

AN INITIATIVE OF

*Making More From Sheep*

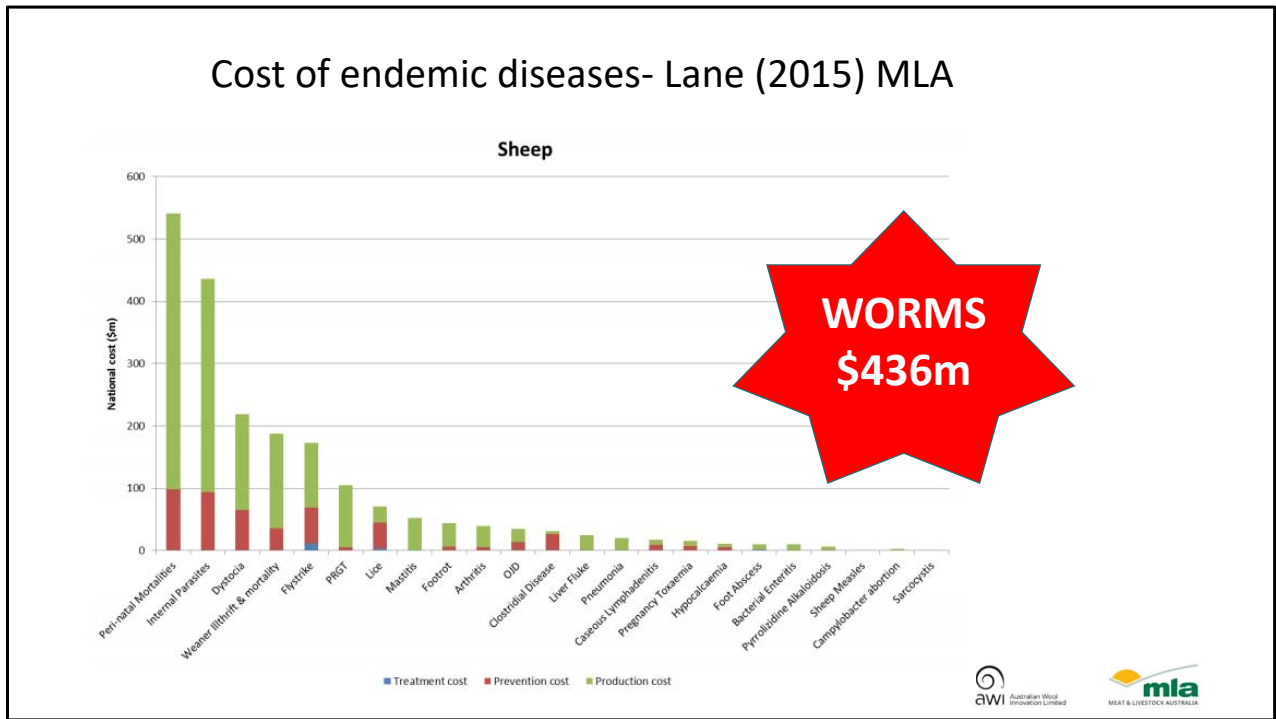


Your sheep health is your wealth

Matt Playford, Dawbuts Pty Ltd, Camden NSW



## Cost of endemic diseases- Lane (2015) MLA



Key point is that we are still not spending enough on worms i.e. cost of treatment far outweighed by cost of loss production.

## Cost of worms in sheep

1. Weight gain- decreased by 15% on average (adjusted)
  1. Raw figure 23% decrease
  2. Single species- *Haemonchus* 21%, *Teladorsagia* 19%, *Trichostrongylus* 22%
  3. Mixed species infection- 26% decrease
2. Wool growth- decreased by 10% on average
3. Lactation- decreased by 22% on average

Source: Mavrot et al. (2015) Meta-analysis, *Parasites & Vectors* 8:557





# 1. *Haemonchus*- barbers **pole worm**

Live in the abomasum, feed on the blood

Summer rainfall

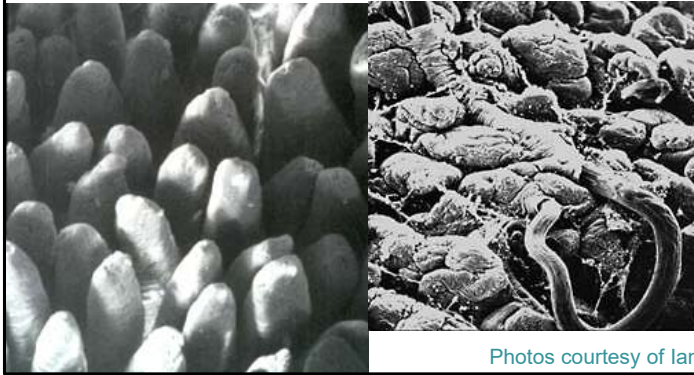
'barbers' pole' appearance

Lay up to 10,000 eggs/day



## 2. Black scour worm- *Trichostrongylus*

Lives in small intestine  
Causes damage to villi  
Appetite loss  
Malabsorption  
Scours



Photos courtesy of Ian Beveridge, (WormBoss)





### 3. Small brown stomach worm- *Teladorsagia*

Lives in the abomasum

Small in size (8-12mm)

Female can lay 200 eggs per day

Capable of living in a state of 'hypobiosis'



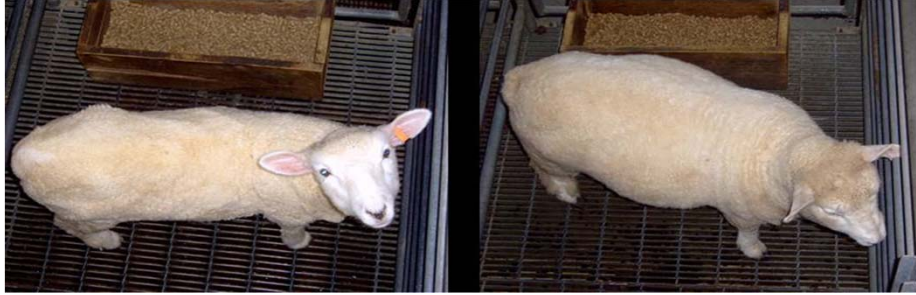
Australian Wool  
Innovation Limited



meat & livestock australia

# Parasite-Induced Anorexia

Corticosteroid treatment on lambs infected with 4000 *T. circumcincta* d<sup>-1</sup> at day 42 P.I. (Greer et al 2008 IJP 38, 1717-1728)



Infected

FEC 300epg  
VFI 0.45 kgDM/d  
DG -86g/d  
No. of worms = 9,000

Infected/Immunosuppressed

FEC 4000epg  
VFI 2.20 kgDM/d  
DG 400g/d  
No. of worms = 40,000





# Rise of worm egg output in single and multiple-bearing ewes

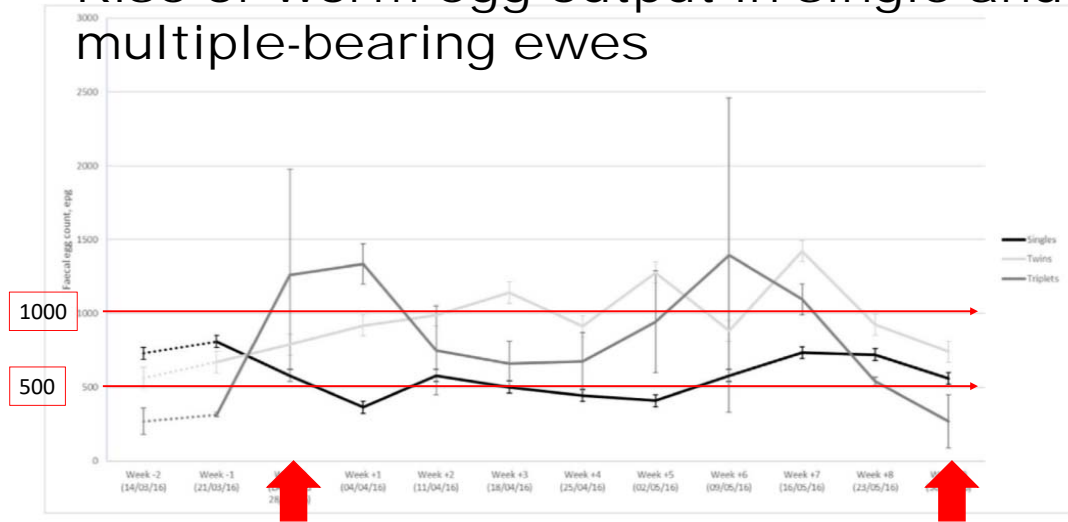


Fig. 1. Mean FEC ( ± SE) for ewes of different fecundities from 2 weeks prior to- until 9 weeks after- lambing.



## Dry ewes, singles and twinningers

1. Dry ewes should be monitored and may not need drenching

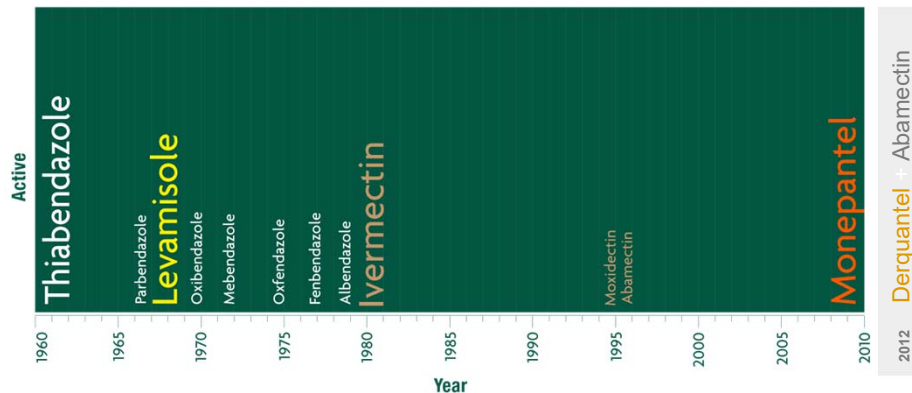
- TIP!- Run untreated dry ewes with lambs to increase 'refugia' and decrease worm resistance

2. Single ewes – pre-lambing drench if required

3. Twin-bearing ewes- pre-lambing drench (LA?) + feed supplements

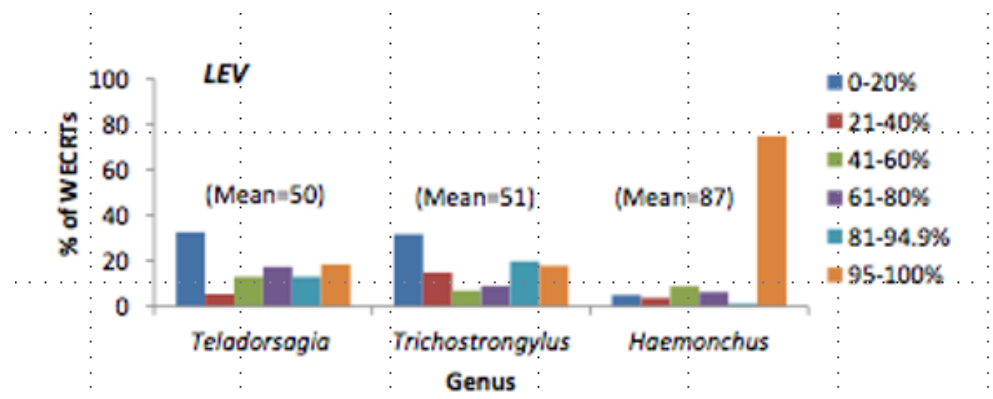


## Anthelmintics 1960-2017



Until now there have only been three broad spectrum anthelmintic classes: the BZ or whites, levamisole or clear and macrocyclic lactone or ML's. In the graph above each class is represented by a different colour. All actives within a class work in exactly the same way i.e. they have the same mode of action. That means when resistance develops to one active within a class the others will follow. This is what is known as side resistance. As you can see that the last new class of anthelmintic was launched in 1981 (globally) with the active ivermectin (Ivomec). The long delay shows two things: how difficult it is to get a new anthelmintic class to market and how important it is to make the best possible use of this long awaited opportunity.

## Efficacy of drenches against common worms of sheep



12



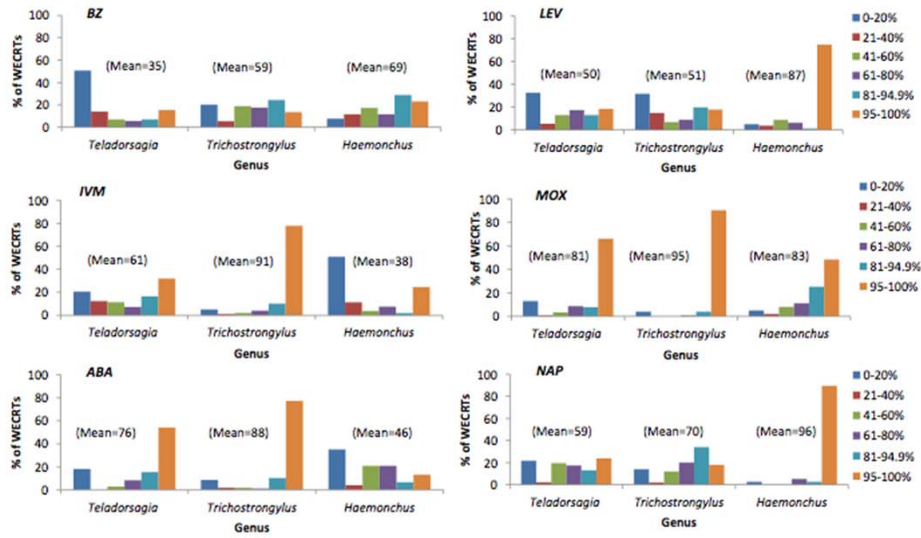


Figure 1: Range of efficacy (%) and mean efficacy (%) for BZ, LEV, IVM, MOX, ABA and NAP (all regions combined) by nematode genus.



1. Use **effective** drenches- (>95% efficacy)
2. Use **combination** drenches in preference to single active drenches and **short** instead of long-acting drenches.
3. **Monitor** worm egg counts and drench when necessary
4. Use **non-chemical means** of worm control such as paddock spelling, rotation, alternating with cattle, making hay
5. Feed sheep for **resilience** and select sheep for **resistance**
6. **Rotate** active ingredients (drench groups)





# Sheep lice- *Bovicola ovis*

Adults tiger stripes

Nymphs small & pale

Nits (eggs) white, attached to wool fibres



Source: WA Ag



Copyright CMM, 2000

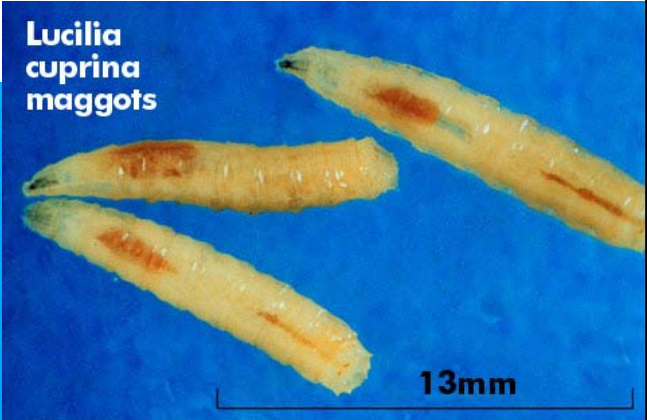
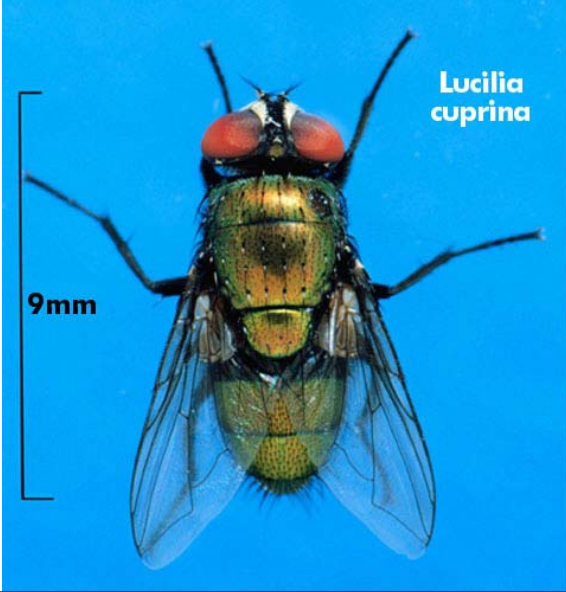








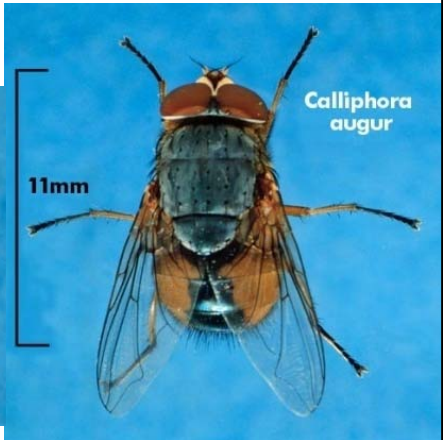
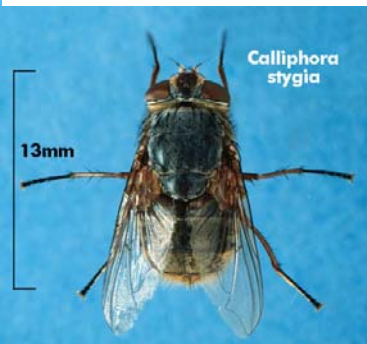
# Primary striker blowfly



The primary striker  
90% of flystrike in Australia  
Maggots 1mm, grow to 13mm

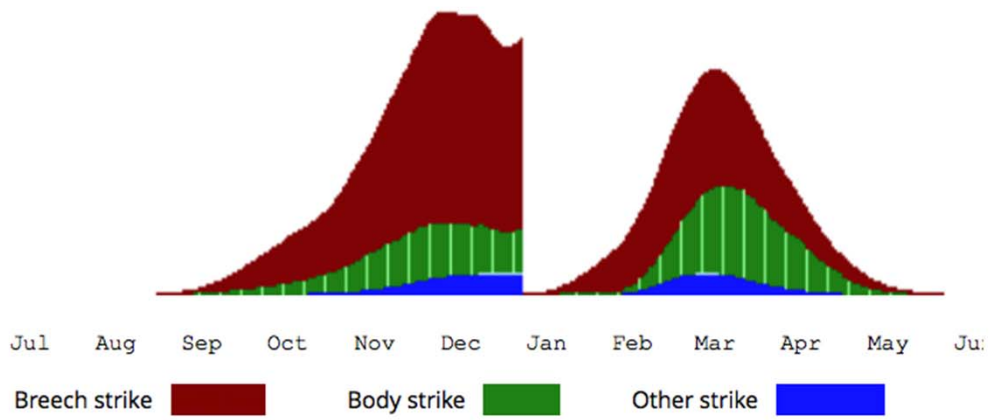


# Secondary strikers



# Flyboss tools- predict flystrike risk

Calculate





Chemical	Group	Effect	Duration	Comment
Cyromazine	IGR-Pyrimidine	Stops larval development Fly only	Long-acting	Spray on or jetting
Dicyclanil	IGR-Pyrimidine	Stops larval development Fly only	Ultra Long-acting	Spray on
Diflubenzuron/ Triflumuron	IGR-Diphenylurea	Stops larval development	Long-acting	Dip, Pour-On or jetting
Diazinon	OP-Organophosphate	Blocks acetyl choline esterase	Short-acting	Spot, spray-on (or dip)
Ivermectin	Macrocyclic Lactones	Knockdown	Long-acting	Jetting
Spinosad	Spinosyns	Knockdown	Short-acting	Dip, jetting
Alpha-cypermethrin	SP-Synthetic Pyrethroids	Knockdown	Medium-acting	Spray on long wool



# Australian Sheep Breeding Values (ASBVs)



ASBVs are available for all of the traits that matter to your back pocket.

70% of what a sheep looks like is what goes down its throat! That makes it a bit hard to work out which sheep are truly superior and will breed you the best lambs – ASBVs are a great tool to help work out which ram has the best genes to pass on to their progeny.

**What you see isn't necessarily what is passed on to your lambs...  
A ram's appearance is influenced by many factors:**



2

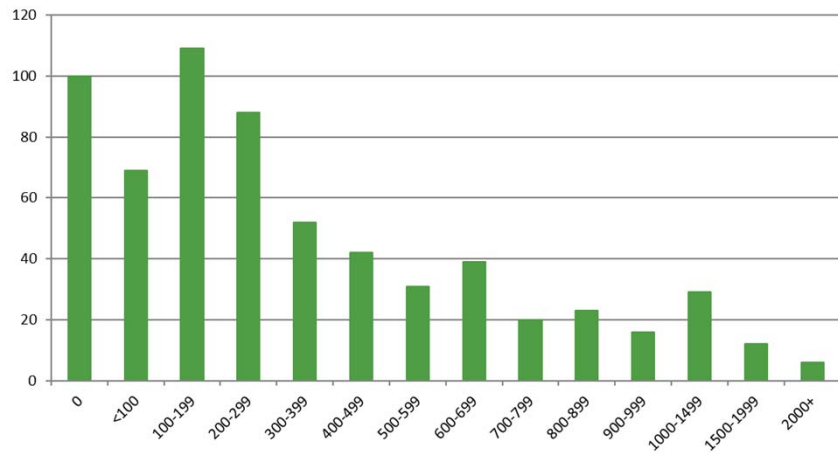
The table below shows the effects that age of dam and birth type can have on lamb weaning weight in pure Merinos.

	Weight of lamb at weaning	
	Born as single	Born as twin
<b>Maiden dam</b>	29kg	25kg
<b>Adult dam</b>	32kg	27kg

That shows a 7kg difference in weaning weight between a single lamb from an adult ewe compared with a twin born lamb from a maiden ewe – that difference is largely due to the amount of milk that was available to each lamb. This is known as an environmental effect and it will not breed on to the progeny. ASBVs provide a measure of the animal's genetic potential independent of environmental influences that can affect the physical appearance.

## WEC RANGE ACROSS A MOB OF 636 RAMS

Number of animals in each WEC range (avg. = 361, n = 636)



Australian Wool  
Innovation Limited



MEAT & LIVESTOCK AUSTRALIA

This slide shows Dawbut's data for 636 rams run together on one property and all tested on the same day.

Illustrates the wide variation of WECs and susceptibility to worms within one flock.

**RamSelect** [Home](#) [Learn More](#) [Ram Search](#) [Upcoming Sales](#) [Contact Us](#)

## Ram Search

Select: 50 Merino Rams With All Merino Types

### Set Breeding Objective

Index: Merino Production Plus (MP+)

Wool Quality Max Show ▾

Fleece Weight Heavier

Growth Max Show ▾

Carcase Max Show ▾

Weaning Percentage More lambs

Parasite Resistance Max Show ▾

**Set Filters**

No Active Filters Set

**Save Breeding Objective**

**Current Breeding Objective**

### Recommended Rams

Expand ASBVs Benchmark Top 20 Export to PDF Export To Excel

Refine Selection: All Catalogues All Studs All Sales

Rank	Lot	Animal ID	Stud	Catalogue
# 1	19	607516	CENTRE PLUS POLL	Private Treaty - July 2018
# 2	1	177290	MALLEETECH	Malleetech Poll Merino
# 3	53	177153	MALLEETECH	Malleetech Poll Merino
# 4	22	607620	CENTRE PLUS POLL	Private Treaty - July 2018
# 5	15	607432	CENTRE PLUS POLL	Private Treaty - July 2018
# 6	4	177449	MALLEETECH	Malleetech Poll Merino
# 7	10	177489	MALLEETECH	Malleetech Poll Merino
# 8	27	177481	MALLEETECH	Malleetech Poll Merino
# 9	18	607506	CENTRE PLUS POLL	Private Treaty - July 2018
# 10	3	177334	MALLEETECH	Malleetech Poll Merino
# 11	33	177356	MALLEETECH	Malleetech Poll Merino
# 12	2	177297	MALLEETECH	Malleetech Poll Merino
# 13	24	607697	CENTRE PLUS POLL	Private Treaty - July 2018

Australian Wool Producers Limited

MEAT & LIVESTOCK AUSTRALIA

# Analgesics



**Buccalgesic®** being applied to the internal cheek of a lamb during trials. **Buccalgesic®** has now been formally approved for **mulesing**, as well as castration and tail docking in lambs.



# Biosecurity

## Biosecurity Plan

**Sheep Health Statement**

**Market Assurance Plan**

**Ovine brucellosis-free Accredited Studs**

- 1.Lice**
- 2.Footrot**
- 3.Ovine Johne's disease**
- 4.Worms**
- 5.Brucellosis**





## RAMPING UP REPRO

### CHECKLIST FOR PRE-JOINING

Perform pre-joining checks 8 - 12 weeks prior to joining

Joining date: \_\_\_\_\_

Pre-joining ram check: \_\_\_\_\_

(2 - 3 months prior to joining date)

<input type="checkbox"/>	<b>Rams are in Condition Score 3.5</b>	consider feeding lupins to increase sperm production and output.
<input type="checkbox"/>	<b>Inspect general health and appearance</b>	check for lameness, cuts, sores or any sign of infection around the body, including the horns
	<b>teeth</b>	sound mouth
	<b>toes</b>	trim if need be
<input type="checkbox"/>	<b>Check 4 Ts</b>	check penis and prepuce for signs of inflammation or infection
	<b>tackle</b>	firm, springy, no lumps
	<b>testes</b>	scrotal circumference should be >28.5cm and adult rams >32cm scrotal mottle consult your semenman
<input type="checkbox"/>	<b>Shear rams 8 -12 weeks prior to joining to avoid sunburn, cuts, infection and susceptibility to heat as joining</b>	- apply effective lice control treatment - fly preventative treatment on poll and body
<input type="checkbox"/>	<b>Vaccination booster for clostridial disease up to date</b>	twice per year
<input type="checkbox"/>	<b>Drench with an effective drench</b>	
<input type="checkbox"/>	<b>Check number of rams available against requirements</b>	obtain replacements if need be ASAP to allow to acclimatise



## Quarantine drench

Zolvix Plus + Combi  
OR  
Startect + Combi

4 active ingredients  
including at least ONE  
of the new drenches  
(monepantel and  
derquantel)



28



# Footrot



## Footrot and specific strain vaccine

July 2017, Primefact 1535, first edition  
Animal Biosecurity and Welfare, NSW DPI

### What are specific strain footrot vaccines?

Specific strain footrot vaccine is a relatively new treatment for virulent footrot. Once footrot is diagnosed in a flock by a veterinarian, the specific strains of the footrot bacteria that are present in that flock of sheep can be identified using further testing. Once all of the individual strains present are known, a vaccine covering just those strains can be produced for use on that farm. More than one round of vaccination may be required if more than two footrot bacteria strains are found.

The initial results achieved using the new vaccine appear to be better than the old multivalent footrot vaccine when eradication of footrot is the objective.

### Development of the specific strain vaccine

In 2007 the University of Sydney began an industry funded research project to investigate the effectiveness of treating sheep for footrot using a custom made vaccine that targeted the exact strains of footrot bacteria identified in individual flocks.

Prior to this Australian sheep producers had been using an 'off the shelf' commercial multivalent vaccine for footrot control, but this product had been with some degree of



## Take home messages



1. Get animal health right – our industry's future relies on farmers taking care of animal health and welfare issues.
2. Worms cost each Australian sheep farmer about \$28,000/year (based on average figures) – mainly by slowing growth rates and depressing wool, lactation and reproductive performance.
3. Check for lice by restraining sheep with deranged wool, do 20 partings per side, treat all sheep with an effective chemical applied meticulously.
4. Talk to your vet about appropriate analgesic use – this includes for mulesing and lambmarking, as well as for other surgical procedures
5. Have a written biosecurity plan and check it regularly
6. Monitor each ewe mob's body condition score (BCS) at least 4 times per year, draft on BCS not age, and feed to maintain ideal score.
7. Vaccinate all lambs twice (at marking and weaning) and do annual vaccination of ewes to ensure protection from the common deadly diseases.

## Best practice indicators



1. **Only use effective drenches- (>95% efficacy). Test drenches to check their efficacy.**
2. **Use combination drenches in preference to single active drenches and short instead of long-acting drenches.**
3. **Monitor worm egg counts and drench when necessary – test every mob at least every two months**
4. **Use non-chemical means of worm control such as paddock spelling, rotation, alternating with cattle, making hay**
5. **Feed sheep for resilience and select sheep for resistance- using ASBV for WEC when choosing rams**
6. **Rotate active ingredients (drench groups)**
7. **Know the health risk of introduced stock including drench resistance status, OJD, vaccination status, lice and footrot status**
8. **Do ram inspections each year 12 weeks before joining date- cull rams with lumps in their reproductive organs and get your vet to blood test rams for brucellosis.**