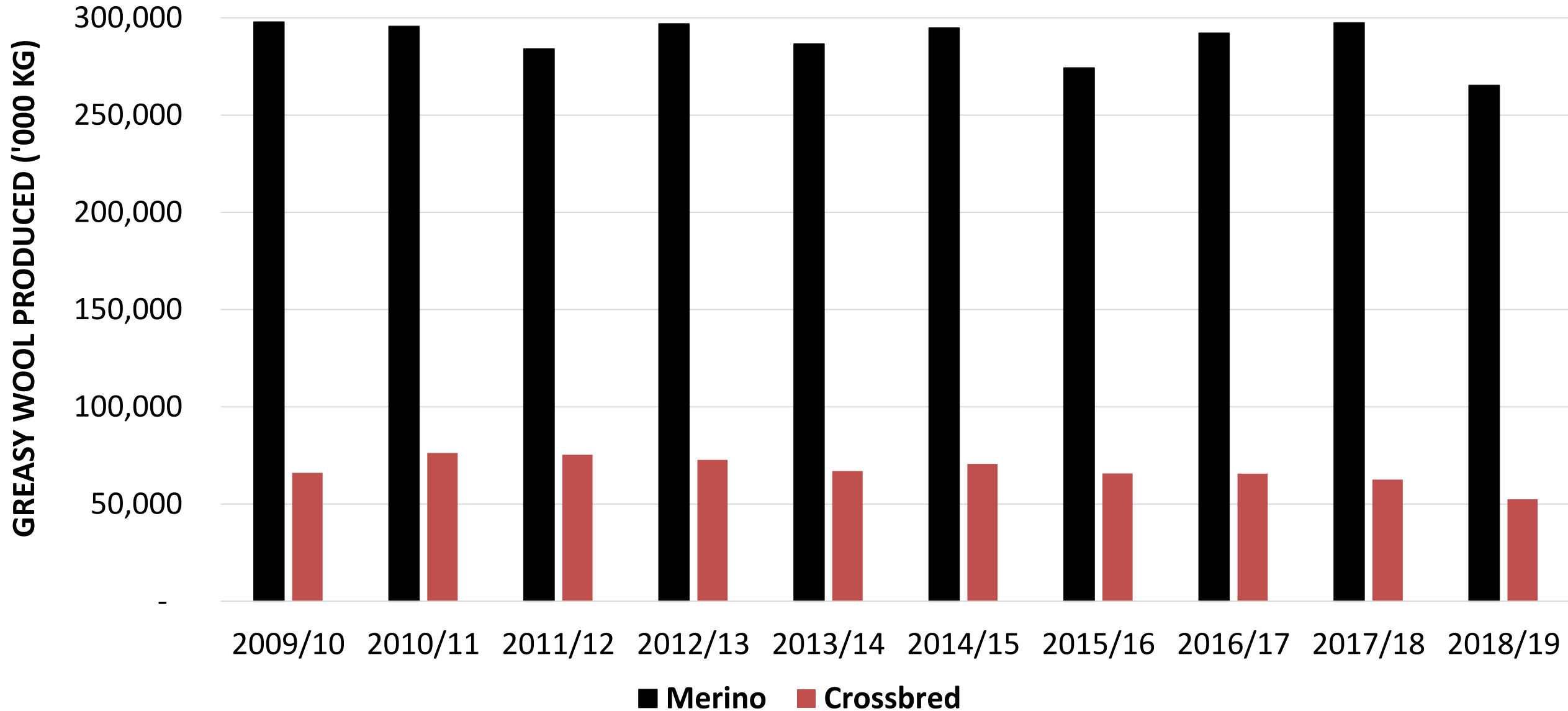


WOOL PRODUCTION BY STATE: 2018/19



Source: AWTA data, analysed by AWI

PRODUCTION BY TYPE: 2009/10 – 2018/19



Source: AWTa data, analysed by AWI



STRATEGIC PLAN 2019/20 TO 2021/22

AWI STRATEGIC PLAN 2019/20 – 2021/22

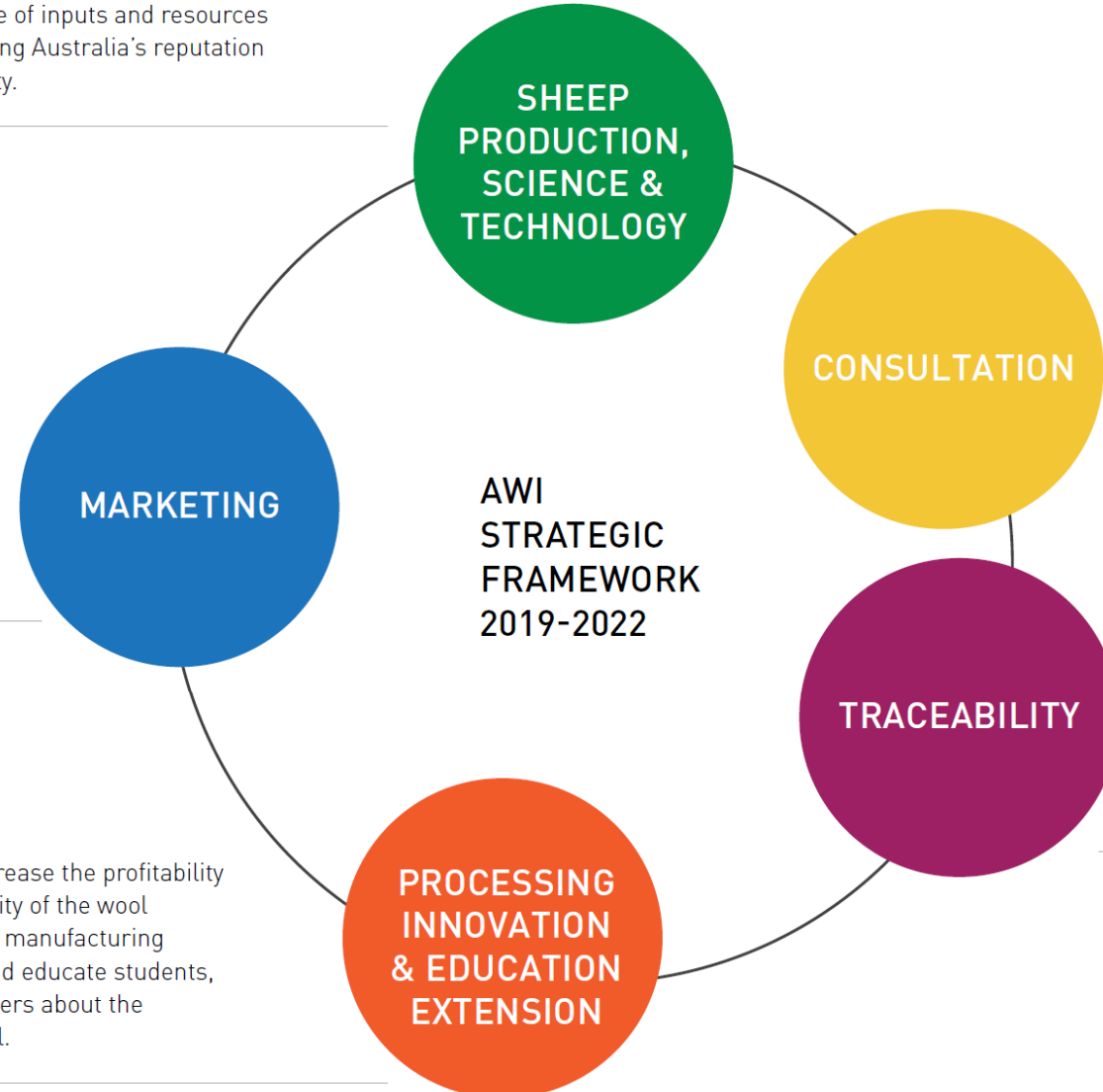


Objective – Lower the cost of production of wool on-farm by increasing the productivity of sheep and land, and increasing the efficiency of use of inputs and resources while maintaining Australia’s reputation for sustainability.

Objective – To build trust and transparency across the supply chain through an industry best-practice structured, targeted and measurable engagement model; and for this intelligence to influence, inform or contribute to AWI’s business activities.

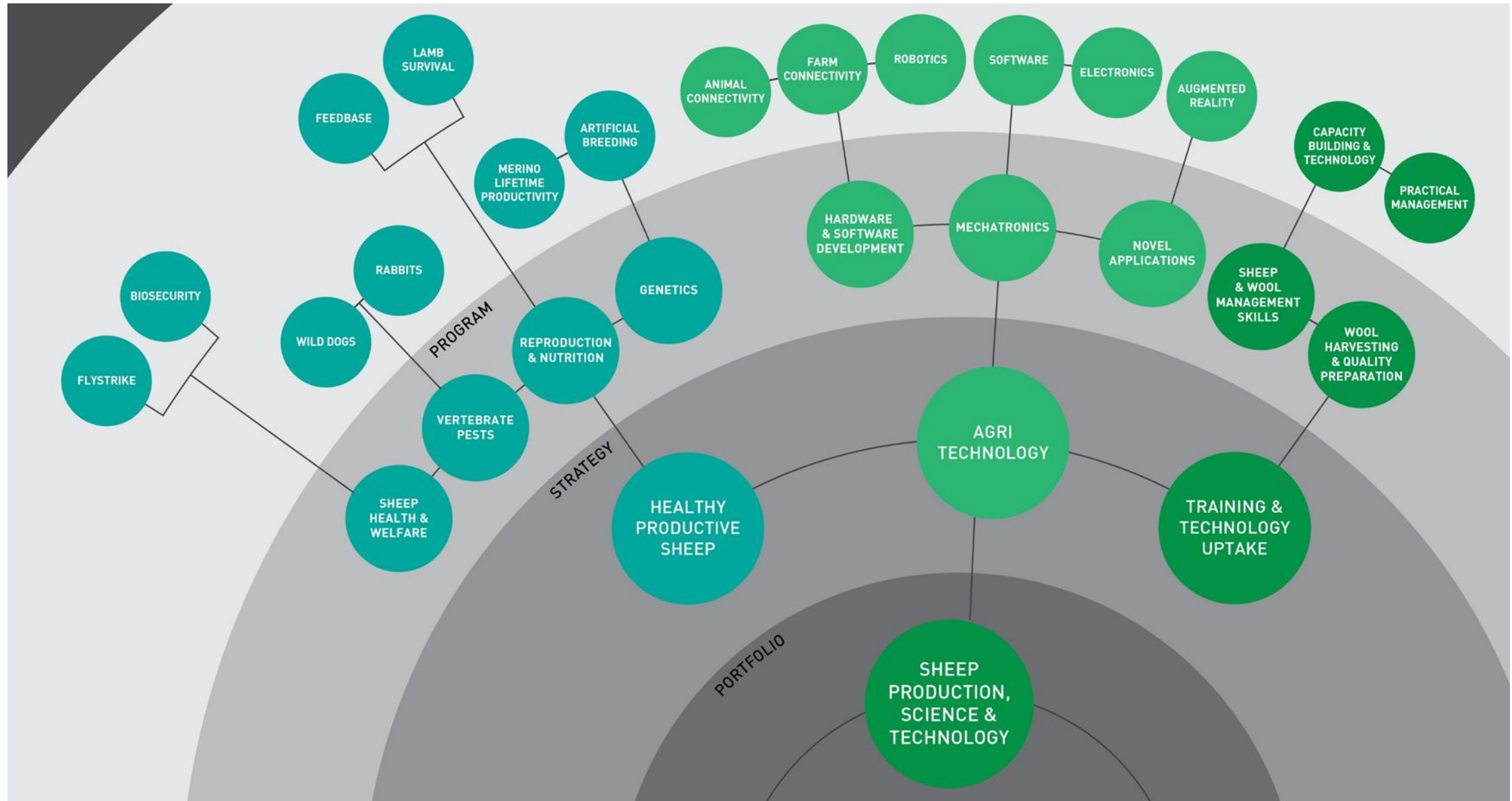
Objective – To continue to build demand for Australian wool by reinforcing its position in the market and solidifying a strong price to ensure a sustainable future for Australian woolgrowers.

Objective – To provide tools to ease the flow of information about Australian wool up and down the supply chain to all parties; to communicate wool’s benefits, facilitate provenance and supply chain transparency.



Objective – Increase the profitability and sustainability of the wool processing and manufacturing supply chain and educate students, trade and retailers about the benefits of wool.

AWI STRATEGIC PLAN 2019/20 – 2021/22



AWI STRATEGIC PLAN 2019/20 – 2021/22

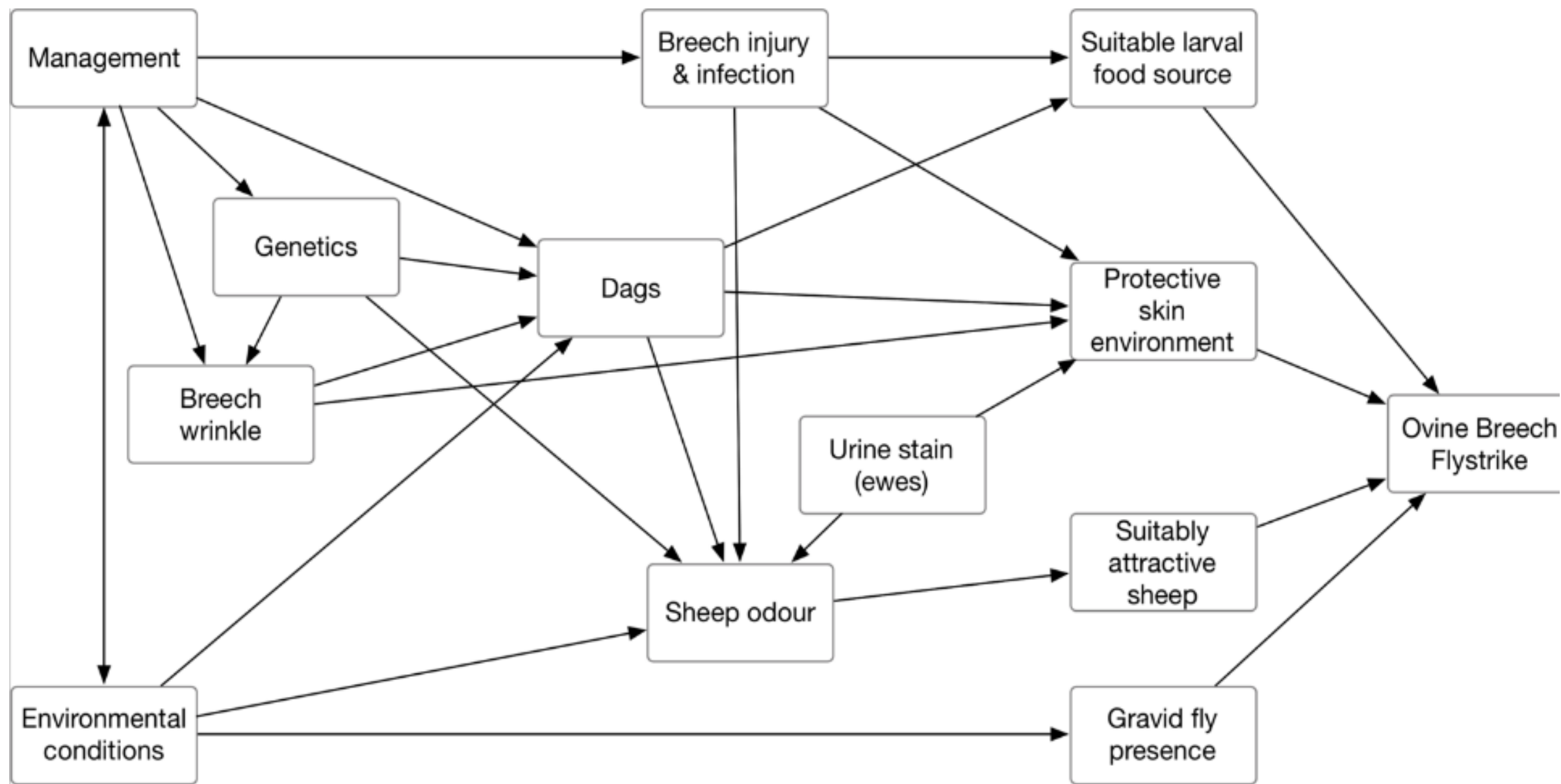


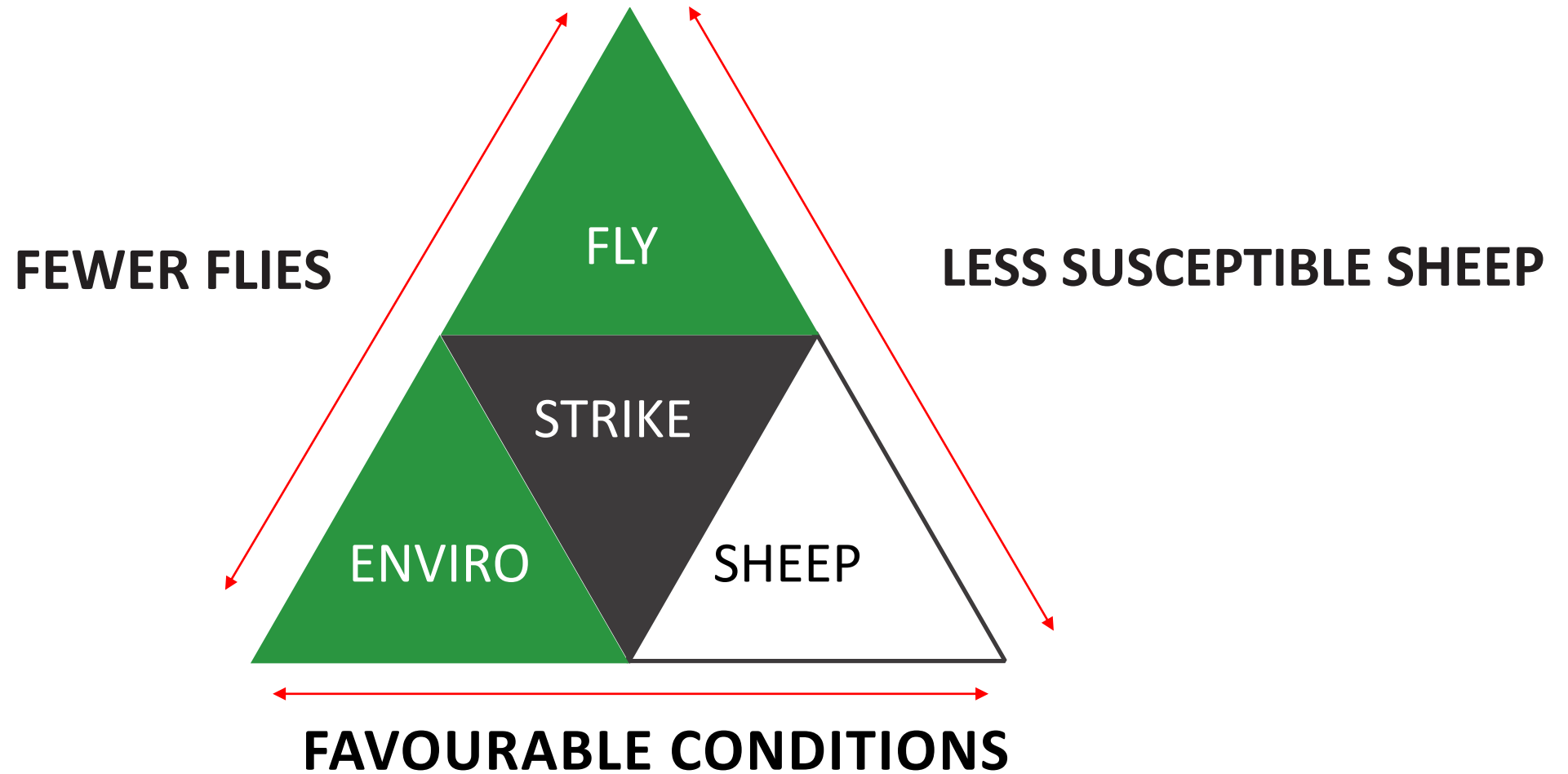
SHEEP PRODUCTION, SCIENCE & TECHNOLOGY

OVERALL OBJECTIVE Lower the cost of production of wool on-farm by increasing the productivity of sheep and land, and increasing the efficiency of use of inputs and resources while maintaining Australia's reputation for sustainability.

STRATEGY

STRATEGY	PROGRAMS	TARGETS
HEALTHY PRODUCTIVE SHEEP	SHEEP HEALTH & WELFARE	<ol style="list-style-type: none"> 1. Evidence of successful development of a flystrike vaccine prototype. <i>(OP)</i> 2. Evidence of investigations into novel pain relief options. <i>(OP)</i> 3. Developed integrated parasite management strategies to minimise the impact of chemical resistance. <i>(OP)</i> 4. Evidence of successful development of wool bale biosecurity tools. <i>(OP)</i>
	VERTEBRATE PESTS	<ol style="list-style-type: none"> 1. Reduce the negative impacts of predation by 10% by 2022. <i>(OC)</i> 2. Improve capacity to undertake pest animal control by 10% by 2022. <i>(OC)</i>
	REPRODUCTION & NUTRITION	<ol style="list-style-type: none"> 1. At least 1,500 woolgrowers engaged in implementing beneficial feedbase guidelines and practices by 2022. <i>(OC)</i> 2. Increasing Merino marking rates by 0.5% per annum. <i>(OC)</i> 3. Complete the development of guidelines and extension workshops to improve reproductive rates that support the aim of 34% of ewes differentially managed to best practice by 2022. <i>(OC)</i>
	GENETICS	<ol style="list-style-type: none"> 1. By 2022, 50% of Merino producers will be using genetic tools (eg Australian Sheep Breeding Values, Flock Breeding Values or wether trial data) in ram purchasing decisions. <i>(OC)</i>
AGRI TECHNOLOGY	HARDWARE & SOFTWARE DEVELOPMENT	<ol style="list-style-type: none"> 1. AWI Smart Tag system delivers at least three practical functionalities driven by sensors, hardware is reliable and durable, and software is able to be updated remotely. <i>(OP)</i> 2. Artificial Intelligence (machine learning) applied for data analysis delivering accurate predictions for at least two sheep traits or paddock events. <i>(OP)</i>
	MECHATRONICS	<ol style="list-style-type: none"> 1. Proof of concept robotic shearing system delivered. <i>(OP)</i>
	NOVEL APPLICATIONS	<ol style="list-style-type: none"> 1. Proof of concept novel user interface application. <i>(OP)</i> 2. Educational packages to increase technology adoption and digital literacy. <i>(OP)</i>
TRAINING & TECHNOLOGY UPTAKE	SHEEP & WOOL MANAGEMENT SKILLS	<ol style="list-style-type: none"> 1. 1,500 tertiary participants in AWI leadership and practical skills events. <i>(OC)</i> 2. AWI leadership and practical skills events delivered to participants receive a net promoter score of at least 7.5/10. <i>(OC)</i>
	WOOL HARVESTING & QUALITY PREPARATION	<ol style="list-style-type: none"> 1. 3,000 novice and intermediate level participants trained by AWI shearer and wool handler trainers. <i>(OC)</i> 2. Ongoing retention rate of 75% of those trained yearly. <i>(OC)</i> 3. More than 1,000 participants in shearer and wool handling competitions nationally. <i>(OC)</i> 4. 15,000 views of AWI Wool Harvesting resources online. <i>(OC)</i>



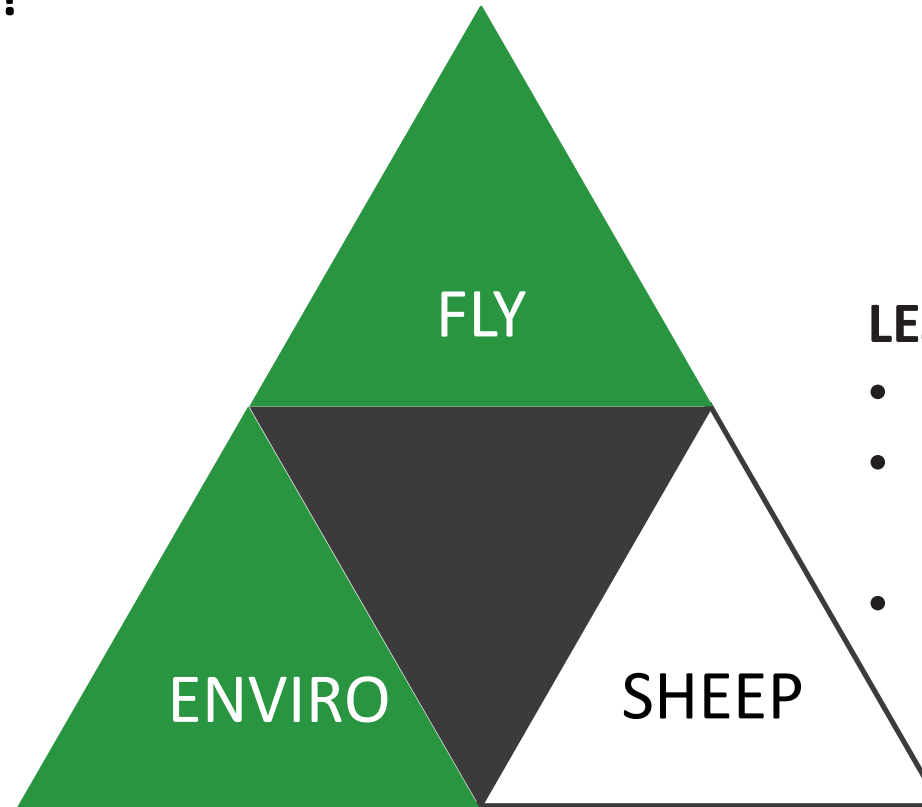


WHAT CAN YOU DO NOW?



FEWER FLIES

- Monitor with Lucitraps
- Reduce soil pupae
 - Safe paddocks – dry/windy
 - Kill all maggots when treating sheep



LESS SUSCEPTIBLE SHEEP

- Breeding
- Breech modification with analgesics/anaesthetics
- Integrated Pest Management
 - Chemicals
 - Crutching
 - Shearing

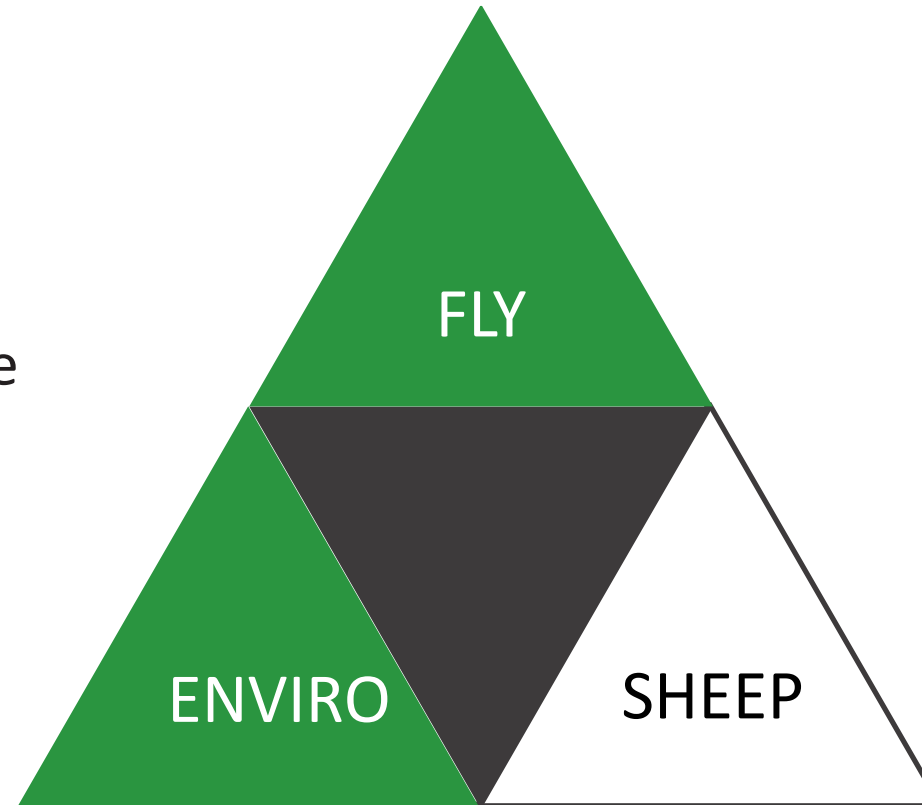
FAVOURABLE CONDITIONS

- Dag management
- Worm/lice management/anthelmintic resistance
- Wound management



FEWER FLIES

- Gene Editing/CRISPR
- Sterile Insect Technique
- Gene Drives
- Biological Controls



LESS SUSCEPTIBLE SHEEP

- Genomic selection
- New chemical groups/formulations
- Improved delivery of chemicals (Nanotechnology)
- Flystrike vaccine
- Chemical resistance
- Analgesics/Anaesthetics

FAVOURABLE CONDITIONS

- Dealing with Dag
- WormBoss/LiceBoss
- Chemical Resistance Strategy

BREEDING FOR BREECH FLYSTRIKE RESISTANCE

**How long will it take to breed for breech
flystrike resistance?**

**Can genomics assist with breeding to
reduce the risk of breech flystrike?**



HOW LONG WILL IT TAKE TO BREED FOR BREECH FLYSTRIKE RESISTANCE?

How fast can genetic improvement build high levels of resistance to breech flystrike whilst still making productivity gains?

What are the consequences for overall productivity of Merino sheep when breeding for increased resistance?

WA Scenario:

- Medium wool breeder in a winter rainfall high dag area in WA's SW with existing well recorded program.
- Focused on breeding for reduced breech flystrike incidence, using a modified Merino Production plus index.
- Starts with typical levels of risk for flystrike – average scores for wrinkle, dag and breech cover for area.
- Modelling suggests that after 11-12 years the stud flock can reduce incidence to below 1 strike per 100 ewes in an average year in unmulesed sheep.
- This is low enough to cease mulesing without increased reliance on chemical protection or crutching.
- 30% decrease in rate of fleece weight gains (although still positive)
- No impact on fibre diameter or reproductive rate.
- Commercial flock lag of 6 - 7 years.

IT MAY TAKE BETWEEN 11 TO 20 YEARS TO REDUCE THE INCIDENCE OF FLYSTRIKE TO LESS THAN 1 STRIKE PER 100 EWES PER YEAR

CAN GENOMICS ASSIST WITH REDUCING THE RISK OF BREECH FLYSTRIKE?

- Genomic information from over 1,500 sheep from WA and Armidale Breech Flystrike Flocks contributed to a CSIRO genome wide association study – breech flystrike, breech wrinkle, breed cover, dag.
- Concluded - no major genes associated with breech flystrike; therefore genetic marker assisted selection approach would not work.
- Instead the traits are influenced by many genes with small effects – therefore genomic selection, based on genomic breeding values, will be a possible approach in breeding for breech flystrike resistance.
- Need more animals to improve accuracy – virtual reference flock?

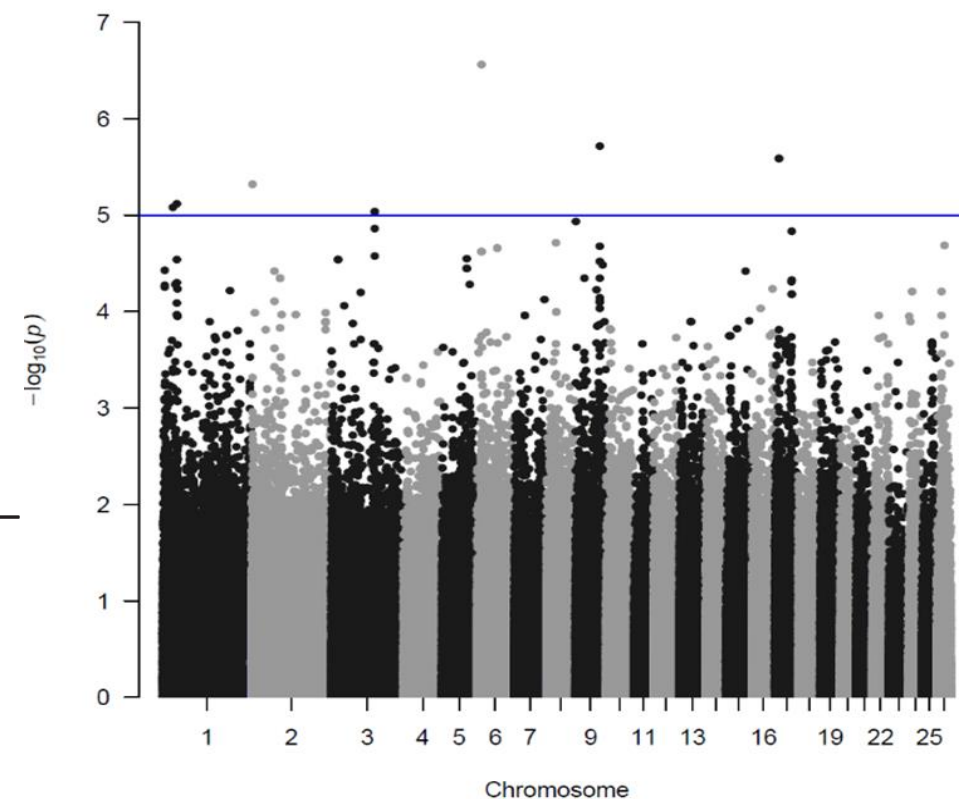
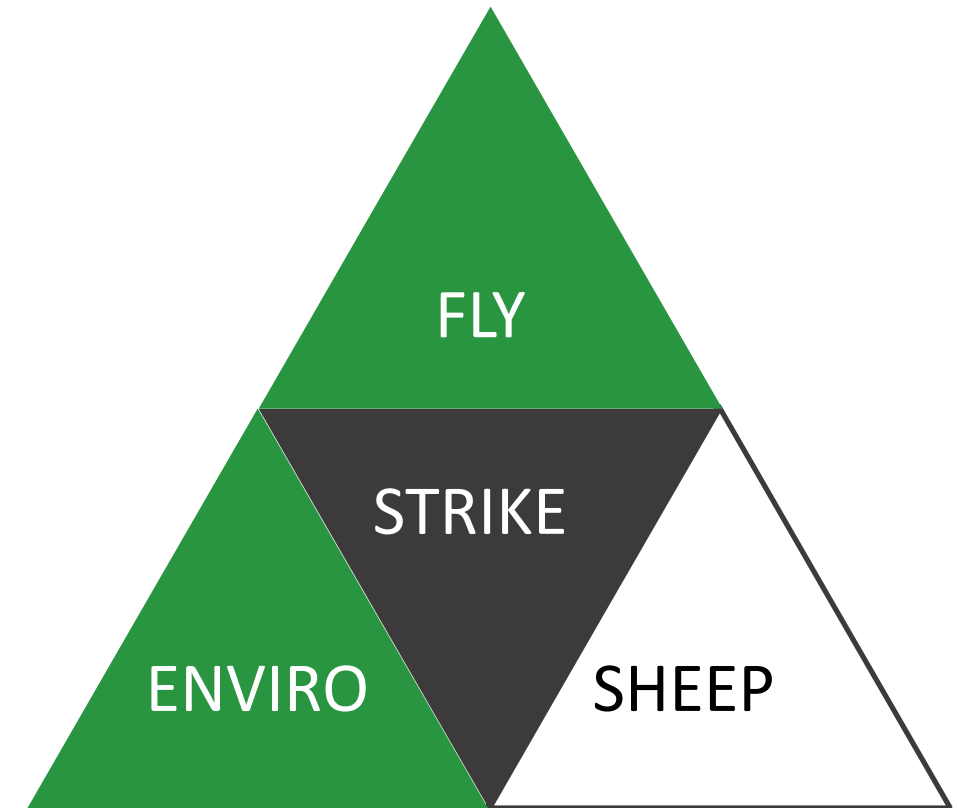
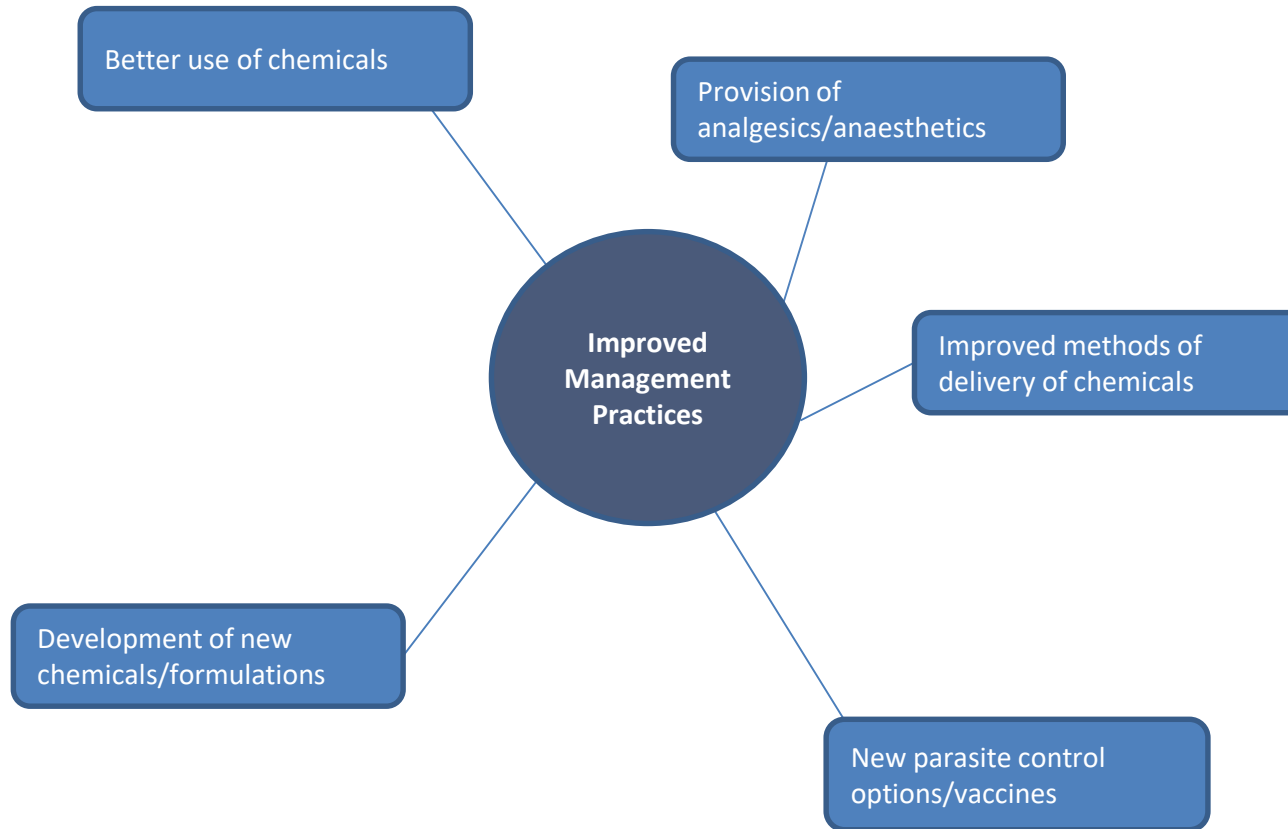
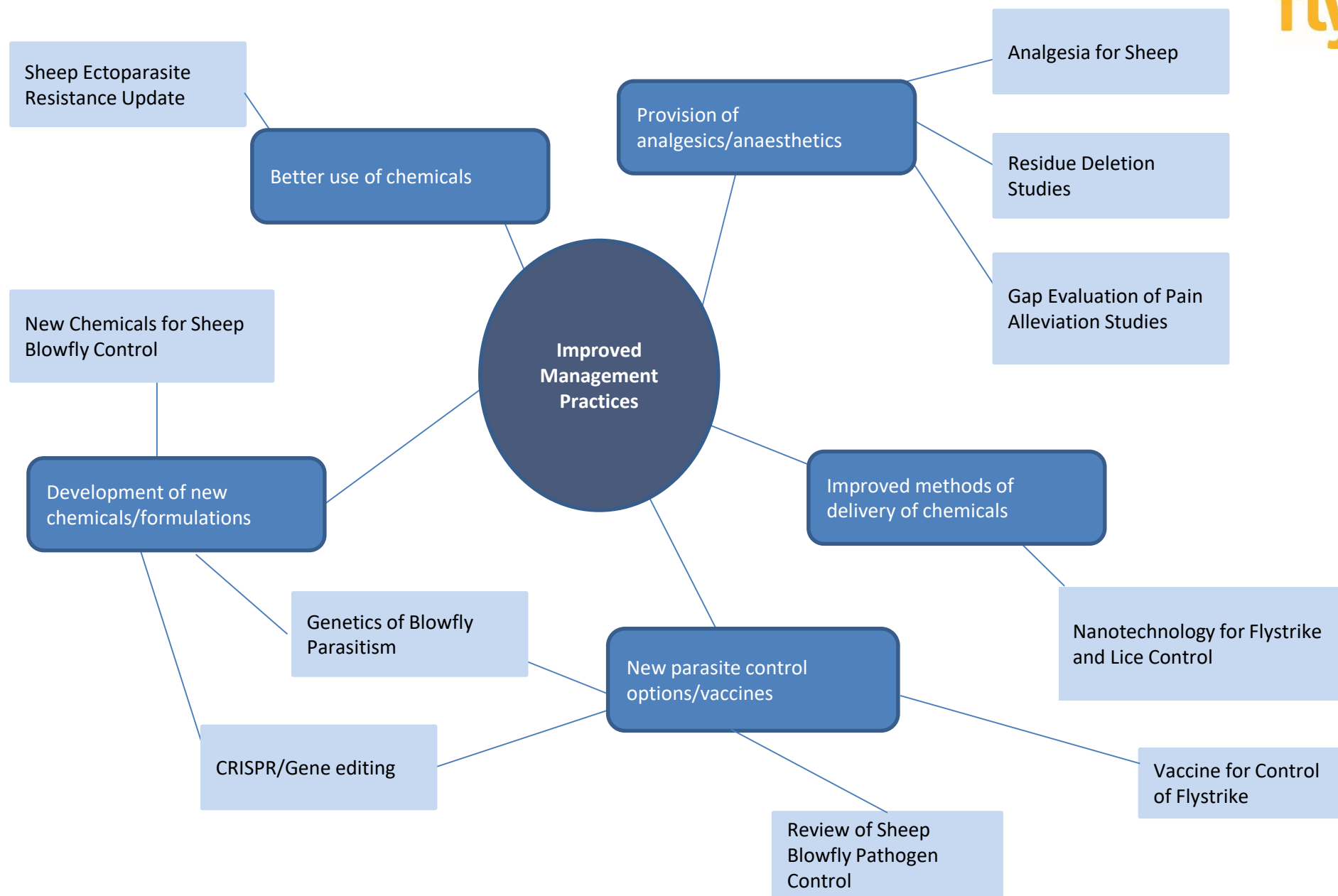


Figure 1: Results of genome-wide association study for breech flystrike. Blue line indicating the chromosome-wide significance threshold.



IMPROVED MANAGEMENT PRACTICES





ANALGESICS AND ANAESTHETICS

% of growers choosing to mules with pain relief



AWI Merino Animal Husbandry Practices Survey 2017

Use of PR for mulesing by major wool growing states:

- Vic 94%
- SA 89%
- NSW 88%

WA 81%

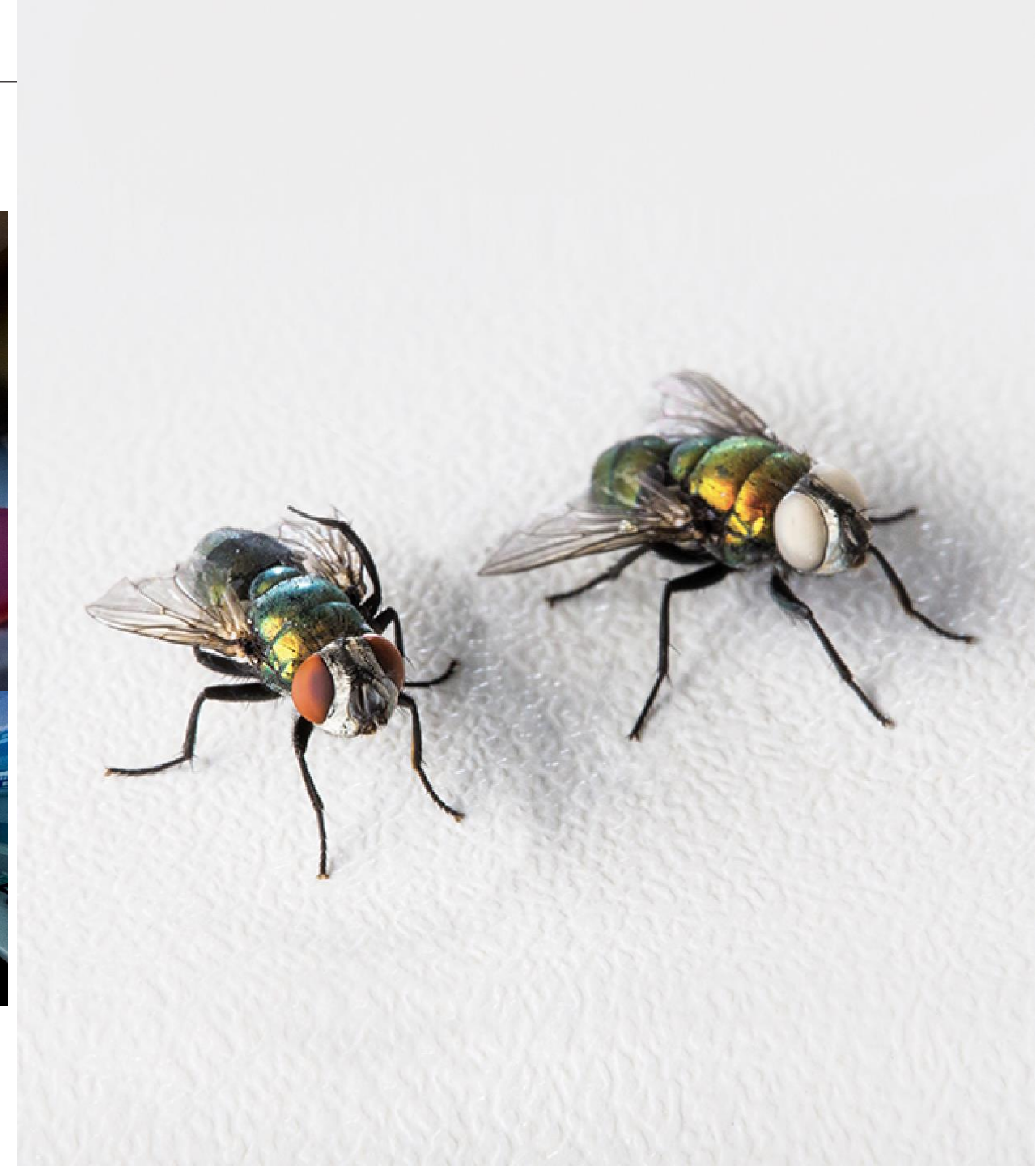
Wool Forecasting Survey, June 2019

BLOWFLY GENETICS

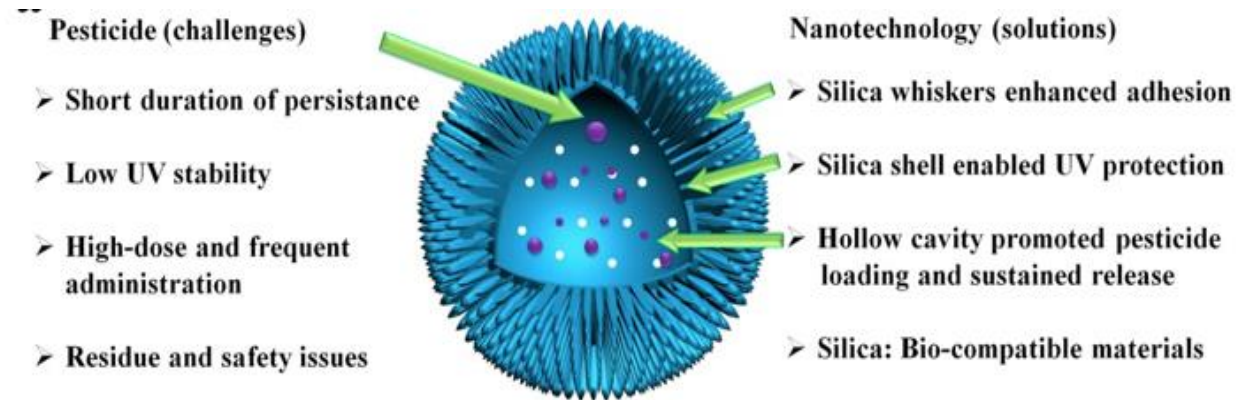
- Blowfly Genome
- CRISPR/Gene editing



Encouraging researchers to consider the Australian sheep blowfly as a model for work with other flies



NANOTECHNOLOGY



FLYSTRIKE VACCINE

AWI to invest \$2.5 million in sheep flystrike vaccine research



December 2018



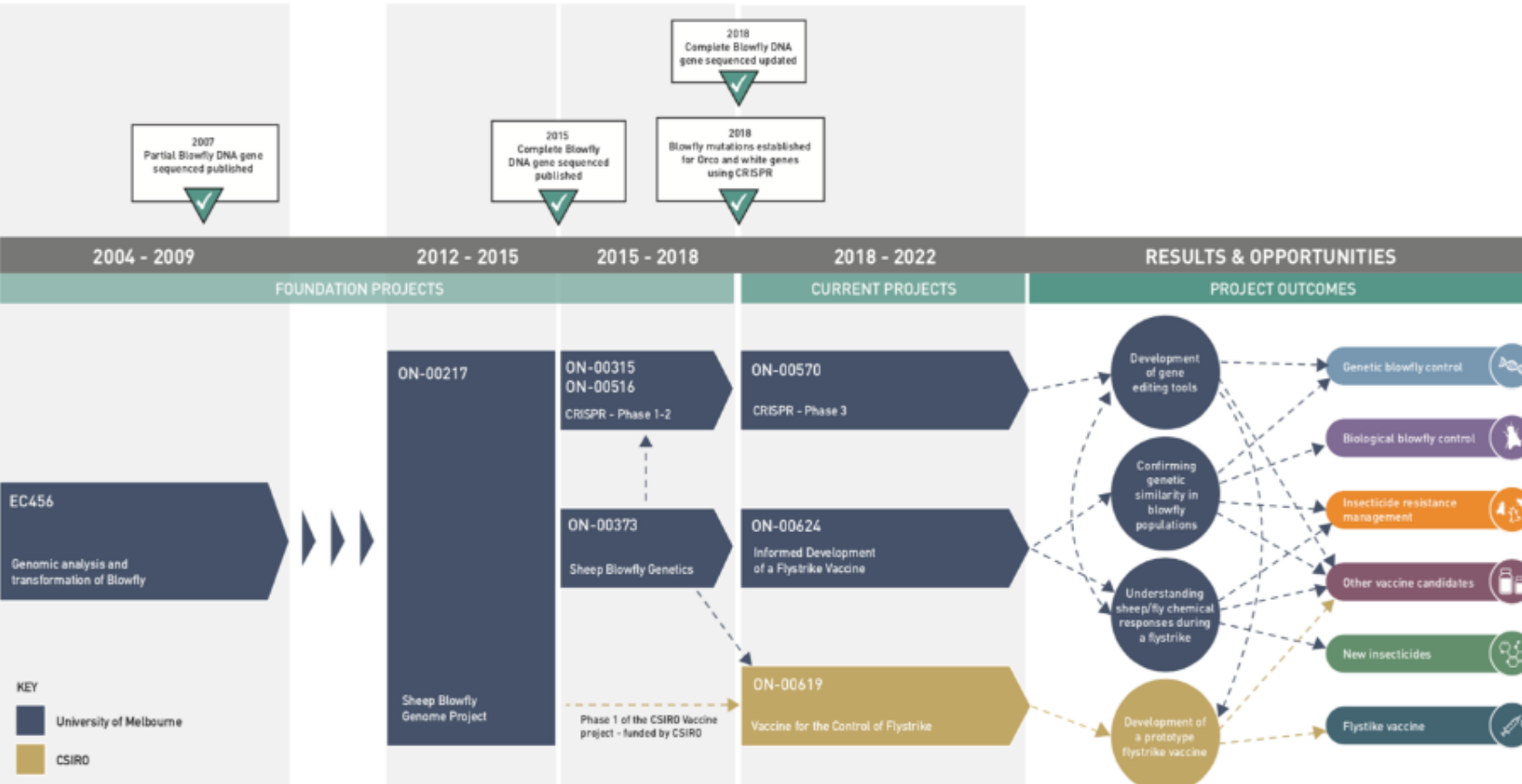
Melbourne researcher Dr Trent

AUSTRALIAN Wool Innovation will spend \$2.5 million over four years to research a flystrike vaccine for sheep, seen as a potential option to mulesing.

AWI today announced the investment and preliminary research into development of a flystrike vaccine targeting the Australian sheep blowfly as part of a collaboration with the University of Melbourne and CSIRO.

significant sheep health and welfare impacts and is estimated to cost industry more than \$173 million annually in management and lost

FLYSTRIKE VACCINE INVESTIGATION



FLIES AND MAGGOTS - SEND US YOUR BEST



This is your chance to get involved in Australian sheep blowfly research targeting insecticide resistance by submitting samples of maggots and/or flies during the upcoming flystrike season to two AWI funded collaborative projects.

CALLING ALL MAGGOTS!

FREE INSECTICIDE RESISTANCE TESTING available now!

Determine the most cost-effective blowfly treatment for your property.

This project aims to determine the insecticide resistance profiles of blowflies across all wool producing states.

By participating in this research and providing live maggot samples, you will receive test results for your property **which show the chemical groups that are most effective for your flock.**

Contact Narelle Sales at DPI NSW to request a postage paid maggot collection kit or for more information on how to get involved:

narelle.sales@dpi.nsw.gov.au OR (02) 4640 6446



Department of
Primary Industries

WE WANT YOUR FLIES!

WHY?

To contribute to a blowfly genetics project providing critical information for the future implementation of effective blowfly management control strategies, including containment of blowfly resistance outbreaks and development of a flystrike vaccine.

All you will need to do is collect the trapped blowflies at three different times, then simply send to University of Melbourne. **A fly trap, collection tubes and reply-paid post bags for the samples will be provided.**

Contact the University of Melbourne for more information on how to get involved:

blowfly-collection@unimelb.edu.au OR (03) 8344 2362



CALLING ALL MAGGOTS

- Contribute to a project to **determine insecticide resistance of blowflies** across all wool producing states
- Receive FREE test results specific to your property which show those **chemicals that most effective for your flock.**

STATE	NUMBER
NSW	30
Vic	9
WA	8
SA	6
QLD	0
TAS	0
	53

Still looking for samples
contact:

narelle.sales@dpi.nsw.gov.au

02) 4640 6446



RESISTANCE MANAGEMENT STRATEGY



RESISTANCE MANAGEMENT STRATEGY SUMMARY

1. Use an integrated approach to reduce reliance on insecticides.
2. Know your chemical groups.
3. Rotate chemical groups where practical.
4. Minimise the number of treatments applied in a season.
5. Consider treatments for other parasites, particularly lice treatments.
6. Apply insecticides carefully and strictly as specified on the label.
7. Monitor for flystrike frequently.
8. Collect and kill all maggots from fly struck sheep.



RESISTANCE MANAGEMENT STRATEGY FOR THE AUSTRALIAN SHEEP BLOWFLY (LUCILIA CUPRINA)

KEY POINTS

- *Lucilia cuprina*, the Australian sheep blowfly, initiates most cases of flystrike on Australian sheep. Like all insect pests, it has the potential to develop resistance to insecticide treatments. Some Australian sheep producers have reported shorter protection periods than claimed on the label of the flystrike products they have used.
- Flystrike is estimated to annually cost the Australian sheep industry in excess of \$173 million in terms of production losses and prevention and treatment costs.
- Current control of flystrike relies heavily on insecticide treatments.
- *L. cuprina* has demonstrated a capacity to develop insecticide resistance to a variety of insecticide groups, reducing their effectiveness.
- There are only a limited number of insecticides registered against flystrike so increasing insecticide resistance will have a significant impact on the industry.
- There is an urgent need for sheep producers to strategically manage the use of insecticides to maximise flystrike control and to maintain the efficacy of available products on their property.

LUCILIA CUPRINA AND INSECTICIDE RESISTANCE

Lucilia cuprina, the Australian sheep blowfly, initiates most cases of flystrike on Australian sheep. Like all insect pests, it has the potential to develop resistance to insecticide treatments. Some Australian sheep producers have reported shorter protection periods than claimed on the label of the flystrike products they have used.

On investigation, some of these cases are the result of improper application or heavy rain following insecticide application, however in a number of cases the presence of resistance has been confirmed.

This is a timely reminder for sheep producers to implement resistance management strategies to maintain flystrike protection for their flocks and slow the development of resistance within their local fly populations.

HOW DOES RESISTANCE OCCUR?

Resistance is the decreased susceptibility of a pest population to a pesticide that was previously effective at controlling the pest. Pests evolve resistance to pesticides by a process of natural selection. When exposed to a pesticide, the most resistant individuals survive and pass on resistance to their offspring.

With repeated exposure to the pesticide, particularly at inadequate levels, the resistant pests are favoured and their proportion in the population may increase. Eventually, there can be enough resistant pests in a population that the pest is controlled for only short periods or, ultimately, not at all.

WHY MANAGE SHEEP BLOWFLY RESISTANCE?

There are only a small number of chemical groups registered for flystrike control (see Table 1). It is important to prolong the useful life of these insecticides on your property for as long as possible.

Without access to effective preventative insecticide treatments to control flystrike, sheep producers would be reliant on continual surveillance of flocks followed by manually clipping and dressing of wounds.

Without effective treatments, struck sheep can suffer significant stress, production loss and possibly death. By implementing resistance management strategies, sheep producers can slow the development of resistance, which will help increase the effective life of registered insecticide products.

WE WANT YOUR FLIES



- 3 year project to undertake **population sampling of sheep blowflies**
- Undertake a **genetic analysis of the flies from the different locations**
- Assist with **planning responses to insecticide resistance threats**
- Help **inform the flystrike vaccine** project being conducted in collaboration with CSIRO
- Provide critical data to allow for the potential of **new blowfly population control strategies** to be accurately assessed.

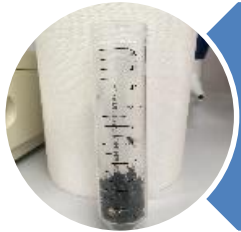


We need WA flies

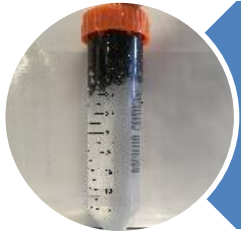
WE WANT YOUR FLIES



Screw trap to a fence post
near sheep



Put flies in tube (provided)
(kill with fly spray if
necessary)



Fill tube with non-toxic DNA
preservative solution
(provided)



Post back to UOM in prepaid
satchel (provided)

- Set up trap in paddock (~20 min)
- Clear trap of old flies 2 to 3 days prior
- Collect fresh flies from trap (~30 min)
 - If any are alive, spray regular fly spray into trap and leave a few minutes for flies to die
 - Tip flies into tube (provided)
 - Fill tube up with storage liquid (provided) and screw tightly shut to avoid leaks.
- Sit tubes in fridge until ready to post
- Three collections during the 2019/20 season (start, middle & end).

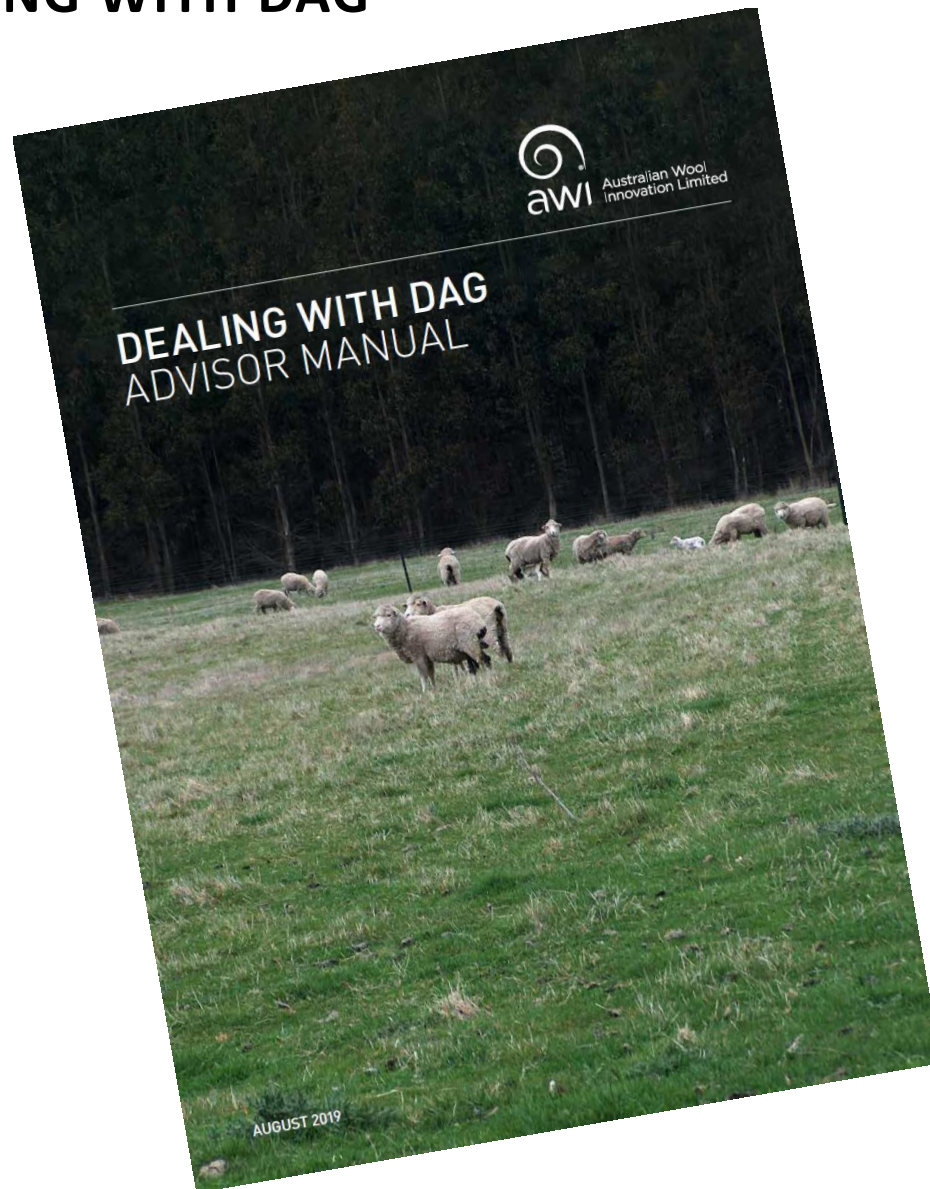


For more details please contact

–Trent Perry, Clare Anstead & Vern Bowles

Email: blowfly-collection@unimelb.edu.au

DEALING WITH DAG



DEALING WITH DAG



Scouring and dags are common, widespread and costly on Australian sheep properties. While often attributed to worm infection, there are many causes of scouring and consequent dag formation. Producers and advisors seeking more detail than provided here should consult the AWI-funded review of scouring and dags on Australian sheep properties (Dealing with Dag - Advisor Manual), which provides extensive information about diagnosing and dealing with the problem.

How widespread is the problem?

Dag severity varies across Australia, largely depending on local climate and seasonal factors. Worm-induced scouring is especially common in lambs, but on many farms in the high winter and uniform rainfall areas of south-eastern Australia, up to 40% of ewes have persistent scouring and severe dag from July to October, and over 60% have a substantial amount of soiled breech wool removed at crutching. In areas with pronounced Mediterranean climates, scouring and dag is less predictable. In the medium to high rainfall areas in southern Western Australia, typically, 5% of adult ewes are affected, but on some farms, up to 20% of ewes (and occasionally more) may scour.

What causes dag?

Dag forms when loose faeces sticks to the wool around the breech area. The consistency of sheep faeces varies from faecal pellets through to pasty or liquid diarrhoea (scouring). Pelleted faeces do not adhere to wool, and dag only accumulates when faeces are not in pelleted form. However, the factors that affect faecal consistency are complex and therefore not always easy to control.

FACTORS TO CONSIDER IN SCOURING SHEEP especially rainfall

- Region of Australia (environmental factors, especially rainfall)
- Age of the sheep
- Time of year
- Type of pasture
- Proportion of the flock affected

Why do dag and scouring matter?

Scouring and dag are a major risk factor for breech flystrike. Dag also imposes significant costs on producers through increased costs of crutching and decreased income from soiled wool. Based on January 2019 wool prices and 2018/19 recommended wages, these costs are estimated to be at least \$1.39 - \$2.46 per head in sheep with severe dag (a score of 3 or more on a scale of 0-5).

These costs may increase by at least 30-50% if producers stop mulesing in the absence of genetic selection for less breech wrinkle and decreased scouring, because unmulesed sheep can have up to twice as much dag and take from 30-100% longer to



Crutching costs, reduced fleece value and treatment costs associated with dag impact farm profitability. Preventing scouring and dag formation is also vital to sheep health and well-being, including decreasing their susceptibility to breech flystrike. (Source: J. Larsen)

crutch. However, many producers in high rainfall regions have ceased mulesing, so this is not a reason to continue mulesing. Post farm-gate, faecal soiling of fleeces can lead to microbial contamination of carcasses. This is associated with reduced productivity for sheep meat processors and reduced shelf life for meat products. Contaminated meat products are a risk to valuable export markets, and have potential public health impacts such as food poisoning outbreaks.

Won't drenching stop sheep scouring and getting dags?

High worm burdens are a risk factor for scouring and dag, but are not the only cause. While good on-farm worm treatment programs are an important aspect of dealing with dag and scouring, they are not the whole story.

What is the first step in dealing with daggy sheep?

The cause of scouring and dag formation needs to be identified. The first step in this process is to conduct a faecal worm egg count (WEC). Worm egg counts often provide an immediate answer to the role of parasites in scouring. Low counts (typically less than 100 eggs per gram of non-Barber's Pole worm) usually indicate that 'primary' parasitism is not the cause, although 'hypersensitivity scouring' remains a possibility in sheep that are old enough to have developed strong immunity to worms (see below). Moderate counts (200 - 300 eggs per gram) and counts over 500 eggs per gram in association with scouring usually indicate parasitism, though other causal factors should be considered. Consult a veterinarian or other animal health advisor to help interpret faecal worm egg count results and provide appropriate advice on management.

FREE DRENCH TESTS

Testing a new more sensitive method for drench tests

- Find out which chemicals are most effective on your property
- Current test = average 300 eggs per gram (low sensitivity)
- New test Mini-FLOTAC – validating 50 eggs per gram and 5 eggs per gram
 - improved welfare | improved productivity | better control
- WEC ASBV currently – all sheep in test mob must reach 300
- WEC ASBV hopefully – can test at 50 or 5 eggs per gram
 - ↑ accuracy
- Greater uptake of testing, more rams with WEC ASBV
 - ↓ eggs | ↓ larvae to re-infect | ↓ rate of infection |
↓ drenches | ↑ tolerance

WORMY SHEEP?



THEN YOU NEED A DRENCH TEST!

Dawbuts is looking for interested farmers to perform an AWI sponsored Drench Test in their sheep.

- NO COSTS for sample analysis!
- We can send you some single actives in small quantities for free (just pay freight)

If you, or anyone you know that may be interested, please contact the Dawbuts team!

(02) 4655 6464 | phil@dawbuts.com

www.dawbuts.com

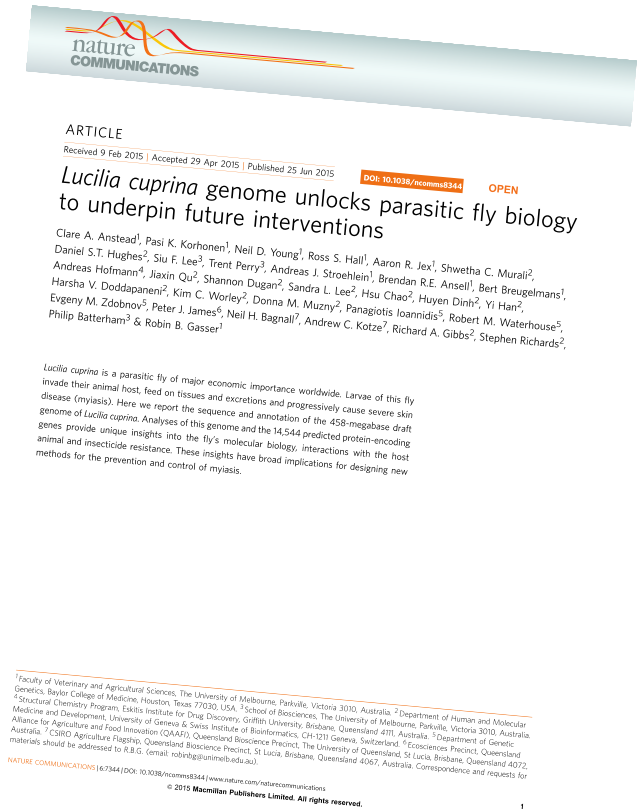
Dawbuts Pty LTD 2018




COMMUNICATING RESEARCH RESULTS


Engagement and Feedback occurs with a wide range and number of stakeholders


- Brokers Exporter and Processors
- Domestic & International Retailers
- International Woolgrower Orgs
- Domestic Governments
- International Governments
- Animal Welfare and Activist Groups (Annual Animal Welfare Forum)
- Breech Flystrike RD&E Forum/Researcher workshops and conferences
- Media
- Woolgrower Representative Organisations
- Australian Veterinary Association Independent Audit & Genetic Reviewers




MORE INFORMATION

 woolq.com for industry

 woolmark.com for textile trade




 wool.com for woolgrowers

 Australian Wool Innovation Limited

CONTACT US | SITEMAP

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AWI STORE



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WOOLGROWER TOOLS

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> On-Farm Research & Development > Sheep Health, Welfare & Productivity

SHEEP HEALTH, WELFARE & PRODUCTIVITY

SHEEP HEALTH

SHEEP NUTRITION

SHEEP BREEDING

PEST ANIMALS

LAMB SURVIVAL

AUSTRALIAN SHEEP WELFARE STANDARDS AND GUIDELINES


SMART TAGS

WOOL HARVESTING & QUALITY PREPARATION

PRODUCTION SYSTEMS & ECO CREDENTIALS


SHEEP HEALTH, WELFARE & PRODUCTIVITY

AWI invests in research and practical technologies to improve sheep health and welfare, and maintain cost and production efficiencies on profitable wool enterprises.




Sheep Health

AWI is at the forefront of research to prevent and treat flystrike, lice, worms and infectious diseases in sheep. Research is delivering practical tools to protect sheep from these major health and welfare threats.




Sheep Nutrition

AWI provides woolgrowers with new tools, information and skills to manage ewe nutrition and increase the number of lambs weaned across wool growing flocks.




Sheep Breeding

AWI supports sheep breeding research and development, benchmarking and breeder tools for woolgrowers wanting to monitor, set targets and optimise the rate of genetic gain of their sheep.




Pest Animals

AWI investments reduce sheep mortality from predation by wild dogs and foxes and competition for resources from rabbits, to rebuild woolgrowers' confidence to return to sheep or increase their flock size.



Lamb Survival

AWI provides woolgrowers with new tools, information and skills to increase the number of lambs weaned across wool growing flocks.




Australian Sheep Welfare Standards and Guidelines

The Australian State and Territory Ministers have endorsed the Australian Animal Welfare Standards and Guidelines for Sheep Version 1 January 2018

SUBSCRIBE TO AWI'S FREE E-NEWSLETTERS

Be informed of important news, events and action alerts

GO >



AWI grower networks

AWI's grower networks are fundamental to the spread of new ideas, continuing education and the adoption of best practice.

[Read more](#)

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- SHEEP HEALTH, WELFARE & PRODUCTIVITY ▾
- SHEEP HEALTH ▾
- BREECH FLYSTRIKE ▸
- FLIES
- LICE
- WORMS
- OTHER HUSBANDRY
- BIOSECURITY
- INSECTICIDE RESISTANCE
- SHEEP NUTRITION ▸
- SHEEP BREEDING ▸
- PEST ANIMALS ▸
- LAMB SURVIVAL ▸
- AUSTRALIAN SHEEP WELFARE STANDARDS AND GUIDELINES
- SMART TAGS
- WOOL HARVESTING & QUALITY PREPARATION ▸
- PRODUCTION SYSTEMS & ECO CREDENTIALS ▸

SHEEP HEALTH



Maintaining healthy, productive sheep for Australian woolgrowers is a foundation of AWI's long-term strategy. AWI is at the forefront of research to prevent and treat flystrike, lice, worms and infectious diseases in sheep. Research is delivering practical tools to protect sheep from these major health and welfare threats.

From uncovering better methods for tackling parasites through to managing plans to counter the threat of exotic emergency animal diseases, the adoption of new technologies and practices developed by AWI indicates our commitment to animal health.

Do you know what insecticides are effective against the blowflies and/or lice on your sheep?

Take advantage of **FREE** insecticide resistance testing, available now, to determine the most cost effective ecto-parasite treatments for your property.

This jointly funded AWI and NSW DPI project aims to determine the insecticide resistance profiles of blowflies and lice across all wool producing states. It is also gathering baseline data on newer chemicals for future reference. By participating in the research and providing maggot and/or lice samples, you'll receive feedback on which chemical groups are most effective for your flock.

For more information on how to submit [click here](#).



flyboss **liceboss**

Breec Flystrike

AWI has in place a proactive, intensive and committed flystrike prevention program.

Flies

FlyBoss is an online woolgrower tool developed by AWI, the Sheep CRC and industry partners, with the latest information on how to reduce the risk of flystrike through management and breeding, and how to treat flystrike outbreaks.

Lice

AWI tools for best practice lice control help minimise woolgrowers' costs and chemical use, and improve clip quality. New lice diagnostic tests and environmentally-friendly lousicides are in the pipeline.

wormboss



Worms

New AWI products and practices for managing worms and scouring are available to keep sheep healthy and productive. Woolgrowers can access all new information online at WormBoss.

Other Husbandry

AWI invests in new husbandry practices and the prevention and cure of important sheep diseases to improve sheep health and welfare outcomes, and increase on farm productivity, profit and sustainability.

Biosecurity

The Australian wool industry has a robust strategy to minimise the potential trade impacts on the industry if an outbreak of an Emergency Animal Disease was to occur in Australia.



Insecticide Resistance

Do you know what insecticides are effective against the blowflies and/or lice on your sheep?

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AWI grower networks

AWI's grower networks are fundamental to the spread of new ideas, continuing education and the adoption of best practice.

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BREECH FLYSTRIKE



AWI has in place a proactive, intensive and committed flystrike prevention program with long term and short term aims.

The ultimate long-term aim of the program is to **reduce** the reliance on mulesing. The more immediate or short term aim is to provide methods to **replace** or **refine** the practice of traditional mulesing with welfare-improved practices.

AWI supports all woolgrowers in their choice of best practice animal health and hygiene in flystrike control.

NON MULESED OPERATIONS

AWI has interviewed 40 woolgrowers about their transition to a non-mulesed operation. A copy of the document "Planning to move to a non-mules Merino enterprise" is available [here](#).

Hear farmers speaking to farmers about their experience of protecting their flock against flystrike.

Download podcast



Latest Publications

View or download AWI's latest publications on breech flystrike prevention.



R&D Update

Presentations from the AWI National Wool Research and Development (R&D) Technical Updates on Breech Flystrike Prevention.



AWI's Approach

A historical overview of managing flystrike risk.

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LATEST PUBLICATIONS



AWI's latest publications on breech flystrike prevention. Click the links to view or download the publications in PDF format:

AWI Breech Flystrike Strategy Update

- [AWI Breech Flystrike Strategy 2017/18 – 2021/22 October 2017](#) (PDF 318Kb)
- [AWI RDE and Communications Strategy – Breech Flystrike Prevention Program September 2017](#) (PDF 64Kb).

General Update

- [Flystrike R&D update - Sept 2018 *Beyond the Bale* article](#) (PDF 2Mb)
- [Presentations from the July 2018 Breech Flystrike RD&E Update](#)
- [AWI Breech Strike RD&E Program – Improving Lifetime Welfare presentation \(November 2017\)](#) (PDF 4MB)
- [AWI Flystrike Prevention Program – Report Card September 2017](#) (PDF 52Kb)

Breeding

- [Project Final Report on Genotyping of Breech Flystrike Resource - Update - July 2019](#) (PDF 676Kb)
- [Low Wrinkle-High Fleece Weight - June 2019 *Beyond the Bale* article](#) (PDF 1Mb)
- [Genetically Reducing Breech Flystrike - June 2019 *Beyond the Bale* article](#) (PDF 653Kb)
- [Project Report - Rate of Genetic Gain in Reducing Breech Flystrike - Update June 2019](#) (PDF 3.2Mb)
- [Breeding lower wrinkle and dag June 2017 *Beyond the Bale* article](#) (PDF 100Kb)
- [DAFWA Breech Strike Resistance Newsletter Issue 7 - July 2017](#) (PDF 953Kb).
- [CSIRO Armidale Newsletter Issue 7 - November 2016](#) (PDF 1933Kb).
- [Industry Progress in Breeding for Breech Strike resistance.](#)

Improved Pain Relief

- [Numnuts numbs nuts \(and tails\)! - December 2018 *Beyond the Bale* article](#) (PDF 2.6Mb)
- [Pain relief research for mulesing - June 2018 *Beyond the Bale* article](#) (PDF 668Kb)
- [Observed benefits of using Buccalgesic® with Tri-Solifen® - June 2018 *Beyond the Bale* article](#) (PDF 739Kb)
- [Welfare assessments of analgesic options in female lambs for surgical mulesing and its alternatives \(May 2018\)](#) (PDF 1.8Mb)
- [Pain relief update - Buccalgesic® formally approved for mulesing December 2017 *Beyond the Bale* article](#) (PDF 487Kb)
- [Pain Relief - frequently asked questions March 2017 *Beyond the Bale* article](#) (PDF 101Kb)

Improved Management

- [Dealing with Dag – Advisor Manual - August 2019](#) (PDF 4Mb)
- [Insecticide Resistance Strategy to Maximise Flystrike Control - June 2019 *Beyond the Bale* article](#) (PDF 3Mb)
- [Flystrike Treatments during drought - March 2019 *Beyond the Bale* article](#) (PDF 1.4Mb)
- [Tail docking – don't cut it short - March 2019 *Beyond the Bale* article](#) (PDF 187Kb)
- [Manual - Managing Breech Flystrike - February 2019](#) (PDF 2.9Mb)
- [How well performing are your blowfly and lice treatments? - September 2018 *Beyond the Bale* article](#) (PDF 2.2 Mb)
- [Making the transition to a ceased mulesing flock - September 2018 *Beyond the Bale* article](#) (PDF 2.1Mb)
- [Tail length in unmulesed Australian Merino sheep - December 2012](#) (PDF 5.7Mb)

New control methods

- [Project Final Report – A Review of Sheep Blowfly Pathogen Control - August 2019](#) (PDF 354Kb)
- [Project Final Report on CRISPR Phase 3 – Developing gene knockout technology in the sheep blowfly - August 2019](#) (PDF 541Kb)
- [Final Project Summary Report – ON-00373 Genetics of Blowfly Parasitism November 2018](#) (PDF 2Mb)

Wool Market

- [Premiums and discounts for mulesing status - September 2018 *Beyond the Bale* article](#) (PDF 85Kb)

Case Studies

- [Planning for a non-mulesed Merino enterprise \(March 2018\)](#) (PDF 589Kb)

Surveys

- [2017 AWI Merino Health and Productivity Survey](#) (PDF 2.2 Mb)



AWI's Managing Breech Flystrike publication.

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Monitor and manage the welfare of your flock

Be vigilant about monitoring your flock for flystrike and managing insecticide treatment to protect your sheep.

THANK YOU

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